PCTEST ENGINEERING LABORATORY, INC.
7185 Oakland Mills Road, Columbia, MD 21046 USA
Tel. +1.410.290.6652 / Fax +1.410.290.6654
http://www.pctestlab.com

SAR EVALUATION REPORT

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

Date of Testing:
03/06/17 – 03/13/17
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Document Serial No.:
1M1703080094-01.A3L

FCC ID: **A3LSMG955F**

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

DUT Type: Portable Handset
Application Type: Class II Permissive Change
FCC Rule Part(s): CFR §2.1093
Model: SM-G955F
Additional Model(s): SM-G955FD
Permissive Change(s): See FCC Change Document
Date of Original Certification: 03/09/17

Equipment Class	Band & Mode	Tx Frequency	SAR			
			1 gm Head (W/kg)	1 gm Body-Worn (W/kg)	1 gm Hotspot (W/kg)	10 gm Phablet (W/kg)
DTS	2.4 GHz WLAN	2412 - 2472 MHz	0.42	< 0.1	0.12	N/A
NII	U-NII-1	5180 - 5240 MHz	N/A	N/A	N/A	N/A
NII	U-NII-2A	5260 - 5320 MHz	0.41	0.21	N/A	1.48
NII	U-NII-2C	5500 - 5720 MHz	0.46	0.65	N/A	2.45
NII	U-NII-3	5745 - 5825 MHz	0.54	0.29	0.49	N/A
DSS/DTS	Bluetooth	2402 - 2480 MHz	<0.1	<0.1	<0.1	0.51
Simultaneous SAR per KDB 690783 D01v01r03:			1.49	1.55	1.59	3.76

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

Note: The table above shows Test data evaluated for the current test report. Please refer to RF Exposure Technical Report S/N 1M1701030007-01-R1.A3L for original compliance evaluation.

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 Manufacturers Forum (MMF). While a product may be considered eligible, use of the SAR Tick logo requires an agreement with the MMF. Further details can be obtained by emailing: sartick@mmfai.info.

TABLE OF CONTENTS

1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
GSM/GPRS/EDGE 850	Voice/Data	824.20 - 848.80 MHz
UMTS 850	Voice/Data	826.40 - 846.60 MHz
UMTS 1750	Voice/Data	1712.4 - 1752.6 MHz
GSM/GPRS/EDGE 1900	Voice/Data	1850.20 - 1909.80 MHz
UMTS 1900	Voice/Data	1852.4 - 1907.6 MHz
LTE Band 12	Voice/Data	699.7 - 715.3 MHz
LTE Band 17	Voice/Data	706.5 - 713.5 MHz
LTE Band 13	Voice/Data	779.5 - 784.5 MHz
LTE Band 26 (Cell)	Voice/Data	814.7 - 848.3 MHz
LTE Band 5 (Cell)	Voice/Data	824.7 - 848.3 MHz
LTE Band 66 (AWS)	Voice/Data	1710.7 - 1779.3 MHz
LTE Band 4 (AWS)	Voice/Data	1710.7 - 1754.3 MHz
LTE Band 25 (PCS)	Voice/Data	1850.7 - 1914.3 MHz
LTE Band 2 (PCS)	Voice/Data	1850.7 - 1909.3 MHz
LTE Band 41	Voice/Data	2498.5 - 2687.5 MHz
2.4 GHz WLAN	Voice/Data	2412 - 2472 MHz
U-NII-1	Voice/Data	5180 - 5240 MHz
U-NII-2A	Voice/Data	5260 - 5320 MHz
U-NII-2C	Voice/Data	5500 - 5720 MHz
U-NII-3	Voice/Data	5745 - 5825 MHz
Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz
MST	Data	555 Hz - 8.33 kHz
ANT+	Data	2402 - 2480 MHz

1.2 Power Reduction for SAR

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

1.3 Nominal and Maximum Output Power Specifications

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

1.3.1 Maximum Bluetooth and SISO and MIMO WLAN Power

Mode / Band		Modulated Average - Single Tx Chain (dBm)
IEEE 802.11b (2.4 GHz)	Maximum	**18.5**
	Nominal	**18.0**
IEEE 802.11g (2.4 GHz)	Maximum	**17.5**
	Nominal	**17.0**
IEEE 802.11n (2.4 GHz)	Maximum	**15.5**
	Nominal	**15.0**
Bluetooth	Maximum	**16.0**
	Nominal	**15.5**
Bluetooth (2 Mbps)	Maximum	**10.0**
	Nominal	**9.5**
Bluetooth (3 Mbps)	Maximum	**10.0**
	Nominal	**9.5**
Bluetooth LE	Maximum	**10.0**
	Nominal	**9.5**

Mode / Band		Modulated Average - MIMO (dBm)
IEEE 802.11g (2.4 GHz)	Maximum	**20.5**
	Nominal	**20.0**
IEEE 802.11n (2.4 GHz)	Maximum	**18.5**
	Nominal	**18.0**

2.4 GHz WLAN Channel 12 will operate with Single Tx target power of 2.5dBm.
2.4 GHz WLAN Channel 13 will operate with Single Tx target power of 0.25dBm.

Mode / Band		Modulated Average - Single Tx Chain (dBm)						
		20 MHz Bandwidth		40 MHz Bandwidth			80 MHz Bandwidth	
		CH 36-48	Ch 52 - 165	Ch 38-46	Ch 54-62	Ch 102 - 159	Ch 42, 58	Ch 106 - 155
IEEE 802.11a (5 GHz)	Maximum	**16.5**	**18.5**					
	Nominal	**16.0**	**18.0**					
IEEE 802.11n (5 GHz)	Maximum	**16.5**	**18.5**	**15.5**	**14.5**	**16.5**		
	Nominal	**16.0**	**18.0**	**15.0**	**14.0**	**16.0**		
IEEE 802.11ac (5 GHz)	Maximum	**16.5**	**18.5**	**15.5**	**14.5**	**16.5**	**14.5**	**15.5**
	Nominal	**16.0**	**18.0**	**15.0**	**14.0**	**16.0**	**14.0**	**15.0**

Mode / Band		Modulated Average - MIMO (dBm)						
		20 MHz Bandwidth		40 MHz Bandwidth			80 MHz Bandwidth	
		CH 36-48	Ch 52 - 165	Ch 38-46	Ch 54-62	Ch 102 - 159	Ch 42, 58	Ch 106 - 155
IEEE 802.11a (5 GHz)	Maximum	**19.5**	**21.5**					
	Nominal	**19.0**	**21.0**					
IEEE 802.11n (5 GHz)	Maximum	**19.5**	**21.5**	**18.5**	**17.5**	**19.5**		
	Nominal	**19.0**	**21.0**	**18.0**	**17.0**	**19.0**		
IEEE 802.11ac (5 GHz)	Maximum	**19.5**	**21.5**	**18.5**	**17.5**	**19.5**	**17.5**	**18.5**
	Nominal	**19.0**	**21.0**	**18.0**	**17.0**	**19.0**	**17.0**	**18.0**

1.3.2 Reduced SISO and MIMO WLAN power

Mode / Band		Modulated Average - Single Tx Chain (dBm)
IEEE 802.11b (2.4 GHz)	Maximum	**15.5**
	Nominal	**15.0**
IEEE 802.11g (2.4 GHz)	Maximum	**14.5**
	Nominal	**14.0**
IEEE 802.11n (2.4 GHz)	Maximum	**12.5**
	Nominal	**12.0**
Mode / Band		Modulated Average - MIMO (dBm)
IEEE 802.11g (2.4 GHz)	Maximum	**17.5**
	Nominal	**17.0**
IEEE 802.11n (2.4 GHz)	Maximum	**15.5**
	Nominal	**15.0**

2.4 GHz WLAN Channel 12 will operate with Single Tx target power of 2.5dBm.
2.4 GHz WLAN Channel 13 will operate with Single Tx target power of 0.25dBm.

Mode / Band		Modulated Average - Single Tx Chain (dBm)		
		20 MHz Bandwidth	40 MHz Bandwidth	80 MHz Bandwidth
IEEE 802.11a (5 GHz)	Maximum	**15.5**		
	Nominal	**15.0**		
IEEE 802.11n (5 GHz)	Maximum	**15.5**	**13.5**	
	Nominal	**15.0**	**13.0**	
IEEE 802.11ac (5 GHz)	Maximum	**15.5**	**13.5**	**12.5**
	Nominal	**15.0**	**13.0**	**12.0**
Mode / Band		Modulated Average - MIMO (dBm)		
		20 MHz Bandwidth	40 MHz Bandwidth	80 MHz Bandwidth
IEEE 802.11a (5 GHz)	Maximum	**18.5**		
	Nominal	**18.0**		
IEEE 802.11n (5 GHz)	Maximum	**18.5**	**16.5**	
	Nominal	**18.0**	**16.0**	
IEEE 802.11ac (5 GHz)	Maximum	**18.5**	**16.5**	**15.5**
	Nominal	**18.0**	**16.0**	**15.0**

1.3.3 Maximum Powers During Conditions with Simultaneous 2.4 GHz and 5 GHz WLAN

	# Tx	5 GHz WIFI [dBm]		2.4 GHz WIFI [dBm]		802.11 Modes
		Ant1	Ant2	Ant1	Ant2	
2.4 GHz + 5 GHz	2	A	-	-	B	2.4 GHz: b,g,n 5 GHz: a,n,ac
	2	-	A	B	-	
	2	A	-	B	-	
	2	-	A	-	B	
	3	A	A	B	-	2.4 GHz: b, g, n 5 GHz: n, ac, a (CDD + STBC only)
	3	A	A	-	B	
	3	A	-	B	B	2.4 GHz: n, g (CDD + STBC only) 5 GHz: a, n, ac
	3	-	A	B	B	
	4	A	A	B	B	2.4 GHz: n, g (CDD + STBC only) 5 GHz: n, ac, a (CDD + STBC only)

A = 12 dBm
B = 12 dBm
2.4 GHz WLAN Channel 12 will operate with Single Tx target power of 2.5dBm.
2.4 GHz WLAN Channel 13 will operate with Single Tx target power of 0.25dBm.
(Upper tolerance: target + 0.5 dB)

1.4 DUT Antenna Locations

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

Table 1-1
Device Edges/Sides for SAR Testing

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

Note: Particular DUT edges were not required to be evaluated for wireless router SAR or phablet SAR if the edges were greater than 2.5 cm from the transmitting antenna according to FCC KDB Publication 941225 D06v02r01 Section III and FCC KDB Publication 648474 D04v01r03. The distances between the transmit antennas and the edges of the device are included in the filing. When wireless router mode is enabled, U-NII-1, U-NII-2A, U-NII-2C operations are disabled. Therefore, U-NII-1, U-NII-2A, U-NII-2C operations are not considered in this section.

1.5 Near Field Communications (NFC) Antenna

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

1.6 Simultaneous Transmission Capabilities

According to FCC KDB Publication 447498 D01v06, transmitters are considered to be transmitting simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds. Possible transmission paths for the DUT are shown in Figure 1-1 and are color-coded to indicate communication modes which share the same path. Modes which share the same transmission path cannot transmit simultaneously with one another.

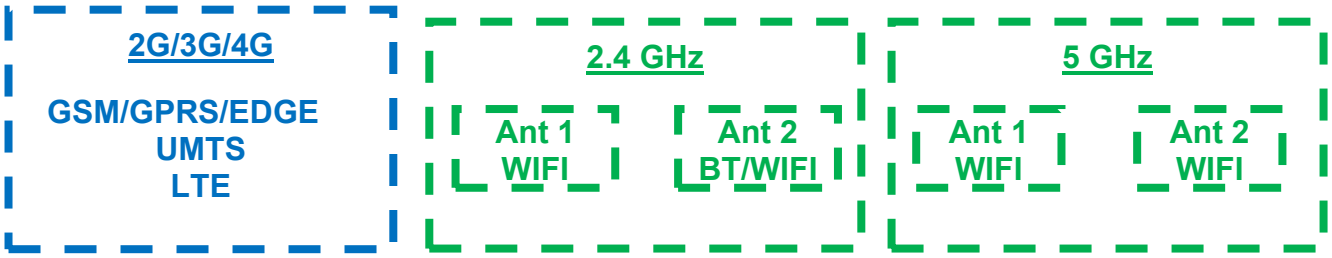


Figure 1-1
Simultaneous Transmission Paths

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

No.	Capable Transmit Configuration	Head	Body-Worn Accessory	Wireless Router	Phablet	Notes
1	GSM voice + 2.4 GHz WI-FI	Yes	Yes	N/A	Yes	
2	GSM voice + 5 GHz WI-FI	Yes	Yes	N/A	Yes	
3	GSM voice + 2.4 GHz Bluetooth	Yes *	Yes	N/A	Yes	*BT Tethering applications are considered
4	GSM voice + 2.4 GHz WI-FI MIMO	Yes	Yes	N/A	Yes	
5	GSM voice + 5 GHz WI-FI MIMO	Yes	Yes	N/A	Yes	
6	GSM voice + 2.4 GHz WI-FI + 5 GHz WI-FI	Yes	Yes	N/A	Yes	
7	GSM voice + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	Yes	Yes	N/A	Yes	
8	UMTS + 2.4 GHz WI-FI	Yes	Yes	Yes	Yes	
9	UMTS + 5 GHz WI-FI	Yes	Yes	Yes	Yes	
10	UMTS + 2.4 GHz Bluetooth	Yes*	Yes	Yes*	Yes	*BT Tethering applications are considered
11	UMTS + 2.4 GHz WI-FI MIMO	Yes	Yes	Yes	Yes	
12	UMTS + 5 GHz WI-FI MIMO	Yes	Yes	Yes	Yes	
13	UMTS + 2.4 GHz WI-FI + 5 GHz WI-FI	Yes	Yes	Yes	Yes	
14	UMTS + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	Yes	Yes	Yes	Yes	
15	LTE + 2.4 GHz WI-FI	Yes	Yes	Yes	Yes	
16	LTE + 5 GHz WI-FI	Yes	Yes	Yes	Yes	
17	LTE + 2.4 GHz Bluetooth	Yes*	Yes	Yes*	Yes	*BT Tethering applications are considered
18	LTE + 2.4 GHz WI-FI MIMO	Yes	Yes	Yes	Yes	
19	LTE + 5 GHz WI-FI MIMO	Yes	Yes	Yes	Yes	
20	LTE + 2.4 GHz WI-FI + 5 GHz WI-FI	Yes	Yes	Yes	Yes	
21	LTE + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	Yes	Yes	Yes	Yes	
22	GPRS/EDGE + 2.4 GHz WI-FI	N/A	N/A	Yes	Yes	
23	GPRS/EDGE + 5 GHz WI-FI	N/A	N/A	Yes	Yes	
24	GPRS/EDGE + 2.4 GHz Bluetooth	N/A	N/A	Yes*	Yes	*BT Tethering applications are considered
25	GPRS/EDGE + 2.4 GHz WI-FI MIMO	N/A	N/A	Yes	Yes	
26	GPRS/EDGE + 5 GHz WI-FI MIMO	N/A	N/A	Yes	Yes	
27	GPRS/EDGE + 2.4 GHz WI-FI + 5 GHz WI-FI	N/A	N/A	Yes	Yes	
28	GPRS/EDGE + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	N/A	N/A	Yes	Yes	

Table 1-2
Simultaneous Transmission Scenarios

1. This device supports 2x2 MIMO Tx for WLAN. 802.11a/g/n/ac supports CDD and STBC and 802.11n/ac additionally supports SDM.
2. All licensed modes share the same antenna path and cannot transmit simultaneously.
3. When the user utilizes multiple services in UMTS 3G mode it uses multi-Radio Access Bearer or multi-RAB. The power control is based on a physical control channel (Dedicated Physical Control Channel [DPCCH]) and power control will be adjusted to meet the needs of both services. Therefore, the UMTS+WLAN scenario also represents the UMTS Voice/DATA + WLAN Hotspot scenario.
4. Per the manufacturer, WIFI Direct is not expected to be used in conjunction with a held-to-ear or body-worn accessory voice call. Therefore, there are no simultaneous transmission scenarios involving WIFI direct beyond that listed in the above table.
5. 5 GHz Wireless Router is only supported for the U-NII-3 by S/W, therefore U-NII-1, U-NII2A, and U-NII2C were not evaluated for wireless router conditions.
6. This device supports Bluetooth tethering for EDR packet only
7. This device supports VOLTE.
8. This device supports VOWIFI

1.7 Miscellaneous SAR Test Considerations

(A) WIFI/BT

Since U-NII-1 maximum output power is less than U-NII-2A maximum output power and the highest reported SAR for U-NII-2A is less than 1.2 W/kg, SAR is not required for U-NII-1 band according to FCC KDB Publication 248227 D01v02r02.

Since Wireless Router operations are not allowed by the chipset firmware using U-NII-1, U-NII-2A & U-NII-2C WIFI, only 2.4 GHz and U-NII-3 WIFI Hotspot SAR tests and combinations are considered for SAR with respect to Wireless Router configurations according to FCC KDB 941225 D06v02r01.

This device supports IEEE 802.11ac with the following features:

a) Up to 80 MHz Bandwidth only
b) No aggregate channel configurations
c) 2 Tx antenna output
d) 256 QAM is supported
e) TDWR and Band gap channels are supported

Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" since the diagonal dimension is greater than 160mm and less than 200mm. Phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg. Because wireless router operations are not supported for U-NII-1, U-NII-2A & U-NII-2C WLAN, phablet SAR tests were performed. Phablet SAR was not evaluated for 2.4 GHz and U-NII-3 WLAN operations since wireless router 1g SAR was < 1.2 W/kg.

(B) Licensed Transmitter(s)

Since the permissive change was not applicable to the licensed transmitter(s), additional licensed SAR testing was not required. See RF Exposure Technical Report S/N 1M1701030007-01-R1.A3L for SAR compliance evaluation and complete RF conducted output power measurements and SAR test results.

1.8 Guidance Applied

- IEEE 1528-2013
- FCC KDB Publication 941225 D01v03r01, D05v02r04, D05Av01r02, D06v02r01 (Hotspot)
- FCC KDB Publication 248227 D01v02r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D01v06 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)
- FCC KDB Publication 648474 D04v01r03 (Phablet Procedures)

1.9 Device Serial Numbers

Several samples with identical hardware were used to support SAR testing. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units. Power level was configured for tested via software only available to the manufacturer (end user cannot control power level) per KDB 616217.

	Head Serial Number	Body-Worn Serial Number	Hotspot Serial Number	Phablet Serial Number
2.4 GHz WLAN	D21DD	D68ED	D68ED	-
5 GHz WLAN	D21DD	D21DD	D21DD	D21DD
Bluetooth	D68ED	D68ED	D68ED	D68ED

2 INTRODUCTION

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

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

2.1 SAR Definition

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

Equation 2-1
SAR Mathematical Equation

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

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

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

where:

σ = conductivity of the tissue-simulating material (S/m)
ρ = mass density of the tissue-simulating material (kg/m^3)
E = Total RMS electric field strength (V/m)

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

3 DOSIMETRIC ASSESSMENT

3.1 Measurement Procedure

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

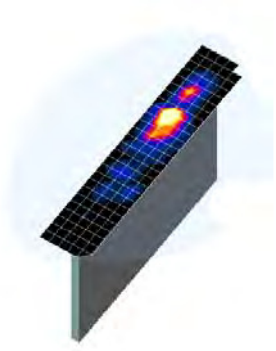


Figure 3-1
Sample SAR Area Scan

1. The SAR distribution at the exposed side of the head or body was measured at a distance no greater than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the device-head and body interface and the horizontal grid resolution was determined per FCC KDB Publication 865664 D01v01r04 (See Table 3-1) and IEEE 1528-2013.
2. The point SAR measurement was taken at the maximum SAR region determined from Step 1 to enable the monitoring of SAR fluctuations/drifts during the 1g/10g cube evaluation. SAR at this fixed point was measured and used as a reference value.
3. Based on the area scan data, the peak of the region with maximum SAR was determined by spline interpolation. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB Publication 865664 D01v01r04 (See Table 3-1) and IEEE 1528-2013. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (see references or the DASY manual online for more details):

   a. SAR values at the inner surface of the phantom are extrapolated from the measured values along the line away from the surface with spacing no greater than that in Table 3-1. The extrapolation was based on a least-squares algorithm. A polynomial of the fourth order was calculated through the points in the z-axis (normal to the phantom shell).

   b. After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the "Not a knot" condition (in x, y, and z directions). The volume was then integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were obtained through interpolation, in order to calculate the averaged SAR.

   c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.

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

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

*Also compliant to IEEE 1528-2013 Table 6

4 DEFINITION OF REFERENCE POINTS

4.1 EAR REFERENCE POINT

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

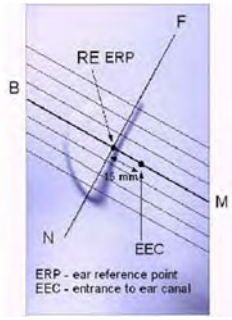


Figure 4-1
Close-Up Side view of ERP

4.2 HANDSET REFERENCE POINTS

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

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

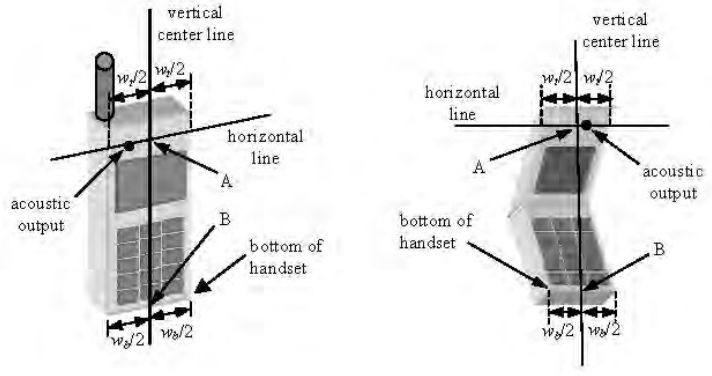


Figure 4-3
Handset Vertical Center & Horizontal Line Reference Points

5 TEST CONFIGURATION POSITIONS

5.1 Device Holder

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

5.2 Positioning for Cheek

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

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

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

5.3 Positioning for Ear / 15º Tilt

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

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

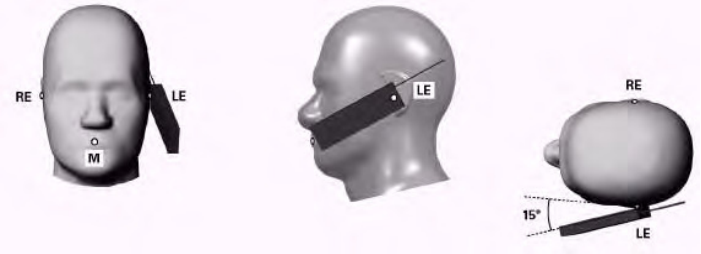


Figure 5-2 Front, Side and Top View of Ear/15º Tilt Position

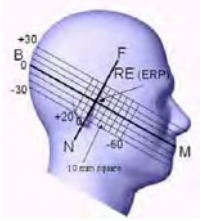


Figure 5-3
Side view w/ relevant markings

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

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

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

5.5 Body-Worn Accessory Configurations

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 5-4). Per FCC KDB Publication 648474 D04v01r03, Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB Publication 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

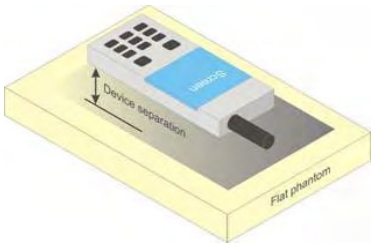


Figure 5-4
Sample Body-Worn Diagram

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

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

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

5.6 Extremity Exposure Configurations

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

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

5.7 Wireless Router Configurations

Some battery-operated handsets have the capability to transmit and receive user data through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06v02r01 where SAR test considerations for handsets (L x W ≥ 9 cm x 5 cm) are based on a composite test separation distance of 10 mm from the front, back and edges of the device containing transmitting antennas within 2.5 cm of their edges, determined from general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01v06 procedures. The "Portable Hotspot" feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

5.8 Phablet Configurations

For smart phones with a display diagonal dimension > 150 mm or an overall diagonal dimension > 160 mm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that

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

6 RF EXPOSURE LIMITS

6.1 Uncontrolled Environment

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

6.2 Controlled Environment

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

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

HUMAN EXPOSURE LIMITS		
	UNCONTROLLED ENVIRONMENT *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.

7 FCC MEASUREMENT PROCEDURES

7.1 Measured and Reported SAR

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

7.2 SAR Testing with 802.11 Transmitters

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

7.2.1 General Device Setup

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

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

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

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

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

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

7.2.4 Initial Test Position Procedure

For exposure conditions with multiple test positions, such as handset operating next to the ear, devices with hotspot mode or UMPC mini-tablet, procedures for initial test position can be applied. Using the transmission mode determined by the DSSS procedure or initial test configuration, area scans are measured for all positions in an exposure condition. The test position with the highest extrapolated (peak) SAR is used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg, no additional testing for the remaining test positions is required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured. When 10-g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

7.2.5 2.4 GHz SAR Test Requirements

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

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

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

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

7.2.6 OFDM Transmission Mode and SAR Test Channel Selection

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

7.2.7 Initial Test Configuration Procedure

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

When the reported SAR is ≤ 0.8 W/kg, no additional measurements on other test channels are required. Otherwise, SAR is evaluated using the subsequent highest average RF output channel until the reported SAR

result is ≤ 1.2 W/kg or all channels are measured. When there are multiple untested channels having the same subsequent highest average RF output power, the channel with higher frequency from the lowest 802.11 mode is considered for SAR measurements (See Section 7.2.6). When 10-g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

7.2.8 Subsequent Test Configuration Procedures

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

7.2.9 MIMO SAR considerations

Per KDB Publication 248227 D01v02r02, the simultaneous SAR provisions in KDB Publication 447498 D01v06 should be applied to determine simultaneous transmission SAR test exclusion for WIFI MIMO. If the sum of 1g single transmission chain SAR measurements is <1.6 W/kg, no additional SAR measurements for MIMO are required. Alternatively, SAR for MIMO can be measured with all antennas transmitting simultaneously at the specified maximum output power of MIMO operation. When 10-g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

8 RF CONDUCTED POWERS

8.1 WLAN Conducted Powers

Table 8-1
2.4 GHz WLAN Maximum Average RF Power – Antenna 1

Freq [MHz]	Channel	2.4GHz Conducted Power [dBm]		
		IEEE Transmission Mode		
		802.11b	802.11g	802.11n
2412	1	17.90	17.17	15.28
2437	6	17.91	16.94	15.07
2462	11	**18.03**	17.03	15.19

Table 8-2
2.4 GHz WLAN Maximum Average RF Power – Antenna 2

Freq [MHz]	Channel	2.4GHz Conducted Power [dBm]		
		IEEE Transmission Mode		
		802.11b	802.11g	802.11n
2412	1	**17.96**	17.05	14.89
2437	6	17.74	17.04	15.19
2462	11	17.63	16.96	14.92

Table 8-3
5 GHz WLAN Maximum Average RF Power – Antenna 1

Freq [MHz]	Channel	5GHz (20MHz) Conducted Power [dBm]		
		IEEE Transmission Mode		
		802.11a	802.11n	802.11ac
5180	36	16.23	16.29	16.28
5200	40	16.18	16.05	16.24
5220	44	15.90	16.35	16.29
5240	48	16.26	16.19	15.91
5260	52	18.08	18.11	18.14
5280	56	18.02	18.01	18.10
5300	60	18.02	18.12	18.05
5320	64	**18.08**	18.12	17.81
5500	100	**17.96**	17.91	17.79
5600	120	17.93	17.89	17.90
5620	124	17.87	17.63	17.85
5720	144	17.85	17.98	17.59
5745	149	**17.82**	17.57	17.73
5785	157	17.54	17.72	17.67
5825	165	17.64	17.59	17.72

Table 8-4
5 GHz WLAN Maximum Average RF Power – Antenna 2

Freq [MHz]	Channel	5GHz (20MHz) Conducted Power [dBm]		
		IEEE Transmission Mode		
		802.11a	802.11n	802.11ac
5180	36	16.17	16.11	16.17
5200	40	16.06	16.03	16.09
5220	44	15.97	15.98	15.97
5240	48	15.94	15.92	15.72
5260	52	18.27	18.24	18.25
5280	56	18.31	18.40	18.39
5300	60	**18.42**	18.27	18.15
5320	64	17.86	18.26	18.38
5500	100	17.95	17.53	17.66
5600	120	**17.95**	17.88	17.91
5620	124	17.92	17.90	17.92
5720	144	17.94	17.51	17.59
5745	149	17.12	17.89	17.97
5785	157	18.20	18.02	17.92
5825	165	**18.20**	18.19	18.13

Table 8-5
5 GHz WLAN 802.11n Maximum Average RF Power – MIMO

Freq [MHz]	Channel	5GHz (20MHz) Conducted Power [dBm]	
		ANT1	ANT2
5180	36	16.29	16.11
5200	40	16.05	16.03
5220	44	16.35	15.98
5240	48	16.19	15.92
5260	52	18.11	18.24
5280	56	18.01	18.40
5300	60	18.12	18.27
5320	64	18.12	18.26
5500	100	17.91	17.53
5600	120	17.89	17.88
5620	124	17.63	17.90
5720	144	17.98	17.51
5745	149	17.57	17.89
5785	157	17.72	18.02
5825	165	17.59	18.19

Table 8-6
2.4 GHz WLAN Reduced Average RF Power – Antenna 1

Freq [MHz]	Channel	2.4GHz Conducted Power [dBm]		
		IEEE Transmission Mode		
		802.11b	802.11g	802.11n
2412	1	**15.18**	13.89	11.78
2437	6	14.67	14.04	11.82
2462	11	14.68	14.25	12.02

Table 8-7
2.4 GHz WLAN Reduced Average RF Power – Antenna 2

Freq [MHz]	Channel	2.4GHz Conducted Power [dBm]		
		IEEE Transmission Mode		
		802.11b	802.11g	802.11n
2412	1	14.95	13.80	11.59
2437	6	**15.05**	13.51	11.45
2462	11	14.87	13.47	11.46

Table 8-8
5 GHz WLAN Reduced Average RF Power – Antenna 1

Freq [MHz]	Channel	5GHz (20MHz) Conducted Power [dBm]		
		IEEE Transmission Mode		
		802.11a	802.11n	802.11ac
5180	36	14.12	14.04	14.01
5200	40	14.11	14.10	14.15
5220	44	14.02	14.01	13.99
5240	48	14.10	14.00	14.02
5260	52	**15.13**	15.00	15.03
5280	56	14.98	14.89	14.86
5300	60	15.09	15.05	15.02
5320	64	15.03	15.15	15.10
5500	100	14.78	14.76	14.66
5600	120	14.62	14.60	14.54
5620	124	14.75	14.66	14.60
5720	144	**14.86**	14.73	14.89
5745	149	**14.57**	14.55	14.49
5785	157	14.51	14.44	14.49
5825	165	14.50	14.50	14.43

Table 8-9
5 GHz WLAN Reduced Average RF Power – Antenna 2

Freq [MHz]	Channel	5GHz (20MHz) Conducted Power [dBm]		
		IEEE Transmission Mode		
		802.11a	802.11n	802.11ac
5180	36	14.04	14.02	14.00
5200	40	14.11	14.15	14.11
5220	44	14.43	14.35	14.25
5240	48	14.24	14.11	14.10
5260	52	14.77	14.56	14.35
5280	56	14.98	14.89	14.77
5300	60	**15.44**	15.25	15.12
5320	64	15.30	15.15	15.07
5500	100	**15.34**	15.13	15.14
5600	120	15.26	15.16	15.17
5620	124	15.14	15.10	15.00
5720	144	14.74	14.73	14.89
5745	149	**15.31**	15.25	15.19
5785	157	14.83	14.80	14.85
5825	165	15.28	15.20	15.25

Table 8-10
Maximum Output Powers During Simultaneous MIMO Conditions with 2.4 GHz WLAN 802.11n and 5 GHz WLAN 802.11ac

Freq [MHz]	Channel	2.4GHz Conducted Power [dBm]	
		ANT1	ANT2
2412	1	11.77	11.22
2437	6	11.00	11.18
2462	11	11.08	11.12
Freq [MHz]	**Channel**	**5GHz (80MHz) Conducted Power [dBm]**	
		ANT1	**ANT2**
5210	42	11.88	11.43
5290	58	12.10	11.16
5530	106	11.78	10.73
5610	122	11.66	10.89
5690	138	11.92	10.94
5775	155	11.70	10.62

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

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

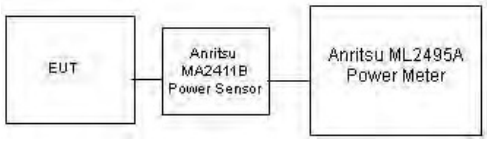


Figure 8-1
Power Measurement Setup for Bandwidths < 50 MHz

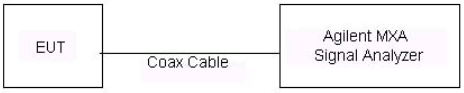


Figure 8-2
Power Measurement Setup for Bandwidths > 50 MHz

8.2 Bluetooth Conducted Powers

Table 8-11
Bluetooth Average RF Power

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Avg Conducted Power	
			[dBm]	[mW]
2402	1.0	0	14.16	26.032
2441	1.0	39	**15.60**	36.299
2480	1.0	78	14.54	28.464
2402	2.0	0	8.14	6.517
2441	2.0	39	9.50	8.917
2480	2.0	78	8.69	7.396
2402	3.0	0	7.97	6.262
2441	3.0	39	9.55	9.014
2480	3.0	78	8.77	7.538

Note: The bolded data rate and channel above were tested for SAR.

Figure 8-3
Bluetooth Transmission Plot

Equation 2
Bluetooth Duty Cycle Calculation

$$Duty\ Cycle = Pulse\frac{Width}{Period} * 100\% = \frac{2.881ms}{3.751ms} * 100\% = 76.8\%$$

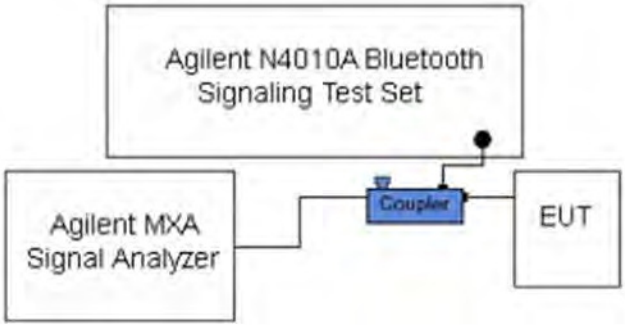


Figure 8-4
Power Measurement Setup

9 SYSTEM VERIFICATION

9.1 Tissue Verification

Table 9-1
Measured Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	%dev σ	%dev ε
3/6/2017	2450H	21.9	2400	1.795	38.923	1.756	39.289	2.22%	-0.93%
			2450	1.856	38.730	1.800	39.200	3.11%	-1.20%
			2500	1.910	38.538	1.855	39.136	2.96%	-1.53%
3/13/2017	5200H-5800H	21.5	5240	4.776	35.747	4.696	35.940	1.70%	-0.54%
			5260	4.776	35.722	4.717	35.917	1.25%	-0.54%
			5280	4.795	35.783	4.737	35.894	1.22%	-0.31%
			5300	4.816	35.706	4.758	35.871	1.22%	-0.46%
			5500	4.996	35.339	4.963	35.643	0.66%	-0.85%
			5600	5.144	35.182	5.065	35.529	1.56%	-0.98%
			5680	5.227	35.049	5.147	35.437	1.55%	-1.09%
			5700	5.241	35.065	5.168	35.414	1.41%	-0.99%
			5745	5.275	35.041	5.214	35.363	1.17%	-0.91%
			5765	5.327	34.910	5.234	35.340	1.78%	-1.22%
			5785	5.335	34.956	5.255	35.317	1.52%	-1.02%
3/13/2017	2450B	22.2	2400	1.954	52.778	1.902	52.767	2.73%	0.02%
			2450	2.027	52.649	1.950	52.700	3.95%	-0.10%
			2500	2.092	52.449	2.021	52.636	3.51%	-0.36%
03/13/2017	5200B-5800B	23.0	5240	5.467	47.907	5.346	48.960	2.26%	-2.15%
			5260	5.486	47.907	5.369	48.933	2.18%	-2.10%
			5280	5.502	47.854	5.393	48.906	2.02%	-2.15%
			5300	5.535	47.792	5.416	48.879	2.20%	-2.22%
			5320	5.548	47.761	5.439	48.851	2.00%	-2.23%
			5500	5.797	47.435	5.650	48.607	2.60%	-2.41%
			5600	5.917	47.298	5.766	48.471	2.62%	-2.42%
			5620	5.956	47.295	5.790	48.444	2.87%	-2.37%
			5680	6.016	47.214	5.860	48.363	2.66%	-2.38%
			5700	6.049	47.158	5.883	48.336	2.82%	-2.44%
			5745	6.116	47.106	5.936	48.275	3.03%	-2.42%
			5765	6.162	47.113	5.959	48.248	3.41%	-2.35%
			5785	6.180	47.055	5.982	48.220	3.31%	-2.42%
			5825	6.216	46.974	6.029	48.166	3.10%	-2.47%

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.

9.2 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 9-2
System Verification Results(1g)

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date:	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Dipole SN	Probe SN	Measured SAR_{1g} (W/kg)	1 W Target SAR_{1g} (W/kg)	1 W Normalized SAR_{1g} (W/kg)	$Deviation_{1g}$ (%)
G	2450	HEAD	03/06/2017	23.6	20.8	0.100	797	3287	5.320	52.100	53.200	2.11%
J	5250	HEAD	03/13/2017	20.2	19.9	0.050	1120	3914	3.930	83.200	78.600	-5.53%
J	5600	HEAD	03/13/2017	20.2	19.9	0.050	1120	3914	3.970	85.800	79.400	-7.46%
J	5750	HEAD	03/13/2017	20.2	19.9	0.050	1120	3914	4.050	81.800	81.000	-0.98%
E	2450	BODY	03/13/2017	22.5	22.0	0.100	981	7406	5.040	50.800	50.400	-0.79%
K	5250	BODY	03/13/2017	22.5	23.0	0.050	1237	7308	3.430	74.800	68.600	-8.29%
K	5600	BODY	03/13/2017	22.5	23.0	0.050	1237	7308	4.060	77.000	81.200	5.45%
K	5750	BODY	03/13/2017	22.5	23.0	0.050	1237	7308	3.450	75.400	69.000	-8.49%

Table 9-3
System Verification Results(10g)

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date:	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Dipole SN	Probe SN	Measured SAR_{10g} (W/kg)	1 W Target SAR_{10g} (W/kg)	1 W Normalized SAR_{10g} (W/kg)	$Deviation_{10g}$ (%)
E	2450	BODY	03/13/2017	22.5	22.0	0.100	981	7406	2.290	23.800	22.900	-3.78%
K	5250	BODY	03/13/2017	22.5	23.0	0.050	1237	7308	0.947	21.000	18.940	-9.81%
K	5600	BODY	03/13/2017	22.5	23.0	0.050	1237	7308	1.110	21.500	22.200	3.26%

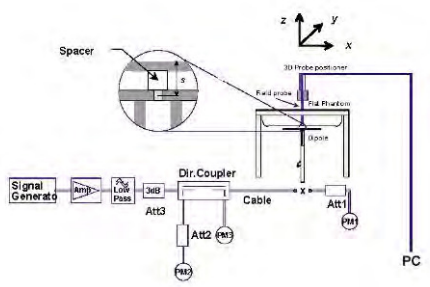


Figure 9-1
System Verification Setup Diagram

Figure 9-2
System Verification Setup Photo

10 SAR DATA SUMMARY

10.1 Standalone Head SAR Data

Table 10-1
DTS Head SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2412	1	802.11b	DSSS	22	15.5	15.18	0.12	Right	Cheek	1	D21DD	1	99.1	0.443	0.335	1.076	1.009	0.364	
2412	1	802.11b	DSSS	22	15.5	15.18	-0.15	Right	Tilt	1	D21DD	1	99.1	0.388	-	1.076	1.009	-	
2412	1	802.11b	DSSS	22	15.5	15.18	0.18	Left	Cheek	1	D21DD	1	99.1	0.145	-	1.076	1.009	-	
2412	1	802.11b	DSSS	22	15.5	15.18	0.14	Left	Tilt	1	D21DD	1	99.1	0.190	-	1.076	1.009	-	
2437	6	802.11b	DSSS	22	15.5	15.05	0.14	Right	Cheek	2	D21DD	1	99.0	0.371	0.373	1.109	1.010	**0.418**	A1
2437	6	802.11b	DSSS	22	15.5	15.05	0.12	Right	Tilt	2	D21DD	1	99.0	0.247	0.227	1.109	1.010	0.254	
2437	6	802.11b	DSSS	22	15.5	15.05	-0.11	Left	Cheek	2	D21DD	1	99.0	0.142	-	1.109	1.010	-	
2437	6	802.11b	DSSS	22	15.5	15.05	-0.01	Left	Tilt	2	D21DD	1	99.0	0.105	-	1.109	1.010	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram											

Table 10-2
DTS MIMO Operations with Simultaneous 2.4 GHz and 5 GHz WLAN Head SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm] (per Antenna)	Ant 1 Conducted Power [dBm]	Ant 2 Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
2412	1	802.11n	OFDM	20	12.5	11.77	11.22	0.12	Right	Cheek	MIMO	D21DD	13	96.9	0.303	0.246	1.343	1.032	0.341	
2412	1	802.11n	OFDM	20	12.5	11.77	11.22	-0.06	Right	Tilt	MIMO	D21DD	13	96.9	0.199	-	1.343	1.032	-	
2412	1	802.11n	OFDM	20	12.5	11.77	11.22	-0.12	Left	Cheek	MIMO	D21DD	13	96.9	0.093	-	1.343	1.032	-	
2412	1	802.11n	OFDM	20	12.5	11.77	11.22	-0.12	Left	Tilt	MIMO	D21DD	13	96.9	0.096	-	1.343	1.032	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram											

Note: DTS MIMO was additionally evaluated at the maximum allowed output power for operations with Simultaneous 2.4 GHz and 5 GHz WLAN. 5 GHz WLAN was not transmitting during the above evaluations.

Table 10-3
NII Head SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
5260	52	802.11a	OFDM	20	15.5	15.13	0.15	Right	Cheek	1	D21DD	6	98.5	0.626	0.269	1.089	1.015	0.297	
5260	52	802.11a	OFDM	20	15.5	15.13	0.18	Right	Tilt	1	D21DD	6	98.5	0.509	-	1.089	1.015	-	
5260	52	802.11a	OFDM	20	15.5	15.13	-0.05	Left	Cheek	1	D21DD	6	98.5	0.260	-	1.089	1.015	-	
5260	52	802.11a	OFDM	20	15.5	15.13	-0.19	Left	Tilt	1	D21DD	6	98.5	0.214	-	1.089	1.015	-	
5300	60	802.11a	OFDM	20	15.5	15.44	0.19	Right	Cheek	2	D21DD	6	98.5	0.528	0.394	1.014	1.015	0.406	
5300	60	802.11a	OFDM	20	15.5	15.44	0.14	Right	Tilt	2	D21DD	6	98.5	0.514	0.225	1.014	1.015	0.232	
5300	60	802.11a	OFDM	20	15.5	15.44	0.12	Left	Cheek	2	D21DD	6	98.5	0.308	-	1.014	1.015	-	
5300	60	802.11a	OFDM	20	15.5	15.44	0.14	Left	Tilt	2	D21DD	6	98.5	0.331	-	1.014	1.015	-	
5720	144	802.11a	OFDM	20	15.5	14.86	0.13	Right	Cheek	1	D21DD	6	98.5	0.963	0.351	1.159	1.015	0.413	
5720	144	802.11a	OFDM	20	15.5	14.86	0.13	Right	Tilt	1	D21DD	6	98.5	0.668	-	1.159	1.015	-	
5720	144	802.11a	OFDM	20	15.5	14.86	0.13	Left	Cheek	1	D21DD	6	98.5	1.066	0.393	1.159	1.015	0.462	
5720	144	802.11a	OFDM	20	15.5	14.86	-0.10	Left	Tilt	1	D21DD	6	98.5	0.326	-	1.159	1.015	-	
5500	100	802.11a	OFDM	20	15.5	15.34	0.12	Right	Cheek	2	D21DD	6	98.5	0.883	0.407	1.038	1.015	0.429	
5500	100	802.11a	OFDM	20	15.5	15.34	0.12	Right	Tilt	2	D21DD	6	98.5	0.520	0.249	1.038	1.015	0.262	
5500	100	802.11a	OFDM	20	15.5	15.34	0.12	Left	Cheek	2	D21DD	6	98.5	0.415	-	1.038	1.015	-	
5500	100	802.11a	OFDM	20	15.5	15.34	0.14	Left	Tilt	2	D21DD	6	98.5	0.427	-	1.038	1.015	-	
5745	149	802.11a	OFDM	20	15.5	14.57	0.09	Right	Cheek	1	D21DD	6	98.5	0.938	0.427	1.239	1.015	0.537	
5745	149	802.11a	OFDM	20	15.5	14.57	0.13	Right	Tilt	1	D21DD	6	98.5	0.652	-	1.239	1.015	-	
5745	149	802.11a	OFDM	20	15.5	14.57	0.12	Left	Cheek	1	D21DD	6	98.5	1.049	0.375	1.239	1.015	0.472	
5745	149	802.11a	OFDM	20	15.5	14.57	0.12	Left	Tilt	1	D21DD	6	98.5	0.541	-	1.239	1.015	-	
5745	149	802.11a	OFDM	20	15.5	15.31	0.16	Right	Cheek	2	D21DD	6	98.5	0.938	0.512	1.045	1.015	**0.543**	A2
5745	149	802.11a	OFDM	20	15.5	15.31	0.17	Right	Tilt	2	D21DD	6	98.5	0.553	0.348	1.045	1.015	0.369	
5745	149	802.11a	OFDM	20	15.5	15.31	0.11	Left	Cheek	2	D21DD	6	98.5	0.454	-	1.045	1.015	-	
5745	149	802.11a	OFDM	20	15.5	15.31	-0.16	Left	Tilt	2	D21DD	6	98.5	0.380	-	1.045	1.015	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram											

Table 10-4
NII MIMO Operations with Simultaneous 2.4 GHz and 5 GHz WLAN Head SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm] (per Antenna)	Ant 1 Conducted Power [dBm]	Ant 2 Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
5290	58	802.11ac	OFDM	80	12.5	12.10	11.16	0.14	Right	Cheek	MIMO	D21DD	58.5	90.6	0.328	0.173	1.361	1.104	0.260	
5290	58	802.11ac	OFDM	80	12.5	12.10	11.16	0.18	Right	Tilt	MIMO	D21DD	58.5	90.6	0.267	-	1.361	1.104	-	
5290	58	802.11ac	OFDM	80	12.5	12.10	11.16	0.17	Left	Cheek	MIMO	D21DD	58.5	90.6	0.158	-	1.361	1.104	-	
5290	58	802.11ac	OFDM	80	12.5	12.10	11.16	-0.10	Left	Tilt	MIMO	D21DD	58.5	90.6	0.113	-	1.361	1.104	-	
5690	138	802.11ac	OFDM	80	12.5	11.92	10.94	0.13	Right	Cheek	MIMO	D21DD	58.5	90.6	0.476	0.194	1.432	1.104	0.307	
5690	138	802.11ac	OFDM	80	12.5	11.92	10.94	0.12	Right	Tilt	MIMO	D21DD	58.5	90.6	0.308	-	1.432	1.104	-	
5690	138	802.11ac	OFDM	80	12.5	11.92	10.94	-0.12	Left	Cheek	MIMO	D21DD	58.5	90.6	0.440	-	1.432	1.104	-	
5690	138	802.11ac	OFDM	80	12.5	11.92	10.94	0.13	Left	Tilt	MIMO	D21DD	58.5	90.6	0.194	-	1.432	1.104	-	
5775	155	802.11ac	OFDM	80	12.5	11.70	10.62	0.16	Right	Cheek	MIMO	D21DD	58.5	90.6	0.587	0.261	1.542	1.104	0.444	
5775	155	802.11ac	OFDM	80	12.5	11.70	10.62	-0.11	Right	Tilt	MIMO	D21DD	58.5	90.6	0.443	-	1.542	1.104	-	
5775	155	802.11ac	OFDM	80	12.5	11.70	10.62	0.16	Left	Cheek	MIMO	D21DD	58.5	90.6	0.463	0.085	1.542	1.104	0.145	
5775	155	802.11ac	OFDM	80	12.5	11.70	10.62	0.01	Left	Tilt	MIMO	D21DD	58.5	90.6	0.286	-	1.542	1.104	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Head 1.6 W/kg (mW/g) averaged over 1 gram							

Note: NII MIMO was additionally evaluated at the maximum allowed output power for operations with Simultaneous 2.4 GHz and 5 GHz WLAN. 2.4 GHz WLAN was not transmitting during the above evaluations.

Table 10-5
DSS Head SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond. Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2441	39	Bluetooth	FHSS	10.0	9.50	0.16	Right	Cheek	D68ED	2	76.8	0.035	1.122	1.302	**0.051**	A3
2441	39	Bluetooth	FHSS	10.0	9.50	0.10	Right	Tilt	D68ED	2	76.8	0.020	1.122	1.302	0.029	
2441	39	Bluetooth	FHSS	10.0	9.50	0.16	Left	Cheek	D68ED	2	76.8	0.009	1.122	1.302	0.013	
2441	39	Bluetooth	FHSS	10.0	9.50	-0.15	Left	Tilt	D68ED	2	76.8	0.005	1.122	1.302	0.007	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**					**Head** **1.6 W/kg (mW/g)** averaged over 1 gram											

10.2 Standalone Body-Worn SAR Data

Table 10-6
DTS Body-Worn SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2462	11	802.11b	DSSS	22	18.5	18.03	0.18	15 mm	1	D68ED	1	back	99.1	0.061	0.045	1.114	1.009	**0.051**	A4
2412	1	802.11b	DSSS	22	18.5	17.96	0.11	15 mm	2	D68ED	1	back	99.0	0.056	0.040	1.132	1.010	0.046	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**						**Body** **1.6 W/kg (mW/g)** averaged over 1 gram													

Table 10-7
DTS MIMO Operations with Simultaneous 2.4 GHz and 5 GHz WLAN Body-Worn SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm] (per Antenna)	Ant 1 Conducted Power [dBm]	Ant 2 Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
2412	1	802.11n	OFDM	20	12.5	11.77	11.22	-0.02	15 mm	MIMO	D68ED	13	back	96.9	0.040	0.029	1.343	1.032	0.040	
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: DTS MIMO was additionally evaluated at the maximum allowed output power for operations with Simultaneous 2.4 GHz and 5 GHz WLAN. 5 GHz WLAN was not transmitting during the above evaluations.

Table 10-8
NII Body-Worn SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
5320	64	802.11a	OFDM	20	18.5	18.08	0.05	15 mm	1	D21DD	6	back	98.5	0.375	0.186	1.102	1.015	0.208	
5300	60	802.11a	OFDM	20	18.5	18.42	0.12	15 mm	2	D21DD	6	back	98.5	0.376	0.163	1.019	1.015	0.169	
5500	100	802.11a	OFDM	20	18.5	17.96	0.03	15 mm	1	D21DD	6	back	98.5	1.131	0.566	1.132	1.015	**0.650**	
5600	120	802.11a	OFDM	20	18.5	17.95	0.14	15 mm	2	D21DD	6	back	98.5	0.254	0.117	1.135	1.015	0.135	
5745	149	802.11a	OFDM	20	18.5	17.82	0.13	15 mm	1	D21DD	6	back	98.5	0.495	0.246	1.169	1.015	0.292	
5825	165	802.11a	OFDM	20	18.5	18.20	0.12	15 mm	2	D21DD	6	back	98.5	0.296	0.132	1.072	1.015	0.144	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram											

Table 10-9
NII MIMO Body-Worn SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm] (per Antenna)	Ant 1 Conducted Power [dBm]	Ant 2 Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
5280	56	802.11n	OFDM	20	18.5	18.01	18.40	0.07	15 mm	MIMO	D21DD	13	back	97.2	0.587	0.255	1.119	1.029	0.294	
5600	120	802.11n	OFDM	20	18.5	17.89	17.88	0.05	15 mm	MIMO	D21DD	13	back	97.2	1.449	0.582	1.153	1.029	0.691	A6
5825	165	802.11n	OFDM	20	18.5	17.59	18.19	-0.05	15 mm	MIMO	D21DD	13	back	97.2	0.568	0.262	1.233	1.029	0.332	
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: to achieve the 21.5 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 18.5 dBm

Table 10-10
NII MIMO Operations with Simultaneous 2.4 GHz and 5 GHz WLAN Body-Worn SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm] (per Antenna)	Ant 1 Conducted Power [dBm]	Ant 2 Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
5290	58	802.11ac	OFDM	80	12.5	12.10	11.16	-0.18	15 mm	MIMO	D21DD	58.5	back	90.6	0.189	0.096	1.361	1.104	0.144	
5690	138	802.11ac	OFDM	80	12.5	11.92	10.94	0.15	15 mm	MIMO	D21DD	58.5	back	90.6	0.306	0.134	1.432	1.104	0.212	
5775	155	802.11ac	OFDM	80	12.5	11.70	10.62	0.13	15 mm	MIMO	D21DD	58.5	back	90.6	0.266	0.116	1.542	1.104	0.197	
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: NII MIMO was additionally evaluated at the maximum allowed output power for operations with Simultaneous 2.4 GHz and 5 GHz WLAN. 2.4 GHz WLAN was not transmitting during the above evaluations.

Table 10-11
DSS Body-Worn SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond. Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2441	39	Bluetooth	FHSS	16.0	15.60	0.15	15 mm	D68ED	1	back	76.8	0.038	1.096	1.302	**0.054**	A8
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram									

10.3 Standalone Hotspot SAR Data

Table 10-12
WLAN Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2462	11	802.11b	DSSS	22	18.5	18.03	0.10	10 mm	1	D68ED	1	back	99.1	0.129	0.097	1.114	1.009	0.109	
2462	11	802.11b	DSSS	22	18.5	18.03	0.15	10 mm	1	D68ED	1	front	99.1	0.055	-	1.114	1.009	-	
2462	11	802.11b	DSSS	22	18.5	18.03	0.12	10 mm	1	D68ED	1	top	99.1	0.120	-	1.114	1.009	-	
2462	11	802.11b	DSSS	22	18.5	18.03	0.17	10 mm	1	D68ED	1	left	99.1	0.019	-	1.114	1.009	-	
2412	1	802.11b	DSSS	22	18.5	17.96	0.12	10 mm	2	D68ED	1	back	99.0	0.148	0.102	1.132	1.010	**0.117**	A5
2412	1	802.11b	DSSS	22	18.5	17.96	0.13	10 mm	2	D68ED	1	front	99.0	0.071	-	1.132	1.010	-	
2412	1	802.11b	DSSS	22	18.5	17.96	0.10	10 mm	2	D68ED	1	top	99.0	0.018	-	1.132	1.010	-	
2412	1	802.11b	DSSS	22	18.5	17.96	0.14	10 mm	2	D68ED	1	left	99.0	0.085	-	1.132	1.010	-	
5745	149	802.11a	OFDM	20	18.5	17.82	0.21	10 mm	1	D21DD	6	back	98.5	0.956	0.415	1.169	1.015	**0.492**	A7
5745	149	802.11a	OFDM	20	18.5	17.82	0.14	10 mm	1	D21DD	6	front	98.5	0.153	-	1.169	1.015	-	
5745	149	802.11a	OFDM	20	18.5	17.82	0.18	10 mm	1	D21DD	6	top	98.5	0.396	0.174	1.169	1.015	0.206	
5745	149	802.11a	OFDM	20	18.5	17.82	-0.18	10 mm	1	D21DD	6	left	98.5	0.064	-	1.169	1.015	-	
5825	165	802.11a	OFDM	20	18.5	18.20	-0.11	10 mm	2	D21DD	6	back	98.5	0.373	0.157	1.072	1.015	0.171	
5825	165	802.11a	OFDM	20	18.5	18.20	0.12	10 mm	2	D21DD	6	front	98.5	0.196	-	1.072	1.015	-	
5825	165	802.11a	OFDM	20	18.5	18.20	0.15	10 mm	2	D21DD	6	top	98.5	0.278	-	1.072	1.015	-	
5825	165	802.11a	OFDM	20	18.5	18.20	0.17	10 mm	2	D21DD	6	left	98.5	0.042	-	1.072	1.015	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram					

Table 10-13
NII MIMO Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm] (per Antenna)	Ant 1 Conducted Power [dBm]	Ant 2 Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
5825	165	802.11n	OFDM	20	18.5	17.59	18.19	0.04	10 mm	MIMO	D21DD	13	back	97.2	0.974	0.413	1.233	1.029	0.524	
5825	165	802.11n	OFDM	20	18.5	17.59	18.19	0.11	10 mm	MIMO	D21DD	13	front	97.2	0.319	-	1.233	1.029	-	
5825	165	802.11n	OFDM	20	18.5	17.59	18.19	0.18	10 mm	MIMO	D21DD	13	top	97.2	0.484	0.203	1.233	1.029	0.258	
5825	165	802.11n	OFDM	20	18.5	17.59	18.19	0.17	10 mm	MIMO	D21DD	13	left	97.2	0.093	-	1.233	1.029	-	
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: to achieve the 21.5 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 18.5 dBm

Table 10-14
WLAN MIMO Operations with Simultaneous 2.4 GHz and 5 GHz WLAN Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm] (per Antenna)	Ant 1 Conducted Power [dBm]	Ant 2 Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
2412	1	802.11n	OFDM	20	12.5	11.77	11.22	0.16	10 mm	MIMO	D68ED	13	back	96.9	0.104	0.078	1.343	1.032	0.108	
2412	1	802.11n	OFDM	20	12.5	11.77	11.22	0.10	10 mm	MIMO	D68ED	13	front	96.9	0.044	-	1.343	1.032	-	
2412	1	802.11n	OFDM	20	12.5	11.77	11.22	0.12	10 mm	MIMO	D68ED	13	top	96.9	0.068	-	1.343	1.032	-	
2412	1	802.11n	OFDM	20	12.5	11.77	11.22	0.13	10 mm	MIMO	D68ED	13	left	96.9	0.046	-	1.342	1.032	-	
5775	155	802.11ac	OFDM	80	12.5	11.70	10.62	0.04	10 mm	MIMO	D21DD	58.5	back	90.6	0.367	0.184	1.542	1.104	0.313	
5775	155	802.11ac	OFDM	80	12.5	11.70	10.62	0.16	10 mm	MIMO	D21DD	58.5	front	90.6	0.135	-	1.542	1.104	-	
5775	155	802.11ac	OFDM	80	12.5	11.70	10.62	-0.14	10 mm	MIMO	D21DD	58.5	top	90.6	0.225	-	1.542	1.104	-	
5775	155	802.11ac	OFDM	80	12.5	11.70	10.62	-0.16	10 mm	MIMO	D21DD	58.5	left	90.6	0.032	-	1.542	1.104	-	

ANSI / IEEE C95.1 1992 - SAFETY LIMIT	Body
Spatial Peak	1.6 W/kg (mW/g)
Uncontrolled Exposure/General Population	averaged over 1 gram

Note: DTS and NII MIMO were additionally evaluated at the maximum allowed output power for operations with Simultaneous 2.4 GHz and 5 GHz WLAN. 5 GHz WLAN was not transmitting during 2.4 GHz WLAN evaluations, and 2.4 GHz WLAN was not transmitting during 5 GHz WLAN evaluations.

Table 10-15
DSS Hotspot SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Device Serial Number	Data Rate (Mbps)	Spacing	Side	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond. Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2441	39	Bluetooth	FHSS	10.0	9.50	0.09	D68ED	2	10 mm	back	76.8	0.011	1.122	1.302	**0.016**	A9
2441	39	Bluetooth	FHSS	10.0	9.50	0.00	D68ED	2	10 mm	front	76.8	0.007	1.122	1.302	0.010	
2441	39	Bluetooth	FHSS	10.0	9.50	0.12	D68ED	2	10 mm	top	76.8	0.003	1.122	1.302	0.004	
2441	39	Bluetooth	FHSS	10.0	9.50	0.16	D68ED	2	10 mm	left	76.8	0.005	1.122	1.302	0.007	

ANSI / IEEE C95.1 1992 - SAFETY LIMIT	Body
Spatial Peak	1.6 W/kg (mW/g)
Uncontrolled Exposure/General Population	averaged over 1 gram

10.4 Standalone Phablet SAR Data

Table 10-16
WLAN Phablet SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
5320	64	802.11a	OFDM	20	18.5	18.08	-0.15	0 mm	1	D21DD	6	back	98.5	11.618	1.320	1.102	1.015	1.476	
5320	64	802.11a	OFDM	20	18.5	18.08	0.12	0 mm	1	D21DD	6	front	98.5	4.610	0.658	1.102	1.015	0.736	
5320	64	802.11a	OFDM	20	18.5	18.08	-0.13	0 mm	1	D21DD	6	top	98.5	2.960	-	1.102	1.015	-	
5320	64	802.11a	OFDM	20	18.5	18.08	0.17	0 mm	1	D21DD	6	left	98.5	0.134	-	1.102	1.015	-	
5300	60	802.11a	OFDM	20	18.5	18.42	0.03	0 mm	2	D21DD	6	back	98.5	7.232	1.080	1.019	1.015	1.117	
5300	60	802.11a	OFDM	20	18.5	18.42	0.03	0 mm	2	D21DD	6	front	98.5	5.217	0.490	1.019	1.015	0.507	
5300	60	802.11a	OFDM	20	18.5	18.42	0.20	0 mm	2	D21DD	6	top	98.5	1.717	-	1.019	1.015	-	
5300	60	802.11a	OFDM	20	18.5	18.42	0.11	0 mm	2	D21DD	6	left	98.5	0.477	-	1.019	1.015	-	
5500	100	802.11a	OFDM	20	18.5	17.96	0.12	0 mm	1	D21DD	6	back	98.5	19.250	2.130	1.132	1.015	**2.447**	A10
5600	120	802.11a	OFDM	20	18.5	17.93	0.11	0 mm	1	D21DD	6	back	98.5	23.824	1.850	1.140	1.015	2.141	
5500	100	802.11a	OFDM	20	18.5	17.96	0.12	0 mm	1	D21DD	6	front	98.5	7.549	0.800	1.132	1.015	0.919	
5500	100	802.11a	OFDM	20	18.5	17.96	0.12	0 mm	1	D21DD	6	top	98.5	4.748	-	1.132	1.015	-	
5500	100	802.11a	OFDM	20	18.5	17.96	-0.10	0 mm	1	D21DD	6	left	98.5	0.233	-	1.132	1.015	-	
5600	120	802.11a	OFDM	20	18.5	17.95	0.16	0 mm	2	D21DD	6	back	98.5	6.776	0.571	1.135	1.015	0.658	
5600	120	802.11a	OFDM	20	18.5	17.95	0.12	0 mm	2	D21DD	6	front	98.5	2.225	-	1.135	1.015	-	
5600	120	802.11a	OFDM	20	18.5	17.95	0.15	0 mm	2	D21DD	6	top	98.5	1.016	-	1.135	1.015	-	
5600	120	802.11a	OFDM	20	18.5	17.95	0.12	0 mm	2	D21DD	6	left	98.5	0.324	-	1.135	1.015	-	
5500	100	802.11a	OFDM	20	18.5	17.96	-0.12	0 mm	1	D21DD	6	back	98.5	22.324	2.030	1.132	1.015	2.332	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**														**Phablet** **4.0 W/kg (mW/g)** averaged over 10 grams					

Note: Blue entry represents variability data.

Table 10-17
WLAN MIMO Phablet SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Ant 1 Conducted Power [dBm]	Ant 2 Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
5280	56	802.11n	OFDM	20	18.5	18.01	18.40	0.14	0 mm	MIMO	D21DD	13	back	97.2	25.922	1.980	1.119	1.029	2.280	
5300	60	802.11n	OFDM	20	18.5	18.12	18.27	0.18	0 mm	MIMO	D21DD	13	back	97.2	22.789	2.110	1.091	1.029	2.369	
5280	56	802.11n	OFDM	20	18.5	18.01	18.40	0.18	0 mm	MIMO	D21DD	13	front	97.2	7.652	0.757	1.119	1.029	0.872	
5280	56	802.11n	OFDM	20	18.5	18.01	18.40	0.14	0 mm	MIMO	D21DD	13	top	97.2	2.396	-	1.119	1.029		
5280	56	802.11n	OFDM	20	18.5	18.01	18.40	0.13	0 mm	MIMO	D21DD	13	left	97.2	0.577	-	1.119	1.029		
5600	120	802.11n	OFDM	20	18.5	17.89	17.88	0.13	0 mm	MIMO	D21DD	13	back	97.2	13.895	2.030	1.153	1.029	2.408	
5620	124	802.11n	OFDM	20	18.5	17.63	17.90	0.17	0 mm	MIMO	D21DD	13	back	97.2	15.117	1.850	1.222	1.029	2.326	
5600	120	802.11n	OFDM	20	18.5	17.89	17.88	0.16	0 mm	MIMO	D21DD	13	front	97.2	9.846	1.010	1.153	1.029	1.198	
5600	120	802.11n	OFDM	20	18.5	17.89	17.88	0.15	0 mm	MIMO	D21DD	13	top	97.2	5.106	-	1.153	1.029	-	
5600	120	802.11n	OFDM	20	18.5	17.89	17.88	0.14	0 mm	MIMO	D21DD	13	left	97.2	0.704	-	1.153	1.029	-	
5300	60	802.11n	OFDM	20	18.5	18.12	18.27	0.10	0 mm	MIMO	D21DD	13	back	97.2	18.590	2.020	1.091	1.029	2.268	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**															**Phablet** **4.0 W/kg (mW/g)** averaged over 10 grams					

Note: Blue entry represents variability data.

Note: to achieve the 21.5 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 18.5 dBm

Table 10-18
DSS Phablet SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (10g) (W/kg)	Scaling Factor (Cond. Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g) (W/kg)	Plot #
MHz	Ch.															
2441	39	Bluetooth	FHSS	16.0	15.60	0.00	0 mm	D68ED	1	back	76.8	0.358	1.096	1.302	**0.511**	A11
2441	39	Bluetooth	FHSS	16.0	15.60	-0.04	0 mm	D68ED	1	front	76.8	0.260	1.096	1.302	0.371	
2441	39	Bluetooth	FHSS	16.0	15.60	0.19	0 mm	D68ED	1	top	76.8	0.036	1.096	1.302	0.051	
2441	39	Bluetooth	FHSS	16.0	15.60	-0.06	0 mm	D68ED	1	left	76.8	0.159	1.096	1.302	0.227	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**							**Phablet** **4.0 W/kg (mW/g)** averaged over 10 grams									

10.5 Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, and FCC KDB Publication 447498 D01v06.
2. Batteries are fully charged at the beginning of the SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.
6. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 15 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
7. Per FCC KDB Publication 648474 D04v01r03, body-worn SAR was evaluated without a headset connected to the device. Since the standalone reported body-worn SAR was ≤ 1.2 W/kg, no additional body-worn SAR evaluations using a headset cable were required.
8. Per FCC KDB 865664 D01v01r04, variability SAR tests were performed when the measured SAR results for a frequency band were greater than or equal to 0.8 W/kg for 1 g SAR and 2.0 W/kg for 10 g SAR. Repeated SAR measurements are highlighted in the tables above for clarity. Please see Section 12.1 for variability analysis.
9. During SAR Testing for the Wireless Router conditions per FCC KDB Publication 941225 D06v02r01, the actual Portable Hotspot operation (with actual simultaneous transmission of a transmitter with WIFI) was not activated (See Section 5.7 for more details).
10. Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" since the diagonal dimension is > 160 mm and < 200 mm. Therefore, phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg.

WLAN Notes:

1. For held-to-ear and hotspot operations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.
2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n) was not required due to

the maximum allowed powers and the highest reported DSSS SAR. See Section 7.2.5 for more information.

3. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5 GHz WIFI single transmission chain 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. See Section 7.2.6 for more information.
4. Per KDB Publication 248227 D01v02r02, SAR for MIMO was evaluated by following the simultaneous SAR provisions from KDB Publication 447498 D01v06. Please see Section 11 for complete analysis.
5. 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 or all test channels were measured.
6. When 10-g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.
7. 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.

Bluetooth Notes:

1. Body-worn and phablet SAR was measured with the device connected to a call box with hopping disabled with DH5 operation and Tx Tests test mode type. Per October 2016 TCB Workshop Notes, the reported SAR was scaled to the 100% transmission duty factor to determine compliance. See Section 9.5 for the time-domain plot and calculation for the duty factor of the device.
2. Head and hotspot BT SAR was evaluated for BT tethering application. Head and hotspot BT SAR was measured with the device connected to a call box wih hopping disabled with 2DH5 operation and Tx Test test mode type. Per October 2016 TCB workshop notes, the reported SAR was scaled to the 100% transmission duty factor to determine compliance. See Section 9.5 for the time-domain plot and calculation for the duty factor of the device.

11 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

11.1 Introduction

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

11.2 Simultaneous Transmission Procedures

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

(*) For test positions that were not required to be evaluated for WLAN SAR per FCC KDB Publication 248227, the worst case WLAN SAR result for applicable exposure conditions was used for simultaneous transmission analysis.

Per FCC KDB Publication 941225 D06v02r01, the devices edges with antennas more than 2.5 cm from edge are not required to be evaluated for SAR ("-").

Note: Please see the original compliance evaluation in RF Exposure Technical Report S/N: 1M1701030007-01-R1.A3L for the stand alone reported SAR for modes and bands not evaluated for this permissive change.

11.3 Head SAR Simultaneous Transmission Analysis

Table 11-1
Simultaneous Transmission Scenario with 2.4 GHz WLAN (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	0.198	0.364	0.418	0.562	0.616	0.980
	UMTS 850	0.413	0.364	0.418	0.777	0.831	**1.195**
	UMTS 1750	0.165	0.364	0.418	0.529	0.583	0.947
	GSM 1900	0.135	0.364	0.418	0.499	0.553	0.917
	UMTS 1900	0.254	0.364	0.418	0.618	0.672	1.036
	LTE Band 12	0.116	0.364	0.418	0.480	0.534	0.898
	LTE Band 13	0.099	0.364	0.418	0.463	0.517	0.881
	LTE Band 26 (Cell)	0.198	0.364	0.418	0.562	0.616	0.980
	LTE Band 5 (Cell)	0.193	0.364	0.418	0.557	0.611	0.975
	LTE Band 66 (AWS)	0.138	0.364	0.418	0.502	0.556	0.920
	LTE Band 25 (PCS)	0.115	0.364	0.418	0.479	0.533	0.897
	LTE Band 41	0.081	0.364	0.418	0.445	0.499	0.863

Table 11-2
Simultaneous Transmission Scenario with 5 GHz WLAN (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	0.198	0.537	0.543	0.735	0.741	1.278
	UMTS 850	0.413	0.537	0.543	0.950	0.956	**1.493**
	UMTS 1750	0.165	0.537	0.543	0.702	0.708	1.245
	GSM 1900	0.135	0.537	0.543	0.672	0.678	1.215
	UMTS 1900	0.254	0.537	0.543	0.791	0.797	1.334
	LTE Band 12	0.116	0.537	0.543	0.653	0.659	1.196
	LTE Band 13	0.099	0.537	0.543	0.636	0.642	1.179
	LTE Band 26 (Cell)	0.198	0.537	0.543	0.735	0.741	1.278
	LTE Band 5 (Cell)	0.193	0.537	0.543	0.730	0.736	1.273
	LTE Band 66 (AWS)	0.138	0.537	0.543	0.675	0.681	1.218
	LTE Band 25 (PCS)	0.115	0.537	0.543	0.652	0.658	1.195
	LTE Band 41	0.081	0.537	0.543	0.618	0.624	1.161

Table 11-3
Simultaneous Transmission Scenario with 2.4 GHz and 5 GHz WLAN 4 Tx (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	GSM 850	0.198	0.341	0.444	0.983
	UMTS 850	0.413	0.341	0.444	**1.198**
	UMTS 1750	0.165	0.341	0.444	0.950
	GSM 1900	0.135	0.341	0.444	0.920
	UMTS 1900	0.254	0.341	0.444	1.039
	LTE Band 12	0.116	0.341	0.444	0.901
	LTE Band 13	0.099	0.341	0.444	0.884
	LTE Band 26 (Cell)	0.198	0.341	0.444	0.983
	LTE Band 5 (Cell)	0.193	0.341	0.444	0.978
	LTE Band 66 (AWS)	0.138	0.341	0.444	0.923
	LTE Band 25 (PCS)	0.115	0.341	0.444	0.900
	LTE Band 41	0.081	0.341	0.444	0.866

Table 11-4
Simultaneous Transmission Scenario with Bluetooth (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	GSM 850	0.198	0.051	0.249
	UMTS 850	0.413	0.051	**0.464**
	UMTS 1750	0.165	0.051	0.216
	GSM 1900	0.135	0.051	0.186
	UMTS 1900	0.254	0.051	0.305
	LTE Band 12	0.116	0.051	0.167
	LTE Band 13	0.099	0.051	0.150
	LTE Band 26 (Cell)	0.198	0.051	0.249
	LTE Band 5 (Cell)	0.193	0.051	0.244
	LTE Band 66 (AWS)	0.138	0.051	0.189
	LTE Band 25 (PCS)	0.115	0.051	0.166
	LTE Band 41	0.081	0.051	0.132

11.4 Body-Worn Simultaneous Transmission Analysis

Table 11-5
Simultaneous Transmission Scenario with 2.4 GHz WLAN (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Σ SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2	1+3	1+2+3
Body-Worn	GSM 850	0.267	0.051	0.046	0.318	0.313	0.364
	UMTS 850	0.620	0.051	0.046	0.671	0.666	0.717
	UMTS 1750	0.968	0.051	0.046	1.019	1.014	**1.065**
	GSM 1900	0.486	0.051	0.046	0.537	0.532	0.583
	UMTS 1900	0.761	0.051	0.046	0.812	0.807	0.858
	LTE Band 12	0.183	0.051	0.046	0.234	0.229	0.280
	LTE Band 13	0.200	0.051	0.046	0.251	0.246	0.297
	LTE Band 26 (Cell)	0.310	0.051	0.046	0.361	0.356	0.407
	LTE Band 5 (Cell)	0.345	0.051	0.046	0.396	0.391	0.442
	LTE Band 66 (AWS)	0.962	0.051	0.046	1.013	1.008	1.059
	LTE Band 25 (PCS)	0.859	0.051	0.046	0.910	0.905	0.956
	LTE Band 41	0.236	0.051	0.046	0.287	0.282	0.333

Table 11-6
Simultaneous Transmission Scenario with 5 GHz WLAN (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Body-Worn	GSM 850	0.267	0.650	0.917	N/A
	UMTS 850	0.620	0.650	1.270	N/A
	UMTS 1750	0.968	0.650	See Note 1	0.01
	GSM 1900	0.486	0.650	1.136	N/A
	UMTS 1900	0.761	0.650	1.411	N/A
	LTE Band 12	0.183	0.650	0.833	N/A
	LTE Band 13	0.200	0.650	0.850	N/A
	LTE Band 26 (Cell)	0.310	0.650	0.960	N/A
	LTE Band 5 (Cell)	0.345	0.650	0.995	N/A
	LTE Band 66 (AWS)	0.962	0.650	See Note 1	0.01
	LTE Band 25 (PCS)	0.859	0.650	1.509	N/A
	LTE Band 41	0.236	0.650	0.886	N/A

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body-Worn	GSM 850	0.267	0.169	0.436
	UMTS 850	0.620	0.169	0.789
	UMTS 1750	0.968	0.169	1.137
	GSM 1900	0.486	0.169	0.655
	UMTS 1900	0.761	0.169	0.930
	LTE Band 12	0.183	0.169	0.352
	LTE Band 13	0.200	0.169	0.369
	LTE Band 26 (Cell)	0.310	0.169	0.479
	LTE Band 5 (Cell)	0.345	0.169	0.514
	LTE Band 66 (AWS)	0.962	0.169	1.131
	LTE Band 25 (PCS)	0.859	0.169	1.028
	LTE Band 41	0.236	0.169	0.405

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Body-Worn	GSM 850	0.267	0.691	0.958	N/A
	UMTS 850	0.620	0.691	1.311	N/A
	UMTS 1750	0.968	0.691	See Note 1	0.01
	GSM 1900	0.486	0.691	1.177	N/A
	UMTS 1900	0.761	0.691	1.452	N/A
	LTE Band 12	0.183	0.691	0.874	N/A
	LTE Band 13	0.200	0.691	0.891	N/A
	LTE Band 26 (Cell)	0.310	0.691	1.001	N/A
	LTE Band 5 (Cell)	0.345	0.691	1.036	N/A
	LTE Band 66 (AWS)	0.962	0.691	See Note 1	0.01
	LTE Band 25 (PCS)	0.859	0.691	1.550	N/A
	LTE Band 41	0.236	0.691	0.927	N/A

Table 11-7
Simultaneous Transmission Scenario with 2.4 GHz and 5GHz WLAN 4 Tx (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn	GSM 850	0.267	0.040	0.212	0.519
	UMTS 850	0.620	0.040	0.212	0.872
	UMTS 1750	0.968	0.040	0.212	**1.220**
	GSM 1900	0.486	0.040	0.212	0.738
	UMTS 1900	0.761	0.040	0.212	1.013
	LTE Band 12	0.183	0.040	0.212	0.435
	LTE Band 13	0.200	0.040	0.212	0.452
	LTE Band 26 (Cell)	0.310	0.040	0.212	0.562
	LTE Band 5 (Cell)	0.345	0.040	0.212	0.597
	LTE Band 66 (AWS)	0.962	0.040	0.212	1.214
	LTE Band 25 (PCS)	0.859	0.040	0.212	1.111
	LTE Band 41	0.236	0.040	0.212	0.488

Table 11-8
Simultaneous Transmission Scenario with Bluetooth (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body-Worn	GSM 850	0.267	0.054	0.321
	UMTS 850	0.620	0.054	0.674
	UMTS 1750	0.968	0.054	**1.022**
	GSM 1900	0.486	0.054	0.540
	UMTS 1900	0.761	0.054	0.815
	LTE Band 12	0.183	0.054	0.237
	LTE Band 13	0.200	0.054	0.254
	LTE Band 26 (Cell)	0.310	0.054	0.364
	LTE Band 5 (Cell)	0.345	0.054	0.399
	LTE Band 66 (AWS)	0.962	0.054	1.016
	LTE Band 25 (PCS)	0.859	0.054	0.913
	LTE Band 41	0.236	0.054	0.290

11.5 Hotspot SAR Simultaneous Transmission Analysis

Table 11-9
Simultaneous Transmission Scenario 2.4 GHz WLAN (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Σ SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	0.764	0.109	0.117	0.873	0.881	0.990
	UMTS 850	1.098	0.109	0.117	1.207	1.215	**1.324**
	UMTS 1750	0.916	0.109	0.117	1.025	1.033	1.142
	GPRS 1900	1.094	0.109	0.117	1.203	1.211	1.320
	UMTS 1900	1.086	0.109	0.117	1.195	1.203	1.312
	LTE Band 12	0.290	0.109	0.117	0.399	0.407	0.516
	LTE Band 13	0.394	0.109	0.117	0.503	0.511	0.620
	LTE Band 26 (Cell)	0.695	0.109	0.117	0.804	0.812	0.921
	LTE Band 5 (Cell)	0.703	0.109	0.117	0.812	0.820	0.929
	LTE Band 66 (AWS)	1.094	0.109	0.117	1.203	1.211	1.320
	LTE Band 25 (PCS)	1.085	0.109	0.117	1.194	1.202	1.311
	LTE Band 41	0.530	0.109	0.117	0.639	0.647	0.756

Table 11-10
Simultaneous Transmission Scenario with 5 GHz WLAN (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	GPRS 850	0.764	0.492	1.256
	UMTS 850	1.098	0.492	**1.590**
	UMTS 1750	0.916	0.492	1.408
	GPRS 1900	1.094	0.492	1.586
	UMTS 1900	1.086	0.492	1.578
	LTE Band 12	0.290	0.492	0.782
	LTE Band 13	0.394	0.492	0.886
	LTE Band 26 (Cell)	0.695	0.492	1.187
	LTE Band 5 (Cell)	0.703	0.492	1.195
	LTE Band 66 (AWS)	1.094	0.492	1.586
	LTE Band 25 (PCS)	1.085	0.492	1.577
	LTE Band 41	0.530	0.492	1.022
Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	GPRS 850	0.764	0.171	0.935
	UMTS 850	1.098	0.171	1.269
	UMTS 1750	0.916	0.171	1.087
	GPRS 1900	1.094	0.171	1.265
	UMTS 1900	1.086	0.171	1.257
	LTE Band 12	0.290	0.171	0.461
	LTE Band 13	0.394	0.171	0.565
	LTE Band 26 (Cell)	0.695	0.171	0.866
	LTE Band 5 (Cell)	0.703	0.171	0.874
	LTE Band 66 (AWS)	1.094	0.171	1.265
	LTE Band 25 (PCS)	1.085	0.171	1.256
	LTE Band 41	0.530	0.171	0.701

Simult Tx	Configuration	GPRS 850 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR	Simult Tx	Configuration	UMTS 850 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2			1	2	1+2	1+2
Hotspot SAR	Back	0.764	0.524	1.288	N/A	Hotspot SAR	Back	1.098	0.524	See Note 1	0.01
	Front	0.610	0.524*	1.134	N/A		Front	1.050	0.524*	1.574	N/A
	Top	-	0.258	0.258	N/A		Top	-	0.258	0.258	N/A
	Bottom	0.415	-	0.415	N/A		Bottom	0.617	-	0.617	N/A
	Right	0.336	-	0.336	N/A		Right	0.565	-	0.565	N/A
	Left	0.105	0.524*	0.629	N/A		Left	0.224	0.524*	0.748	N/A

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR	Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2			1	2	1+2	1+2
Hotspot SAR	Back	0.732	0.524	1.256	N/A	Hotspot SAR	Back	0.606	0.524	1.130	N/A
	Front	0.598	0.524*	1.122	N/A		Front	0.562	0.524*	1.086	N/A
	Top	-	0.258	0.258	N/A		Top	-	0.258	0.258	N/A
	Bottom	0.916	-	0.916	N/A		Bottom	1.094	-	1.094	N/A
	Right	0.121	-	0.121	N/A		Right	0.116	-	0.116	N/A
	Left	0.081	0.524*	0.605	N/A		Left	0.069	0.524*	0.593	N/A

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR	Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2			1	2	1+2	1+2
Hotspot SAR	Back	0.634	0.524	1.158	N/A	Hotspot SAR	Back	0.290	0.524	0.814	N/A
	Front	0.484	0.524*	1.008	N/A		Front	0.236	0.524*	0.760	N/A
	Top	-	0.258	0.258	N/A		Top	-	0.258	0.258	N/A
	Bottom	1.086	-	1.086	N/A		Bottom	0.155	-	0.155	N/A
	Right	0.126	-	0.126	N/A		Right	0.258	-	0.258	N/A
	Left	0.089	0.524*	0.613	N/A		Left	0.099	0.524*	0.623	N/A

Simult Tx	Configuration	LTE Band 13 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR	Simult Tx	Configuration	LTE Band 26 (Cell) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2			1	2	1+2	1+2
Hotspot SAR	Back	0.394	0.524	0.918	N/A	Hotspot SAR	Back	0.695	0.524	1.219	N/A
	Front	0.293	0.524*	0.817	N/A		Front	0.593	0.524*	1.117	N/A
	Top	-	0.258	0.258	N/A		Top	-	0.258	0.258	N/A
	Bottom	0.245	-	0.245	N/A		Bottom	0.383	-	0.383	N/A
	Right	0.172	-	0.172	N/A		Right	0.302	-	0.302	N/A
	Left	0.073	0.524*	0.597	N/A		Left	0.114	0.524*	0.638	N/A

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR	Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2			1	2	1+2	1+2
Hotspot SAR	Back	0.703	0.524	1.227	N/A	Hotspot SAR	Back	0.646	0.524	1.170	N/A
	Front	0.594	0.524*	1.118	N/A		Front	0.569	0.524*	1.093	N/A
	Top	-	0.258	0.258	N/A		Top	-	0.258	0.258	N/A
	Bottom	0.413	-	0.413	N/A		Bottom	1.094	-	1.094	N/A
	Right	0.320	-	0.320	N/A		Right	0.132	-	0.132	N/A
	Left	0.096	0.524*	0.620	N/A		Left	0.070	0.524*	0.594	N/A

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR	Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2			1	2	1+2	1+2
Hotspot SAR	Back	0.726	0.524	1.250	N/A	Hotspot SAR	Back	0.456	0.524	0.980	N/A
	Front	0.528	0.524*	1.052	N/A		Front	0.520	0.524*	1.044	N/A
	Top	-	0.258	0.258	N/A		Top	-	0.258	0.258	N/A
	Bottom	1.085	-	1.085	N/A		Bottom	0.530	-	0.530	N/A
	Right	0.123	-	0.123	N/A		Right	0.070	-	0.070	N/A
	Left	0.072	0.524*	0.596	N/A		Left	0.240	0.524*	0.764	N/A

Table 11-11
Simultaneous Transmission Scenario with 2.4 GHz and 5 GHz WLAN 4 Tx (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	GPRS 850	0.764	0.108	0.313	1.185
	UMTS 850	1.098	0.108	0.313	**1.519**
	UMTS 1750	0.916	0.108	0.313	1.337
	GPRS 1900	1.094	0.108	0.313	1.515
	UMTS 1900	1.086	0.108	0.313	1.507
	LTE Band 12	0.290	0.108	0.313	0.711
	LTE Band 13	0.394	0.108	0.313	0.815
	LTE Band 26 (Cell)	0.695	0.108	0.313	1.116
	LTE Band 5 (Cell)	0.703	0.108	0.313	1.124
	LTE Band 66 (AWS)	1.094	0.108	0.313	1.515
	LTE Band 25 (PCS)	1.085	0.108	0.313	1.506
	LTE Band 41	0.530	0.108	0.313	0.951

Table 11-12
Simultaneous Transmission Scenario Bluetooth (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	GPRS 850	0.764	0.016	0.780
	UMTS 850	1.098	0.016	**1.114**
	UMTS 1750	0.916	0.016	0.932
	GPRS 1900	1.094	0.016	1.110
	UMTS 1900	1.086	0.016	1.102
	LTE Band 12	0.290	0.016	0.306
	LTE Band 13	0.394	0.016	0.410
	LTE Band 26 (Cell)	0.695	0.016	0.711
	LTE Band 5 (Cell)	0.703	0.016	0.719
	LTE Band 66 (AWS)	1.094	0.016	1.110
	LTE Band 25 (PCS)	1.085	0.016	1.101
	LTE Band 41	0.530	0.016	0.546

11.6 Phablet SAR Simultaneous Transmission Analysis

Per FCC KDB Publication 648474 D04 Handset SAR, Phablet SAR tests were not required if wireless router 1g SAR (scaled to the maximum output power, including tolerance) < 1.2 W/kg. Therefore no further analysis beyond the tables included in this section was required to determine that possible simultaneous transmission scenarios would not exceed the SAR limit.

Table 11-13
Simultaneous Transmission Scenario 5GHz WLAN (Phablet)

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	SPLSR	Simult Tx	Configuration	GSM 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2			1	2	1+2	1+2
Phablet SAR	Back	2.074	2.447	See Note 1	0.06	Phablet SAR	Back	2.486	2.447	See Note 1	0.07
	Front	1.815	0.919	2.734	N/A		Front	2.306	0.919	3.225	N/A
	Top	-	2.447*	2.447	N/A		Top	-	2.447*	2.447	N/A
	Bottom	2.147	-	2.147	N/A		Bottom	3.244	-	3.244	N/A
	Right	0.977	-	0.977	N/A		Right	0.460	-	0.460	N/A
	Left	0.775	2.447*	3.222	N/A		Left	0.401	2.447*	2.848	N/A

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	SPLSR	Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2			1	2	1+2	1+2
Phablet SAR	Back	1.777	2.447	See Note 1	0.06	Phablet SAR	Back	1.771	2.447	See Note 1	0.06
	Front	1.461	0.919	2.380	N/A		Front	1.455	0.919	2.374	N/A
	Top	-	2.447*	2.447	N/A		Top	-	2.447*	2.447	N/A
	Bottom	2.022	-	2.022	N/A		Bottom	2.170	-	2.170	N/A
	Right	0.730	-	0.730	N/A		Right	0.657	-	0.657	N/A
	Left	0.621	2.447*	3.068	N/A		Left	0.395	2.447*	2.842	N/A

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Phablet SAR	Back	1.881	2.447	See Note 1	0.06
	Front	1.597	0.919	2.516	N/A
	Top	-	2.447*	2.447	N/A
	Bottom	2.209	-	2.209	N/A
	Right	0.657	-	0.657	N/A
	Left	0.537	2.447*	2.984	N/A

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	GSM 1900 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2			1	2	1+2
Phablet SAR	Back	2.074	1.117	**3.191**	Phablet SAR	Back	2.486	1.117	**3.603**
	Front	1.815	0.507	2.322		Front	2.306	0.507	2.813
	Top	-	1.117*	1.117		Top	-	1.117*	1.117
	Bottom	2.147	-	2.147		Bottom	3.244	-	3.244
	Right	0.977	-	0.977		Right	0.460	-	0.460
	Left	0.775	1.117*	1.892		Left	0.401	1.117*	1.518

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2			1	2	1+2
Phablet SAR	Back	1.777	1.117	**2.894**	Phablet SAR	Back	1.771	1.117	**2.888**
	Front	1.461	0.507	1.968		Front	1.455	0.507	1.962
	Top	-	1.117*	1.117		Top	-	1.117*	1.117
	Bottom	2.022	-	2.022		Bottom	2.170	-	2.170
	Right	0.730	-	0.730		Right	0.657	-	0.657
	Left	0.621	1.117*	1.738		Left	0.395	1.117*	1.512

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Phablet SAR	Back	1.881	1.117	**2.998**
	Front	1.597	0.507	2.104
	Top	-	1.117*	1.117
	Bottom	2.209	-	2.209
	Right	0.657	-	0.657
	Left	0.537	1.117*	1.654

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR	Simult Tx	Configuration	GSM 1900 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2			1	2	1+2	1+2
Phablet SAR	Back	2.074	2.408	See Note 1	0.06	Phablet SAR	Back	2.486	2.408	See Note 1	0.07
	Front	1.815	1.198	3.013	N/A		Front	2.306	1.198	3.504	N/A
	Top	-	2.408*	2.408	N/A		Top	-	2.408*	2.408	N/A
	Bottom	2.147	-	2.147	N/A		Bottom	3.244	-	3.244	N/A
	Right	0.977	-	0.977	N/A		Right	0.460	-	0.460	N/A
	Left	0.775	2.408*	3.183	N/A		Left	0.401	2.408*	2.809	N/A

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR	Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2			1	2	1+2	1+2
Phablet SAR	Back	1.777	2.408	See Note 1	0.06	Phablet SAR	Back	1.771	2.408	See Note 1	0.06
	Front	1.461	1.198	2.659	N/A		Front	1.455	1.198	2.653	N/A
	Top	-	2.408*	2.408	N/A		Top	-	2.408*	2.408	N/A
	Bottom	2.022	-	2.022	N/A		Bottom	2.170	-	2.170	N/A
	Right	0.730	-	0.730	N/A		Right	0.657	-	0.657	N/A
	Left	0.621	2.408*	3.029	N/A		Left	0.395	2.408*	2.803	N/A

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Phablet SAR	Back	1.881	2.408	See Note 1	0.06
	Front	1.597	1.198	2.795	N/A
	Top	-	2.408*	2.408	N/A
	Bottom	2.209	-	2.209	N/A
	Right	0.657	-	0.657	N/A
	Left	0.537	2.408*	2.945	N/A

Table 11-14
Simultaneous Transmission Scenario Bluetooth (Phablet)

Exposure Condition	Mode	3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Phablet SAR	UMTS 1750	2.147	0.511	2.658
	GSM 1900	3.244	0.511	**3.755**
	UMTS 1900	2.022	0.511	2.533
	LTE Band 66 (AWS)	2.170	0.511	2.681
	LTE Band 25 (PCS)	2.209	0.511	2.720

Notes:
1. No evaluation was performed to determine the aggregate SAR for these configurations as the SPLS ratio between the antenna pairs was not greater than 0.04 for 1 g SAR and 0.10 for 10 g SAR per FCC KDB 447498 D01v06. See Section 11.7 for detailed SPLS ratio analysis.
2. For SAR summation, the highest reported SAR across all test distances was used as the most conservative evaluation for simultaneous transmission analysis for each device edge.

11.7 SPLSR Evaluation and Analysis

Per FCC KDB Publication 447498 D01v05r02, when the sum of the standalone transmitters is more than 1.6 W/kg for 1g and 4 W/kg for 10g, the SAR sum to peak locations can be analyzed to determine SAR distribution overlaps. When the SAR peak to location ratio (shown below) for each pair of antennas is

≤ 0.04 for 1g and ≤0.10 for 10g, simultaneous SAR evaluation is not required. The distance between the transmitters was calculated using the following formula.

$$\text{Distance}_{Tx1-Tx2} = R_i = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$$

$$\text{SPLS Ratio} = \frac{(SAR_1 + SAR_2)^{1.5}}{R_i}$$

11.7.1 Body- Worn Back Side SPLSR Evaluation and Analysis

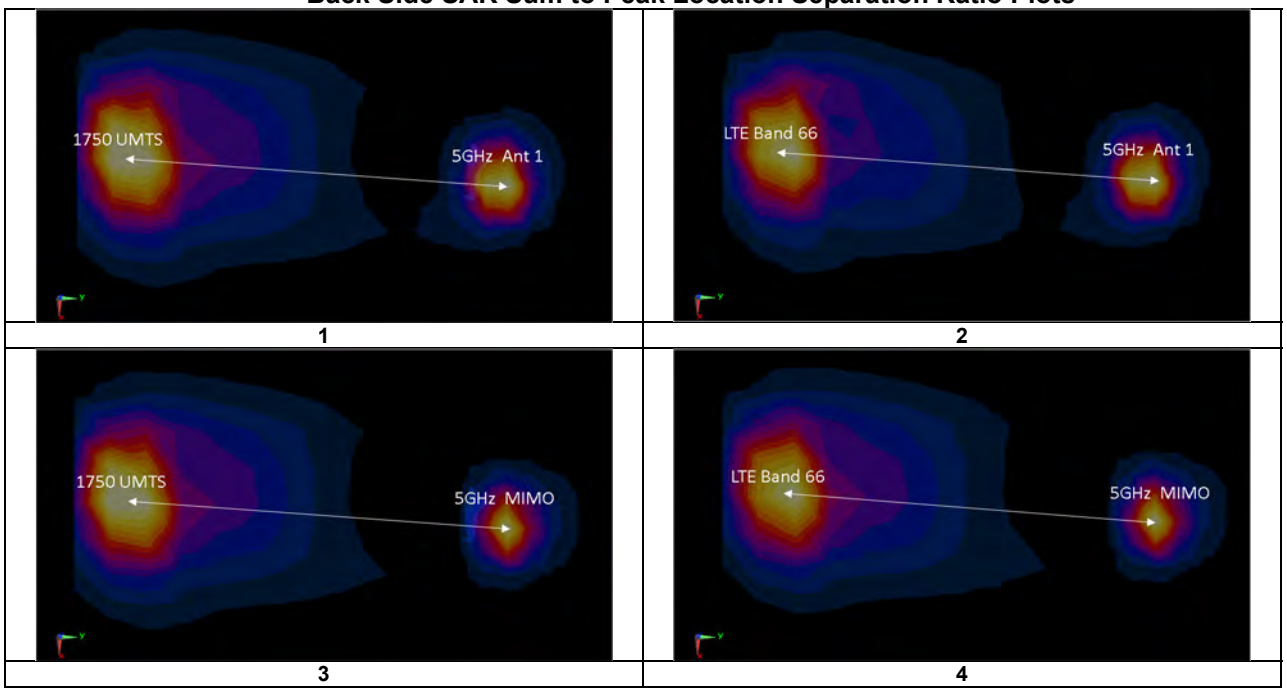
Table 11-15
Peak SAR Locations for Body Back Side

Mode/Band	x (mm)	y (mm)
5 GHz WLAN Ant 1	-10.00	74.00
5 GHz WLAN MIMO	-4.00	75.00
UMTS 1750	-20.00	-84.00
LTE Band 66	-21.50	-81.00

Table 11-16
Back Side SAR Sum to Peak Location Separation Ratio Calculations

Antenna Pair		Standalone 1g SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLS Ratio	Plot Number
Ant "a"	Ant "b"	a	b	a+b	D_{a-b}	$(a+b)^{1.5}/D_{a-b}$	
5 GHz WLAN Ant 1	UMTS 1750	0.650	0.968	1.618	158.32	0.01	1
5 GHz WLAN Ant 1	LTE Band 66	0.650	0.962	1.612	155.43	0.01	2
5 GHz WLAN MIMO	UMTS 1750	0.691	0.968	1.659	159.80	0.01	3
5 GHz WLAN MIMO	LTE Band 66	0.691	0.962	1.653	156.98	0.01	4

Table 11-17
Back Side SAR Sum to Peak Location Separation Ratio Plots



11.7.2 Hotspot Back Side SPLSR Evaluation and Analysis

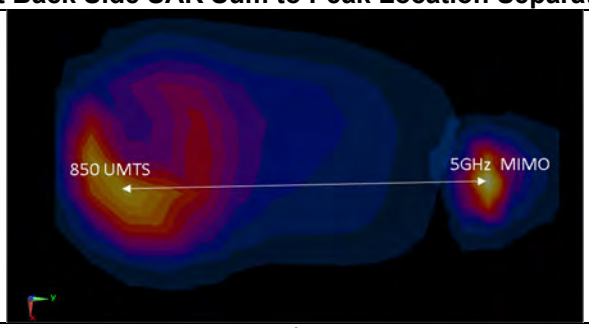
Table 11-18
Peak SAR Locations for Hotspot Back Side

Mode/Band	x (mm)	y (mm)
5 GHz WLAN MIMO	-4.00	75.00
UMTS 850	-13.50	-86.50

Table 11-19
Hotspot Back Side SAR Sum to Peak Location Separation Ratio Calculations

Antenna Pair		Standalone 1g SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLS Ratio	Plot Number
Ant "a"	Ant "b"	a	b	a+b	D_{a-b}	$(a+b)^{1.5}/D_{a-b}$	
5 GHz WLAN MIMO	UMTS 850	0.524	1.098	1.622	161.78	0.01	1

Table 11-20
Hotspot Back Side SAR Sum to Peak Location Separation Ratio Plots



1

11.7.3 Phablet Back Side SPLSR Evaluation and Analysis

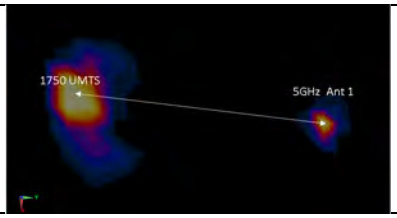
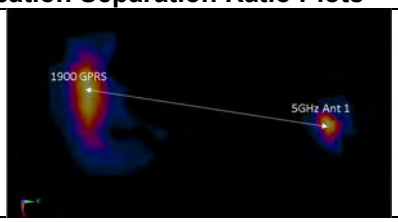
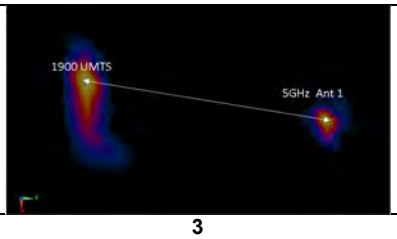
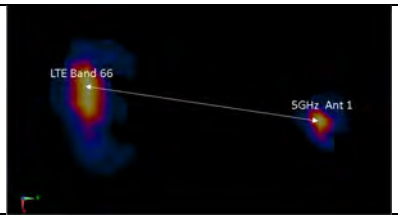
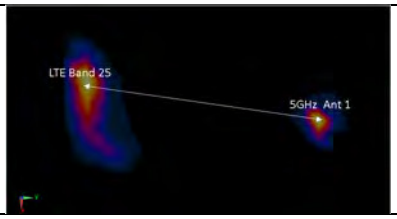
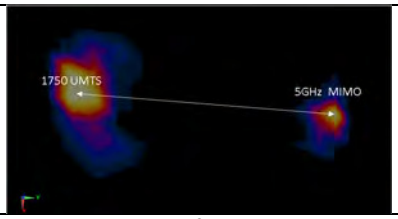
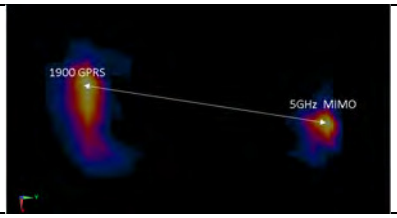
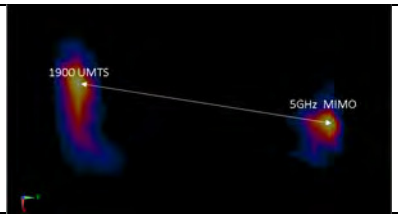
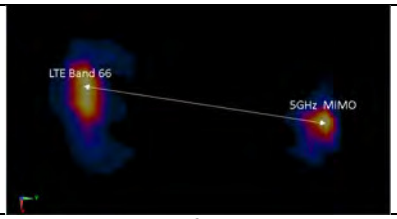
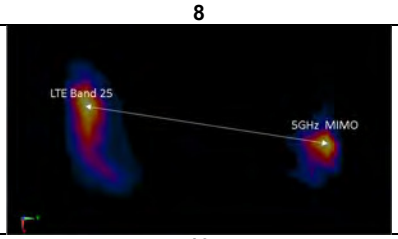
Table 11-21
Peak SAR Locations for Phablet Back Side

Mode/Band	x (mm)	y (mm)
5 GHz WLAN Ant 1	-6.00	71.00
5 GHz WLAN MIMO	-2.00	72.00
UMTS 1750	-23.00	-84.00
GRPS 1900	-27.50	-78.00
UMTS 1900	-29.00	-80.00
LTE Band 66	-26.00	-76.50
LTE Band 25 (PCS)	-29.00	-73.50

Table 11-22
Phablet Back Side SAR Sum to Peak Location Separation Ratio Calculations

Antenna Pair		Standalone 10g SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLS Ratio	Plot Number
Ant "a"	Ant "b"	a	b	a+b	D_{a-b}	$(a+b)^{1.5}/D_{a-b}$	
5 GHz WLAN Ant 1	UMTS 1750	2.447	2.074	4.521	155.93	0.06	1
5 GHz WLAN Ant 1	GRPS 1900	2.447	2.486	4.933	150.54	0.07	2
5 GHz WLAN Ant 1	UMTS 1900	2.447	1.777	4.224	152.74	0.06	3
5 GHz WLAN Ant 1	LTE Band 66	2.447	1.771	4.218	148.85	0.06	4
5 GHz WLAN Ant 1	LTE Band 25 (PCS)	2.447	1.881	4.328	146.32	0.06	5
5 GHz WLAN MIMO	UMTS 1750	2.408	2.074	4.482	157.41	0.06	6
5 GHz WLAN MIMO	GRPS 1900	2.408	2.486	4.894	152.15	0.07	7
5 GHz WLAN MIMO	UMTS 1900	2.408	1.777	4.185	154.38	0.06	8
5 GHz WLAN MIMO	LTE Band 66	2.408	1.771	4.179	150.43	0.06	9
5 GHz WLAN MIMO	LTE Band 25 (PCS)	2.408	1.881	4.289	147.98	0.06	10

Table 11-23
Phablet Back Side SAR Sum to Peak Location Separation Ratio Plots

	
1	2
	
3	4
	
5	6
	
7	8
	
9	10

11.8 Simultaneous Transmission Conclusion

The above numerical summed SAR results and SPLSR analysis are sufficient to determine that simultaneous transmission cases will not exceed the SAR limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D01v05r02 and IEEE 1528- 2013 Section 6.3.4.1

12 SAR MEASUREMENT VARIABILITY

12.1 Measurement Variability

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

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

1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.
2) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g 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 10-g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

Table 12-1
Phablet SAR Measurement Variability Results (10g)

PHABLET VARIABILITY RESULTS														
Band	FREQUENCY		Mode	Service	Data Rate (Mbps)	Side	Spacing	Measured SAR (10g)	1st Repeated SAR (10g)	Ratio	2nd Repeated SAR (10g)	Ratio	3rd Repeated SAR (10g)	Ratio
	MHz	Ch.						(W/kg)	(W/kg)		(W/kg)		(W/kg)	
5250	5300.00	60	802.11n, 20 MHz Bandwidth	OFDM , MIMO	13	back	0 mm	2.110	2.020	1.04	N/A	N/A	N/A	N/A
5600	5500.00	100	802.11a, 20 MHz Bandwidth	OFDM , ANT 1	6	back	0 mm	2.130	2.030	1.05	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Phablet 4.0 W/kg (mW/g) averaged over 10 grams						

12.2 Measurement Uncertainty

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

13 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	N4010A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB44450273
Agilent	N5182A	MXG Vector Signal Generator	10/27/2016	Annual	10/27/2017	MY47420603
Agilent	N9020A	MXA Signal Analyzer	10/28/2016	Annual	10/28/2017	US46470561
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433971
Anritsu	MA24106A	USB Power Sensor	6/2/2016	Annual	6/2/2017	1231535
Anritsu	MA24106A	USB Power Sensor	6/2/2016	Annual	6/2/2017	1231538
Anritsu	MA2411B	Pulse Power Sensor	8/18/2016	Annual	8/18/2017	1126066
Anritsu	MA2411B	Pulse Power Sensor	8/18/2016	Annual	8/18/2017	1207470
Anritsu	ML2495A	Power Meter	10/16/2015	Biennial	10/16/2017	941001
COMTech	AR85729-5	Solid State Amplifier	CBT	N/A	CBT	M1S5A00-009
Control Company	4040	Digital Thermometer	3/18/2015	Biennial	3/18/2017	150194895
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
MiniCircuits	SLP-2400+	Low Pass Filter	CBT	N/A	CBT	R8979500903
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mitutoyo	CD-6"CSX	Digital Caliper	3/2/2016	Biennial	3/2/2018	13264162
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Pasternack	NC-100	Torque Wrench	11/6/2015	Biennial	11/6/2017	N/A
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A
Seekonk	NC-100	Torque Wrench (8" lb)	9/1/2016	Biennial	9/1/2018	21053
Seekonk	NC-100	Torque Wrench	11/6/2015	Biennial	11/6/2017	22313
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/10/2016	Annual	5/10/2017	1070
SPEAG	DAKS-3.5	Portable Dielectric Assessment Kit	7/19/2016	Annual	7/19/2017	1039
SPEAG	D2450V2	2450 MHz SAR Dipole	9/13/2016	Annual	9/13/2017	797
SPEAG	D5GHzV2	5 GHz SAR Dipole	2/13/2017	Annual	2/13/2018	1120
SPEAG	D2450V2	2450 MHz SAR Dipole	7/25/2016	Annual	7/25/2017	981
SPEAG	D5GHzV2	5 GHz SAR Dipole	8/2/2016	Annual	8/2/2017	1237
SPEAG	ES3DV3	SAR Probe	9/19/2016	Annual	9/19/2017	3287
SPEAG	EX3DV4	SAR Probe	2/13/2017	Annual	2/13/2018	3914
SPEAG	EX3DV4	SAR Probe	4/19/2016	Annual	4/19/2017	7406
SPEAG	EX3DV4	SAR Probe	7/21/2016	Annual	7/21/2017	7308
SPEAG	DAE4	Dasy Data Acquisition Electronics	9/14/2016	Annual	9/14/2017	1408
SPEAG	DAE4	Dasy Data Acquisition Electronics	11/11/2016	Annual	11/11/2017	1334
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/14/2016	Annual	4/14/2017	1407
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/11/2016	Annual	5/11/2017	859

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

14 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	

15 CONCLUSION

15.1 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]

16 REFERENCES

[1] Federal Communications Commission, ET Docket 93-62, Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation, Aug. 1996.

[2] ANSI/IEEE C95.1-2005, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3kHz to 300GHz, New York: IEEE, 2006.

[3] ANSI/IEEE C95.1-1992, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3kHz to 300GHz, New York: IEEE, Sept. 1992.

[4] ANSI/IEEE C95.3-2002, IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave, New York: IEEE, December 2002.

[5] IEEE Standards Coordinating Committee 39 –Standards Coordinating Committee 34 – IEEE Std. 1528-2013, IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.

[6] NCRP, National Council on Radiation Protection and Measurements, Biological Effects and Exposure Criteria for RadioFrequency Electromagnetic Fields, NCRP Report No. 86, 1986. Reprinted Feb. 1995.

[7] T. Schmid, O. Egger, N. Kuster, Automated E-field scanning system for dosimetric assessments, IEEE Transaction on Microwave Theory and Techniques, vol. 44, Jan. 1996, pp. 105-113.

[8] K. Pokovic, T. Schmid, N. Kuster, Robust setup for precise calibration of E-field probes in tissue simulating liquids at mobile communications frequencies, ICECOM97, Oct. 1997, pp. 1 -124.

[9] K. Pokovic, T. Schmid, and N. Kuster, E-field Probe with improved isotropy in brain simulating liquids, Proceedings of the ELMAR, Zadar, Croatia, June 23-25, 1996, pp. 172-175.

[10] Schmid & Partner Engineering AG, Application Note: Data Storage and Evaluation, June 1998, p2.

[11] V. Hombach, K. Meier, M. Burkhardt, E. Kuhn, N. Kuster, The Dependence of EM Energy Absorption upon Human Modeling at 900 MHz, IEEE Transaction on Microwave Theory and Techniques, vol. 44 no. 10, Oct. 1996, pp. 1865-1873.

[12] N. Kuster and Q. Balzano, Energy absorption mechanism by biological bodies in the near field of dipole antennas above 300MHz, IEEE Transaction on Vehicular Technology, vol. 41, no. 1, Feb. 1992, pp. 17-23.

[13] G. Hartsgrove, A. Kraszewski, A. Surowiec, Simulated Biological Materials for Electromagnetic Radiation Absorption Studies, University of Ottawa, Bioelectromagnetics, Canada: 1987, pp. 29-36.

[14] Q. Balzano, O. Garay, T. Manning Jr., Electromagnetic Energy Exposure of Simulated Users of Portable Cellular Telephones, IEEE Transactions on Vehicular Technology, vol. 44, no.3, Aug. 1995.

[15] W. Gander, Computermathematick, Birkhaeuser, Basel, 1992.

[16] W.H. Press, S.A. Teukolsky, W.T. Vetterling, and B.P. Flannery, Numerical Recipes in C, The Art of Scientific Computing, Second edition, Cambridge University Press, 1992.

[17] N. Kuster, R. Kastle, T. Schmid, Dosimetric evaluation of mobile communications equipment with known precision, IEEE Transaction on Communications, vol. E80-B, no. 5, May 1997, pp. 645-652.

[18] CENELEC CLC/SC111B, European Prestandard (prENV 50166-2), Human Exposure to Electromagnetic Fields High-frequency: 10kHz-300GHz, Jan. 1995.

[19] Prof. Dr. Niels Kuster, ETH, Eidgenössische Technische Hoschschule Zürich, Dosimetric Evaluation of the Cellular Phone.

[20] IEC 62209-1, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz), Feb. 2005.

[21] Innovation, Science, Economic Development Canada RSS-102 Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands) Issue 5, March 2015.

[22] Health Canada Safety Code 6 Limits of Human Exposure to Radio Frequency Electromagnetic Fields in the Frequency Range from 3 kHz – 300 GHz, 2015

[23] FCC SAR Test Procedures for 2G-3G Devices, Mobile Hotspot and UMPC Devices KDB Publications 941225, D01-D07

[24] SAR Measurement Guidance for IEEE 802.11 Transmitters, KDB Publication 248227 D01

[25] FCC SAR Considerations for Handsets with Multiple Transmitters and Antennas, KDB Publications 648474 D03-D04

[26] FCC SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers, FCC KDB Publication 616217 D04

[27] FCC SAR Measurement and Reporting Requirements for 100MHz – 6 GHz, KDB Publications 865664 D01-D02

[28] FCC General RF Exposure Guidance and SAR Procedures for Dongles, KDB Publication 447498, D01-D02

[29] Anexo à Resolução No. 533, de 10 de Septembro de 2009.

[30] IEC 62209-2, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz), Mar. 2010.

APPENDIX A: SAR TEST DATA

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG955F; Type: Portable Handset; Serial: D21DD

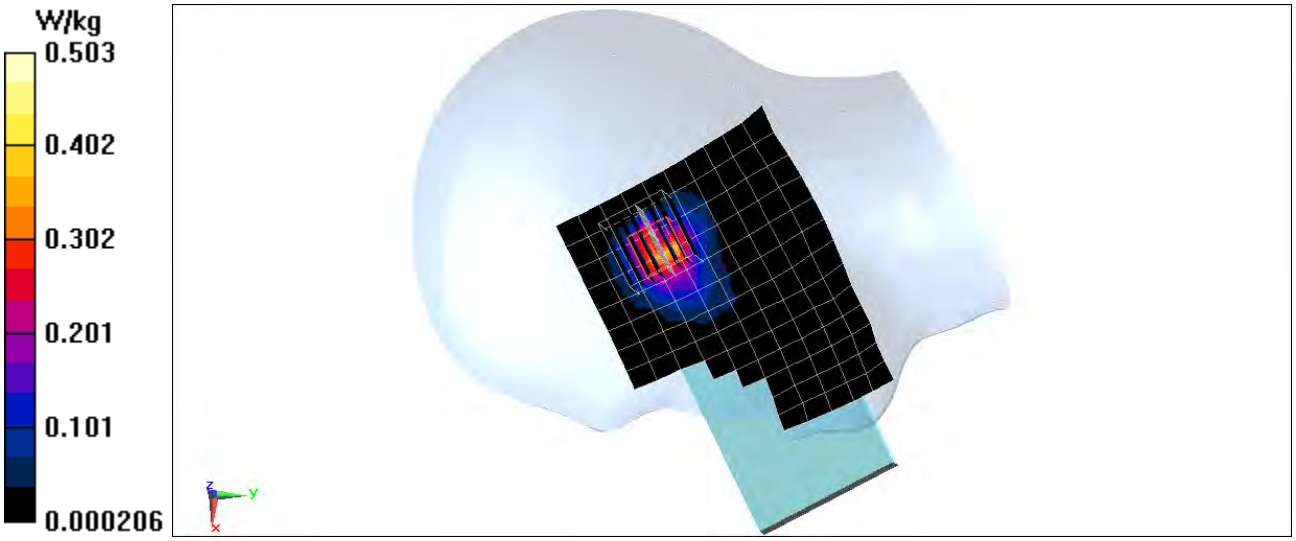
Communication System: UID 0, IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used (interpolated):
$f = 2437$ MHz; $\sigma = 1.84$ S/m; $\varepsilon_r = 38.78$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

Test Date: 03-06-2017; Ambient Temp: 23.6°C; Tissue Temp: 20.8°C

Probe: ES3DV3 - SN3287; ConvF(4.54, 4.54, 4.54); Calibrated: 9/19/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 9/14/2016
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: IEEE 802.11b, 22 MHz Bandwidth, Right Head, Cheek, Ch 6, 1 Mbps, Antenna 2

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.33 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.866 W/kg
SAR(1 g) = 0.373 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG955F; Type: Portable Handset; Serial: D21DD

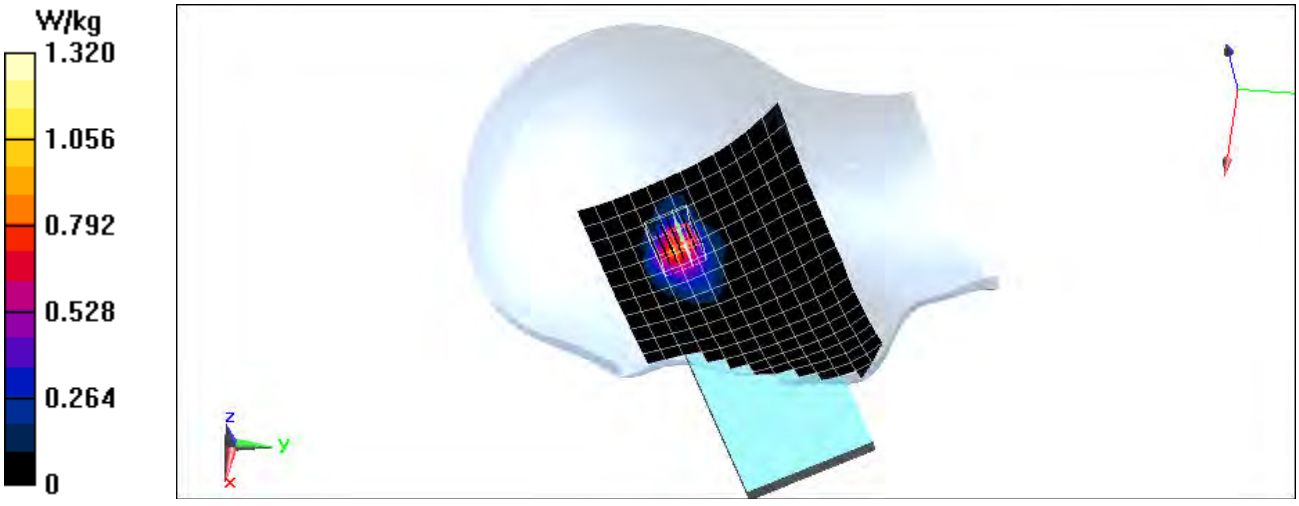
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5745 MHz; Duty Cycle: 1:1
Medium: 5GHz Head Medium parameters used:
f = 5745 MHz; σ = 5.275 S/m; ε_r = 35.041; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 03-13-2017; Ambient Temp: 20.2°C; Tissue Temp: 19.9°C

Probe: EX3DV4 - SN3914; ConvF(4.91, 4.91, 4.91); Calibrated: 2/13/2017;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 11/11/2016
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1800
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: IEEE 802.11a, U-NII-3, 20 MHz Bandwidth,
Right Head, Cheek, Ch 149, 6 Mbps, Antenna 2

Area Scan (13x22x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 3.858 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 2.58 W/kg
SAR(1 g) = 0.512 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG955F; Type: Portable Handset; Serial: D68ED

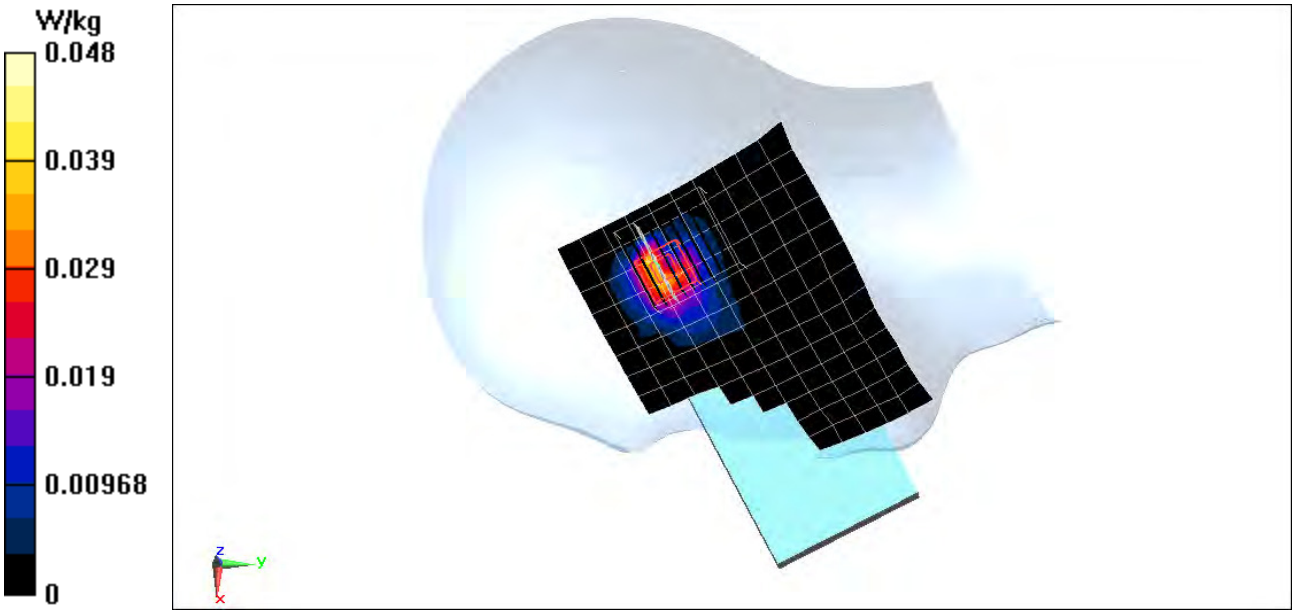
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.302
Medium: 2450 Head Medium parameters used (interpolated):
f = 2441 MHz; σ = 1.845 S/m; ε_r = 38.765; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 03-06-2017; Ambient Temp: 23.6°C; Tissue Temp: 20.8°C

Probe: ES3DV3 - SN3287; ConvF(4.54, 4.54, 4.54); Calibrated: 9/19/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 9/14/2016
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: Bluetooth, Head SAR, Ch 39, 2Mbps, Right Cheek

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (10x9x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.443 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.0940 W/kg
SAR(1 g) = 0.035 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG955F; Type: Portable Handset; Serial: D68ED

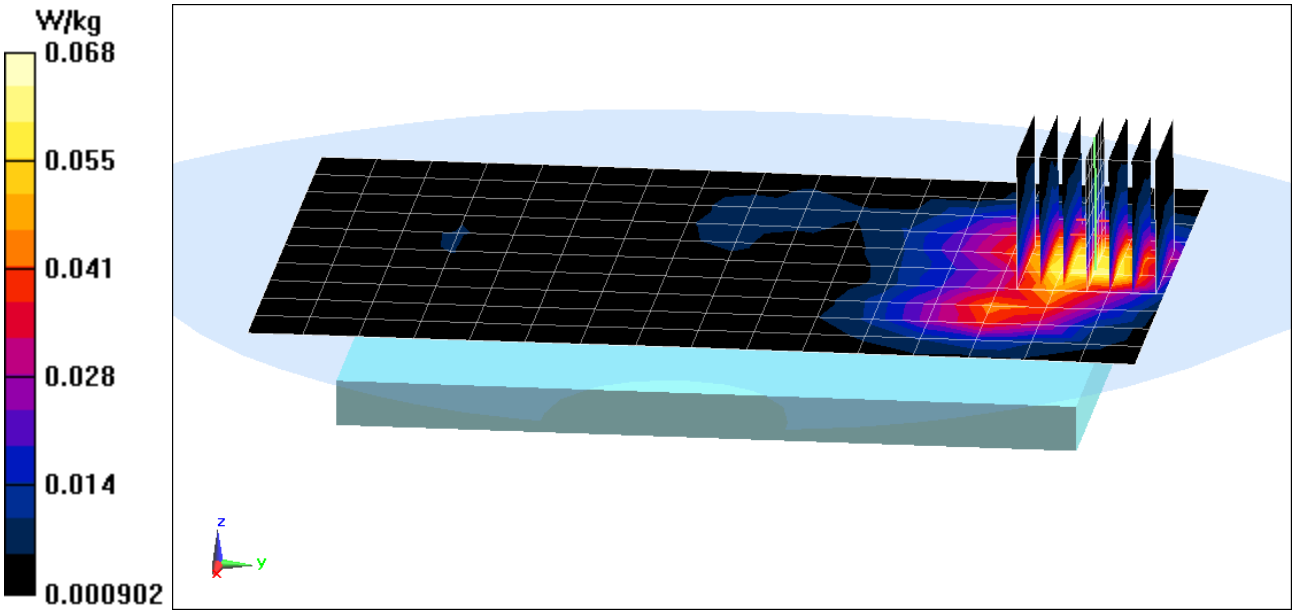
Communication System: UID 0, IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2462 MHz; σ = 2.043 S/m; ε_r = 52.601; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-13-2017; Ambient Temp: 22.5°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7406; ConvF(7.24, 7.24, 7.24); Calibrated: 4/19/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/14/2016
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.892 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.0830 W/kg
SAR(1 g) = 0.045 W/kg



DUT: A3LSMG955F; Type: Portable Handset; Serial: D68ED

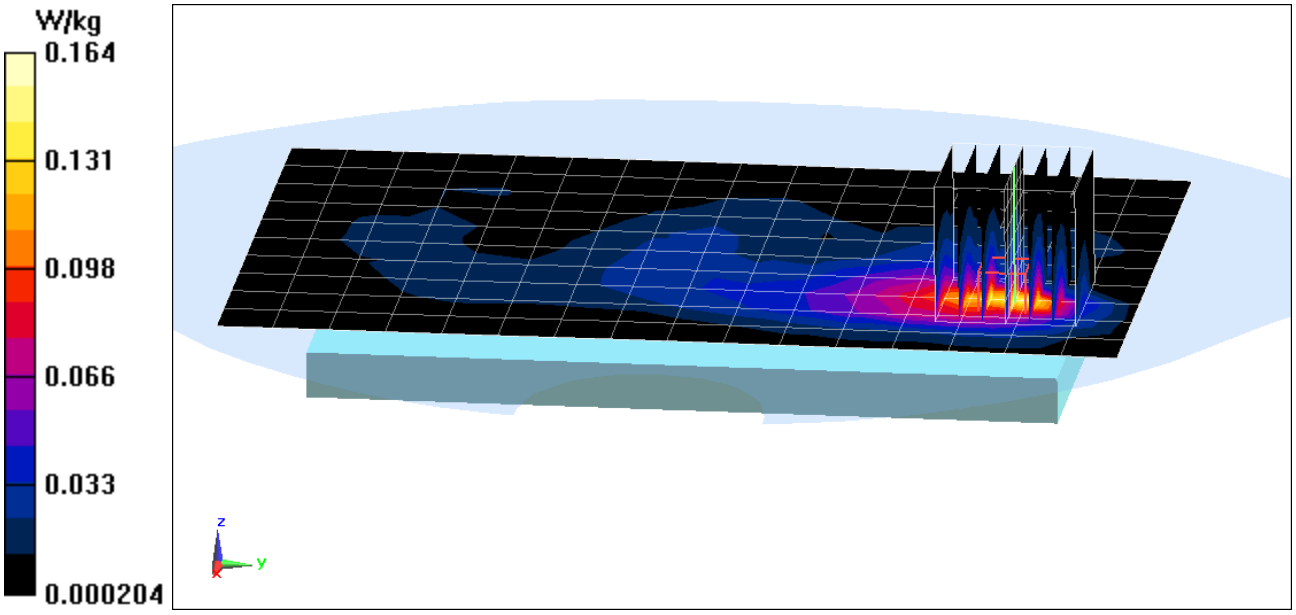
Communication System: UID 0, IEEE 802.11b; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2412 MHz; σ = 1.972 S/m; ε_r = 52.747; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-13-2017; Ambient Temp: 22.5°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7406; ConvF(7.24, 7.24, 7.24); Calibrated: 4/19/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/14/2016
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: IEEE 802.11b, 22 MHz Bandwidth, Body SAR, Ch 1, 1 Mbps, Back Side, Antenna 2

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.246 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.220 W/kg
SAR(1 g) = 0.102 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG955F; Type: Portable Handset; Serial: D21DD

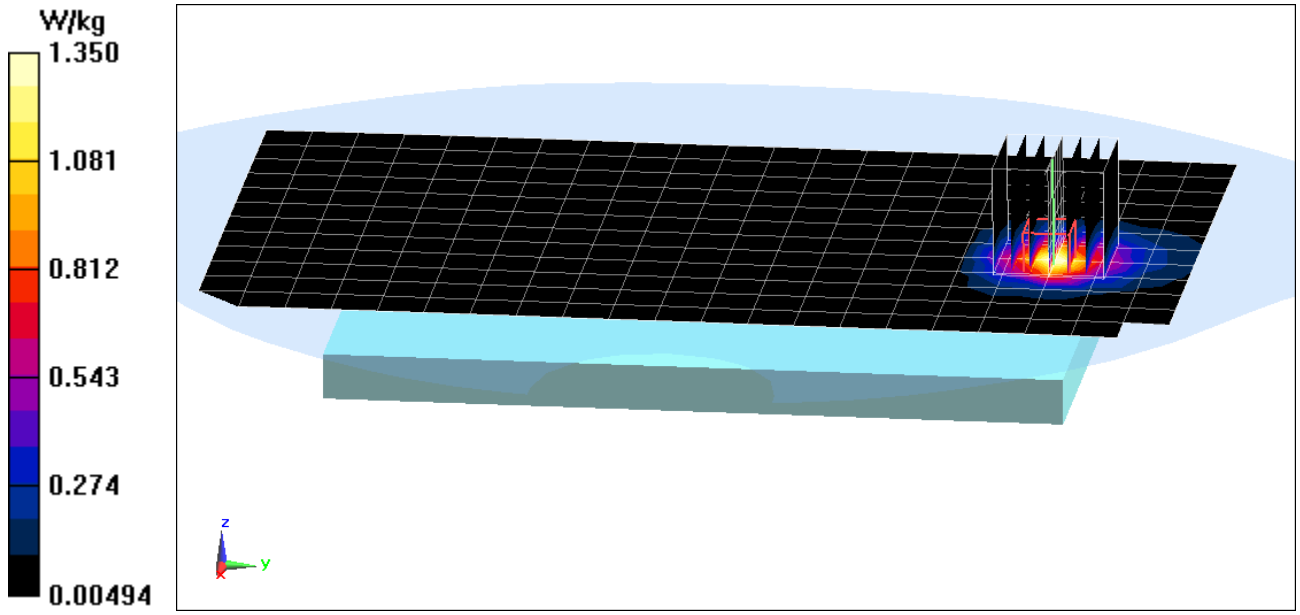
Communication System: UID 0, 802.11n 5.2-5.8 GHz Band; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used:
f = 5600 MHz; σ = 5.917 S/m; ε_r = 47.298; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-13-2017; Ambient Temp: 22.5°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN7308; ConvF(3.75, 3.75, 3.75); Calibrated: 7/21/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/11/2016
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: IEEE 802.11n, UNII-2C, 20 MHz Bandwidth,
Body SAR, Ch 120, 13 Mbps, Back Side, MIMO

Area Scan (13x22x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 11.06 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 2.09 W/kg
SAR(1 g) = 0.582 W/kg



DUT: A3LSMG955F; Type: Portable Handset; Serial: D21DD

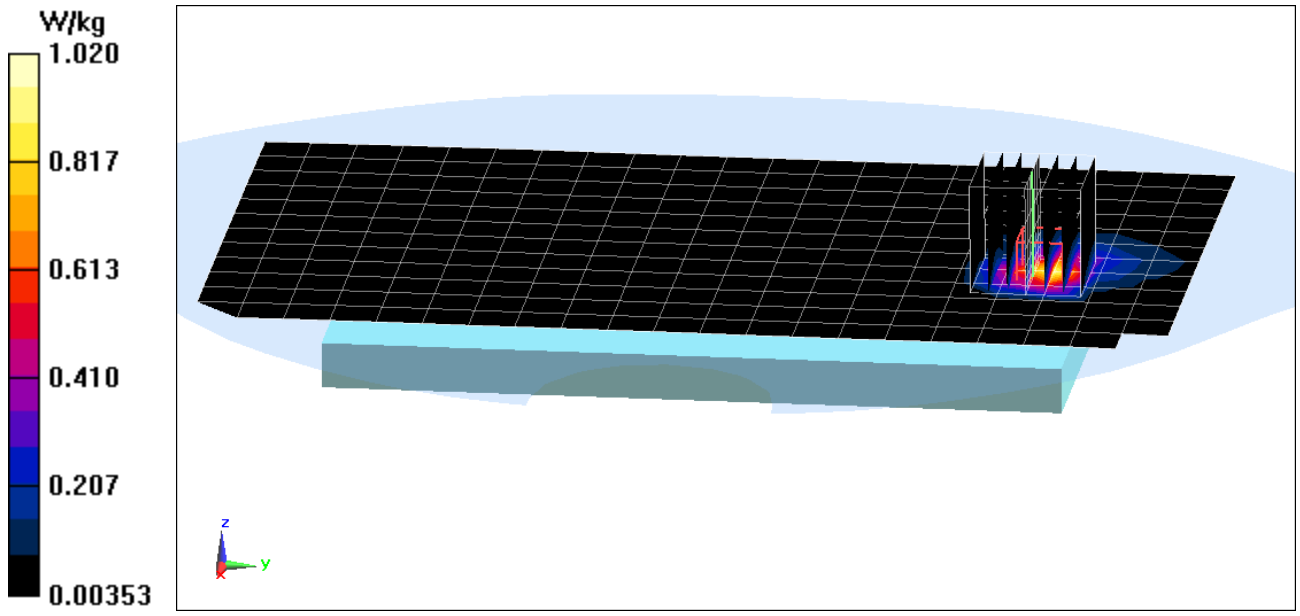
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5745 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used:
f = 5745 MHz; σ = 6.116 S/m; ε_r = 47.106; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-13-2017; Ambient Temp: 22.5°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN7308; ConvF(4.04, 4.04, 4.04); Calibrated: 7/21/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/11/2016
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: IEEE 802.11a, UNII-3, 20 MHz Bandwidth,
Body SAR, Ch 149, 6 Mbps, Back Side, Antenna 1

Area Scan (13x22x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 8.890 V/m; Power Drift = 0.21 dB
Peak SAR (extrapolated) = 1.70 W/kg
SAR(1 g) = 0.415 W/kg



DUT: A3LSMG955F; Type: Portable Handset; Serial: D68ED

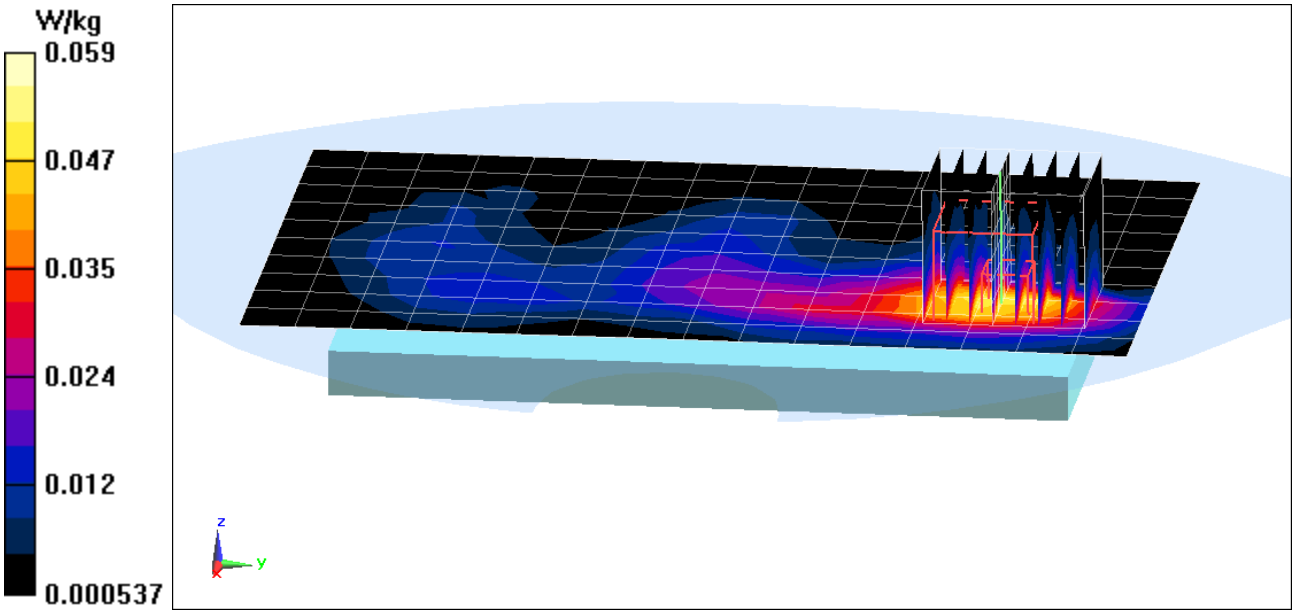
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.302
Medium: 2450 Body Medium parameters used (interpolated):
f = 2441 MHz; σ = 2.014 S/m; ε_r = 52.672; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-13-2017; Ambient Temp: 22.5°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7406; ConvF(7.24, 7.24, 7.24); Calibrated: 4/19/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/14/2016
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: Bluetooth, Body SAR, Ch 39, 1 Mbps, Back Side

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.599 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.0730 W/kg
SAR(1 g) = 0.038 W/kg



DUT: A3LSMG955F; Type: Portable Handset; Serial: D68ED

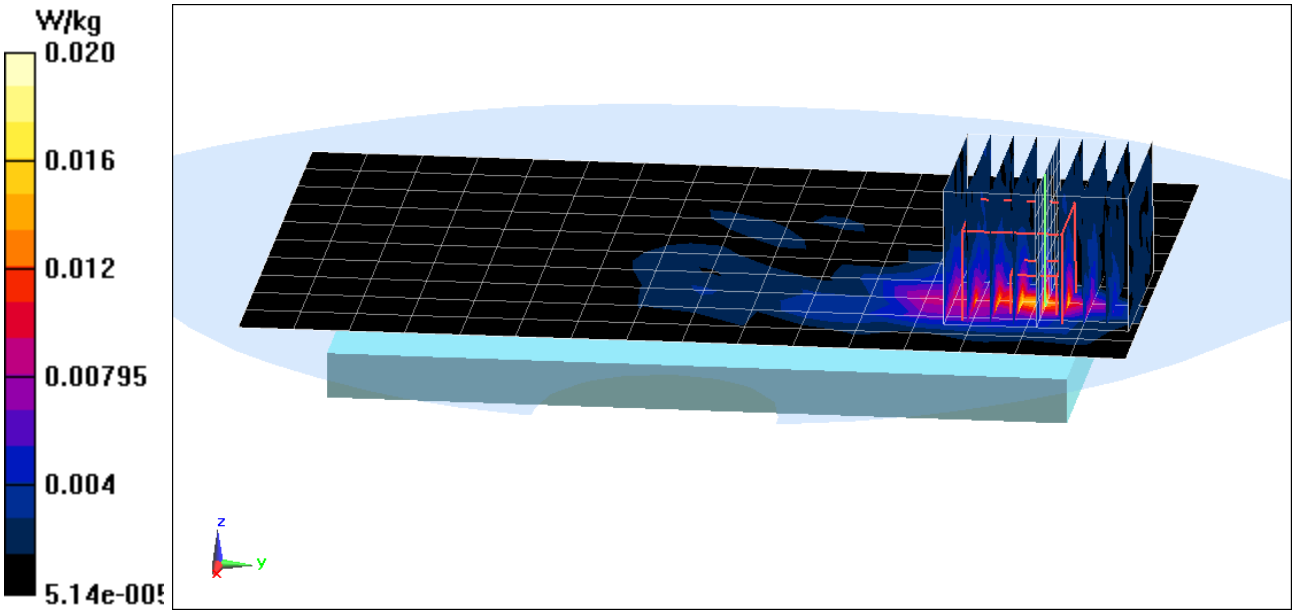
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.302
Medium: 2450 Body Medium parameters used (interpolated):
f = 2441 MHz; σ = 2.014 S/m; ε_r = 52.672; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-13-2017; Ambient Temp: 22.5°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7406; ConvF(7.24, 7.24, 7.24); Calibrated: 4/19/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/14/2016
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: Bluetooth, Body SAR, Ch 39, 2 Mbps, Back Side

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.440 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.0240 W/kg
SAR(1 g) = 0.011 W/kg



DUT: A3LSMG955F; Type: Portable Handset; Serial: D21DD

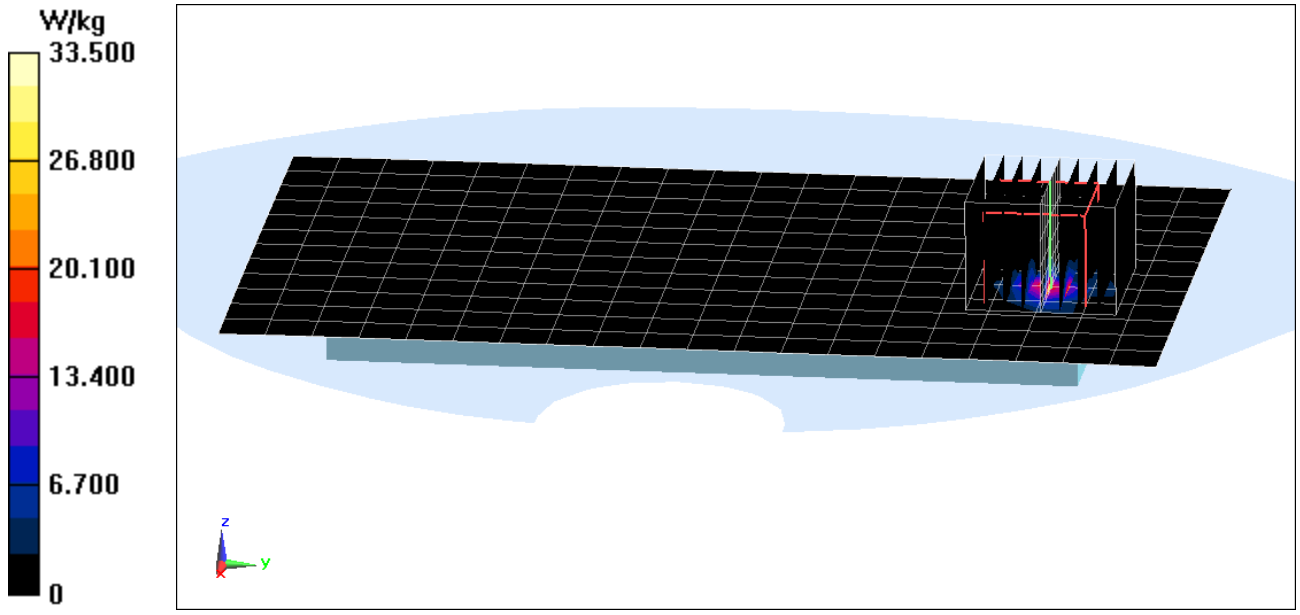
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used:
f = 5500 MHz; σ = 5.797 S/m; ε_r = 47.435; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-13-2017; Ambient Temp: 22.5°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN7308; ConvF(3.75, 3.75, 3.75); Calibrated: 7/21/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/11/2016
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: IEEE 802.11a, U-NII-2C, 20 MHz Bandwidth,
Phablet SAR, Ch 100, 6 Mbps, Back Side, Antenna 1

Area Scan (13x21x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 3.677 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 76.8 W/kg
SAR(10 g) = 2.13 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG955F; Type: Portable Handset; Serial: D68ED

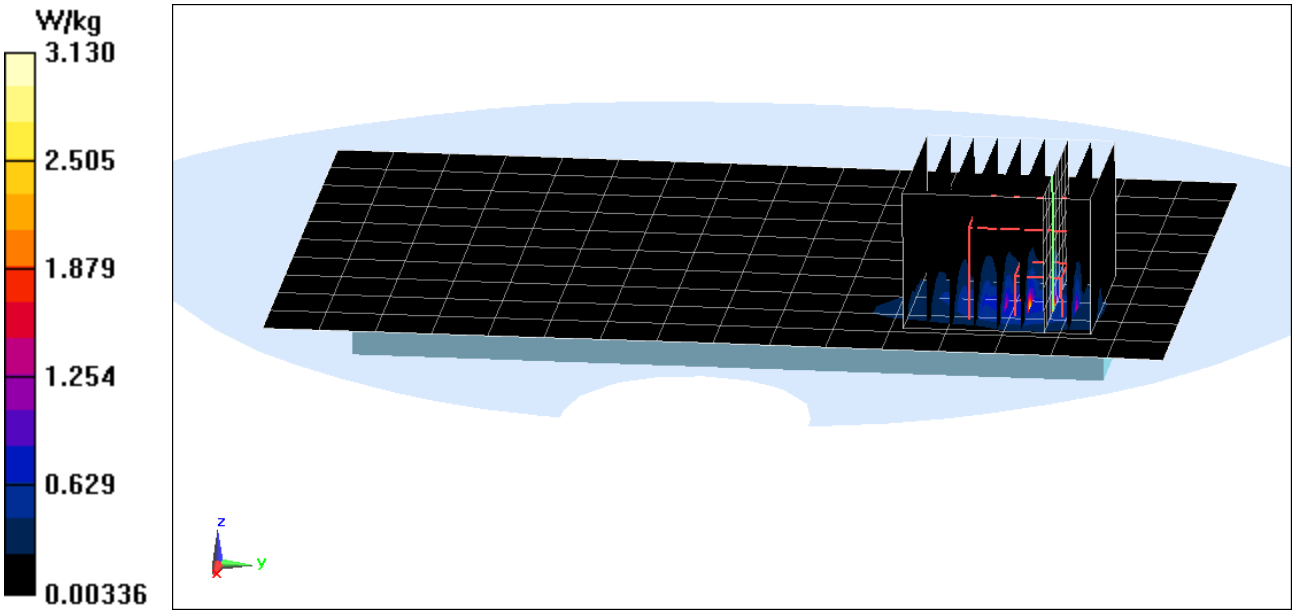
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.302
Medium: 2450 Body Medium parameters used (interpolated):
f = 2441 MHz; σ = 2.014 S/m; ε_r = 52.672; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-13-2017; Ambient Temp: 22.5°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7406; ConvF(7.24, 7.24, 7.24); Calibrated: 4/19/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/14/2016
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: Bluetooth, Phablet SAR, Ch 39, 1 Mbps, Back Side

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.61 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 4.35 W/kg
SAR(10 g) = 0.358 W/kg



APPENDIX B: SYSTEM VERIFICATION

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 797

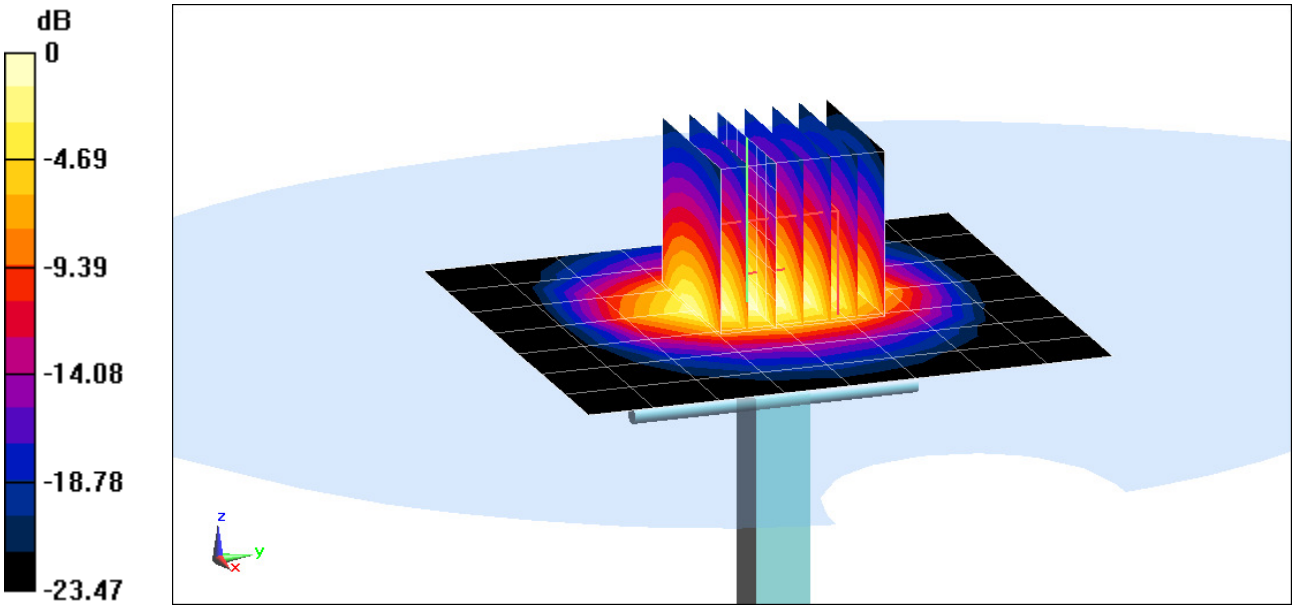
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2450 MHz; σ = 1.856 S/m; ε_r = 38.73; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-06-2017; Ambient Temp: 23.6°C; Tissue Temp: 20.8°C

Probe: ES3DV3 - SN3287; ConvF(4.54, 4.54, 4.54); Calibrated: 9/19/2016;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 9/14/2016
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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) = 11.2 W/kg
SAR(1 g) = 5.32 W/kg
Deviation(1 g) = 2.11%



0 dB = 6.98 W/kg = 8.44 dBW/kg

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1120

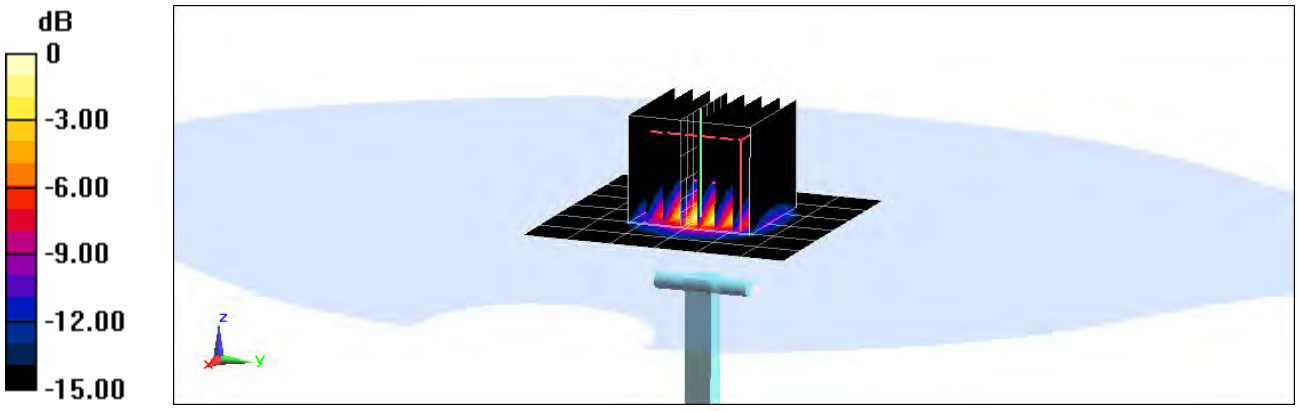
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5GHz Head Medium parameters used (interpolated):
f = 5250 MHz; σ = 4.776 S/m; ε_r = 35.735; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-13-2017; Ambient Temp: 20.2°C; Tissue Temp: 19.9°C

Probe: EX3DV4 - SN3914; ConvF(5.49, 5.49, 5.49); Calibrated: 2/13/2017;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 11/11/2016
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1800
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5250 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 17.8 W/kg
SAR(1 g) = 3.93 W/kg
Deviation(1 g) = -5.53%



0 dB = 9.43 W/kg = 9.75 dBW/kg

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1120

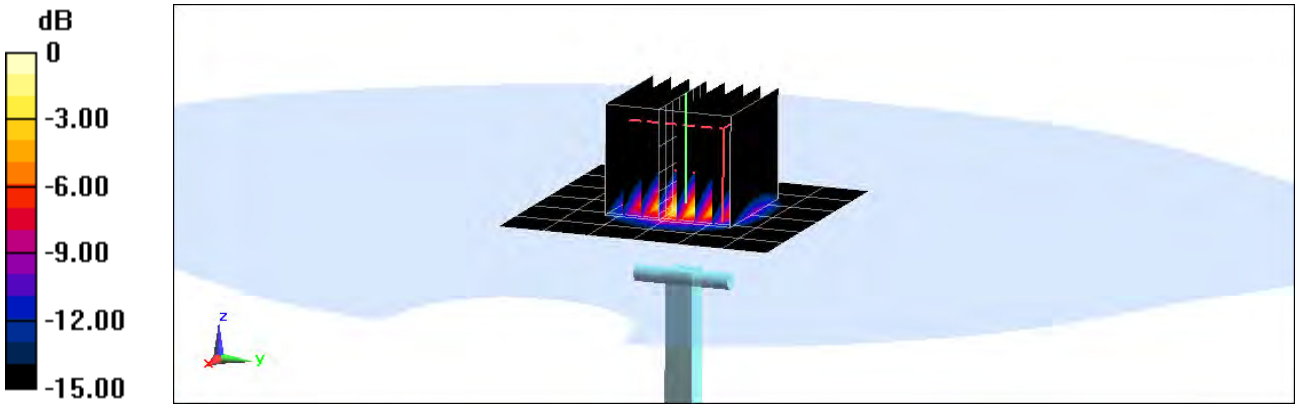
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5GHz Head Medium parameters used:
f = 5600 MHz; σ = 5.144 S/m; ε_r = 35.182; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-13-2017; Ambient Temp: 20.2°C; Tissue Temp: 19.9°C

Probe: EX3DV4 - SN3914; ConvF(4.94, 4.94, 4.94); Calibrated: 2/13/2017;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 11/11/2016
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1800
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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) = 18.3 W/kg
SAR(1 g) = 3.97 W/kg
Deviation(1 g) = -7.46%



0 dB = 10.0 W/kg = 10.00 dBW/kg

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1120

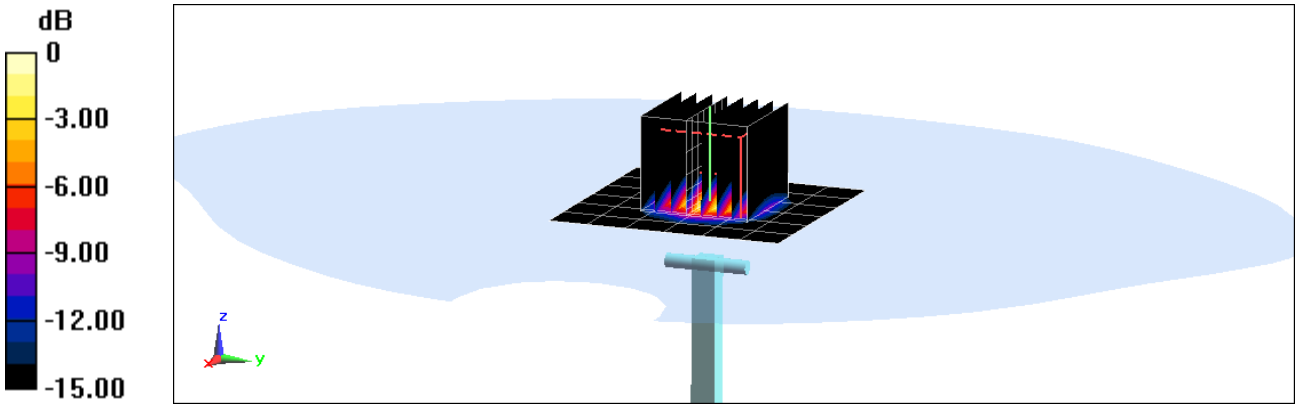
Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5GHz Head Medium parameters used (interpolated):
f = 5750 MHz; σ = 5.288 S/m; ε_r = 35.008; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-13-2017; Ambient Temp: 20.2°C; Tissue Temp: 19.9°C

Probe: EX3DV4 - SN3914; ConvF(4.91, 4.91, 4.91); Calibrated: 2/13/2017;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 11/11/2016
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1800
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5750 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 19.5 W/kg
SAR(1 g) = 4.05 W/kg
Deviation(1 g) = -0.98%



0 dB = 10.4 W/kg = 10.17 dBW/kg

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

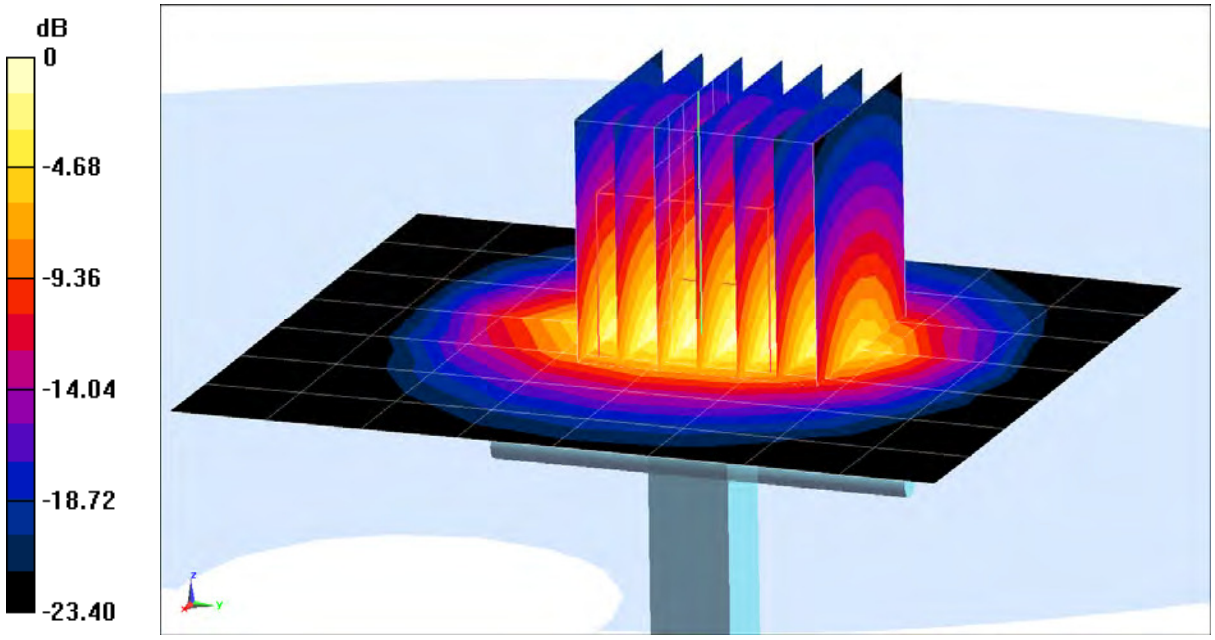
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2450 MHz; σ = 2.027 S/m; ε_r = 52.649; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-13-2017; Ambient Temp: 22.5°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7406; ConvF(7.24, 7.24, 7.24); Calibrated: 04/19/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 04/14/2016
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 10.6 W/kg
SAR(1 g) = 5.04 W/kg; SAR(10 g) = 2.29 W/kg
Deviation(1 g) = -0.79%; Deviation(10 g) = -3.78%



0 dB = 8.41 W/kg = 9.25 dBW/kg

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

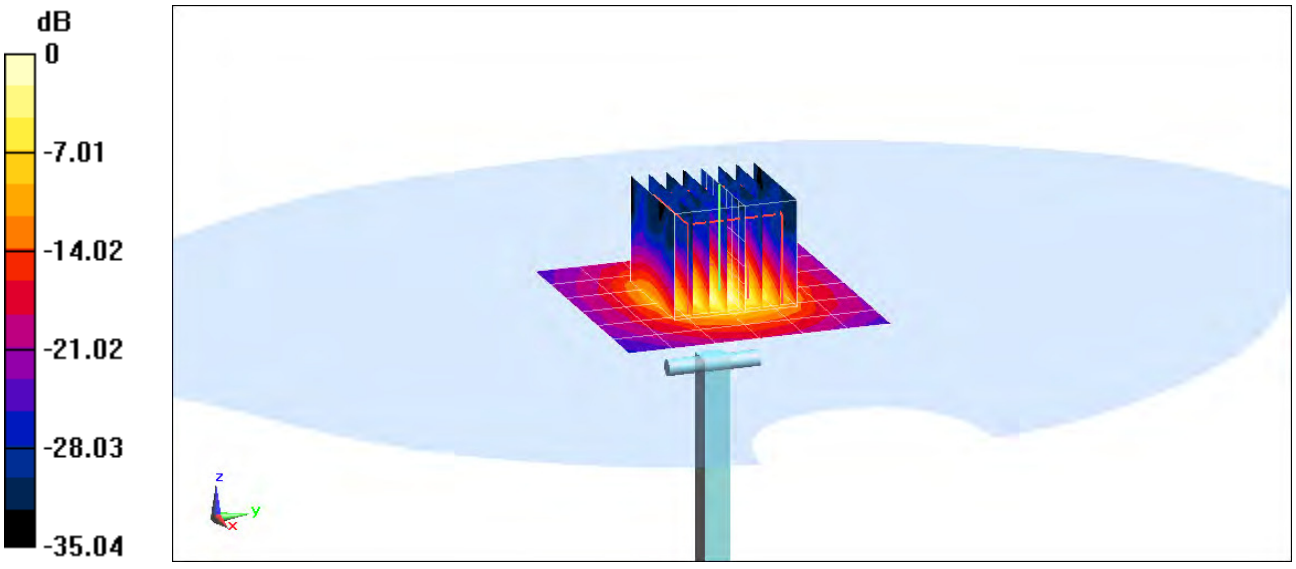
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used (interpolated):
f = 5250 MHz; σ = 5.476 S/m; ε_r = 47.907; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-13-2017; Ambient Temp: 22.5°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN7308; ConvF(4.45, 4.45, 4.45); Calibrated: 7/21/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/11/2016
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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) = 14.0 W/kg
SAR(1 g) = 3.43 W/kg; SAR(10 g) = 0.947 W/kg
Deviation(1 g) = -8.29%; Deviation(10 g) = -9.81%



0 dB = 8.22 W/kg = 9.15 dBW/kg

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

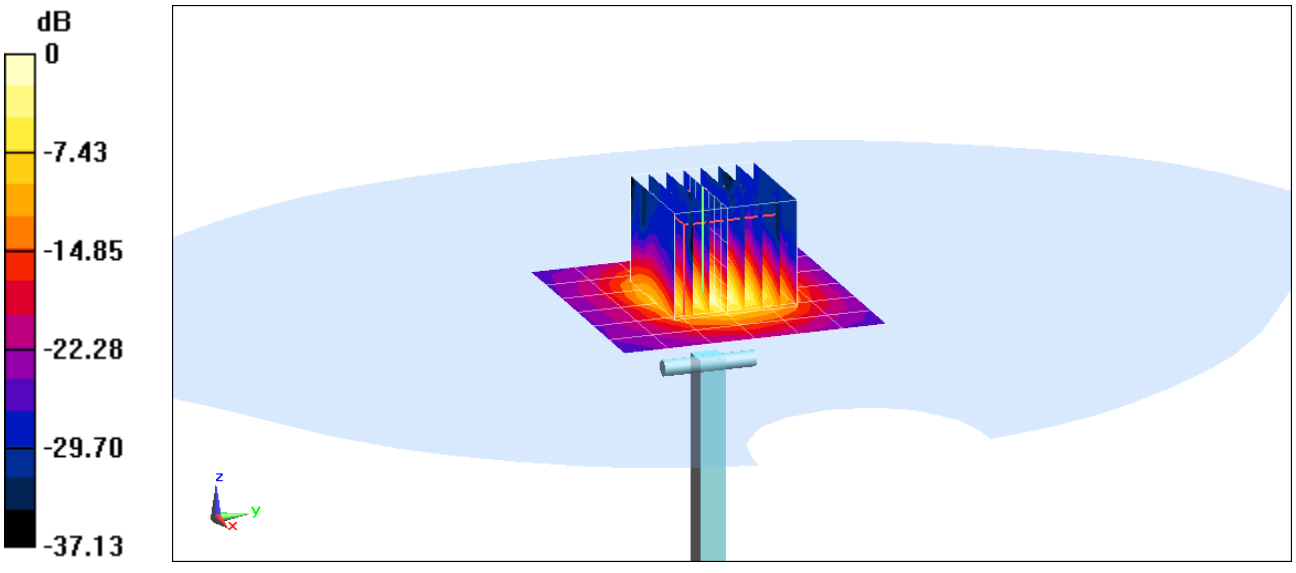
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used:
f = 5600 MHz; σ = 5.917 S/m; ε_r = 47.298; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-13-2017; Ambient Temp: 22.5°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN7308; ConvF(3.75, 3.75, 3.75); Calibrated: 7/21/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/11/2016
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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) = 16.7 W/kg
SAR(1 g) = 4.06 W/kg; SAR(10 g) = 1.11 W/kg
Deviation(1 g) = 5.45%; Deviation(10 g) = 3.26%



0 dB = 9.77 W/kg = 9.90 dBW/kg

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

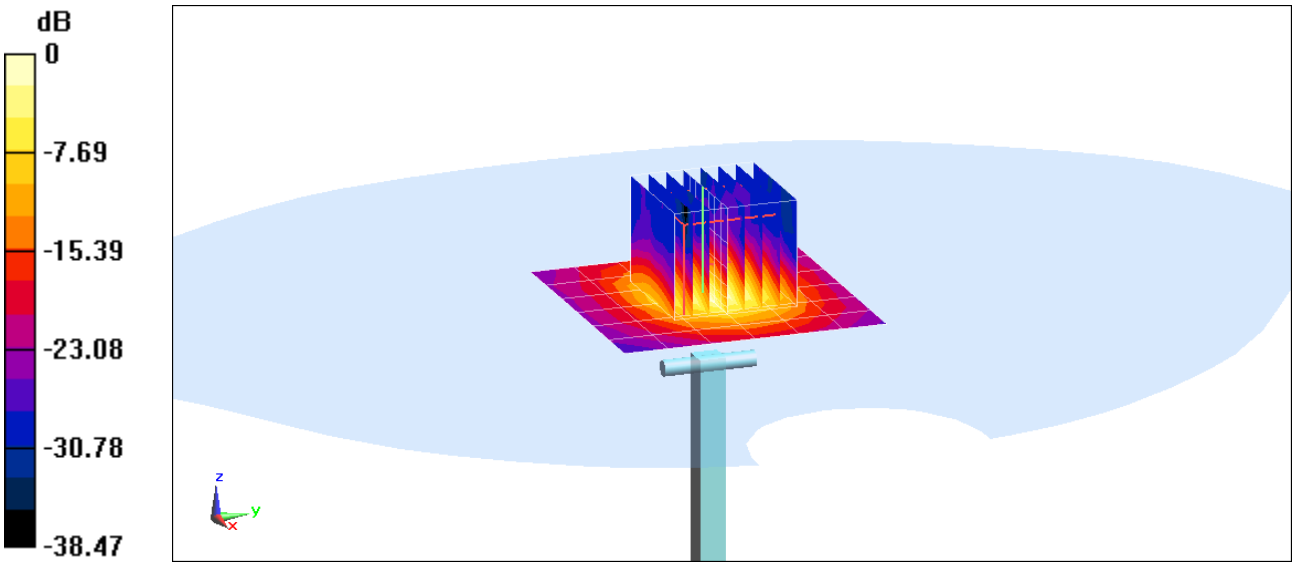
Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used (interpolated):
f = 5750 MHz; σ = 6.127 S/m; ε_r = 47.108; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-13-2017; Ambient Temp: 22.5°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN7308; ConvF(4.04, 4.04, 4.04); Calibrated: 7/21/2016;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/11/2016
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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) = 14.9 W/kg
SAR(1 g) = 3.45 W/kg
Deviation(1 g) = -8.49%



0 dB = 8.55 W/kg = 9.32 dBW/kg

APPENDIX C: PROBE CALIBRATION

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

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

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

Accreditation No.: SCS 0108

Client **PC Test** **Certificate No: D2450V2-797_Sep16**

CALIBRATION CERTIFICATE

Object	D2450V2 - SN:797
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	September 13, 2016

BNV 09-28-2016

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: 5058 (20k)	05-Apr-16 (No. 217-02292)	Apr-17
Type-N mismatch combination	SN: 5047.2 / 06327	05-Apr-16 (No. 217-02295)	Apr-17
Reference Probe EX3DV4	SN: 7349	15-Jun-16 (No. EX3-7349_Jun16)	Jun-17
DAE4	SN: 601	30-Dec-15 (No. DAE4-601_Dec15)	Dec-16

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

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

Issued: September 13, 2016

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

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

Accredited by the Swiss Accreditation Service (SAS) **Accreditation No.: SCS 0108**
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	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 %	1.88 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.4 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**52.1 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.26 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.6 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	51.6 ± 6 %	2.04 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.0 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**50.7 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.13 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**24.2 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	53.8 Ω + 6.0 jΩ
Return Loss	- 23.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	50.8 Ω + 8.0 jΩ
Return Loss	- 22.0 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.160 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	January 24, 2006

DASY5 Validation Report for Head TSL

Date: 13.09.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:797

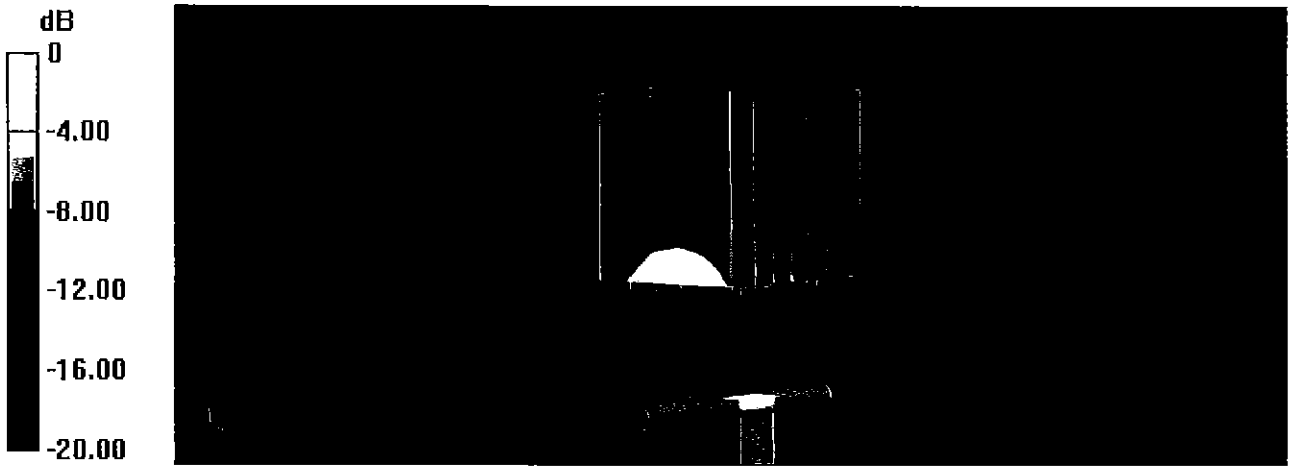
Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.88 S/m; ε_r = 37.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

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

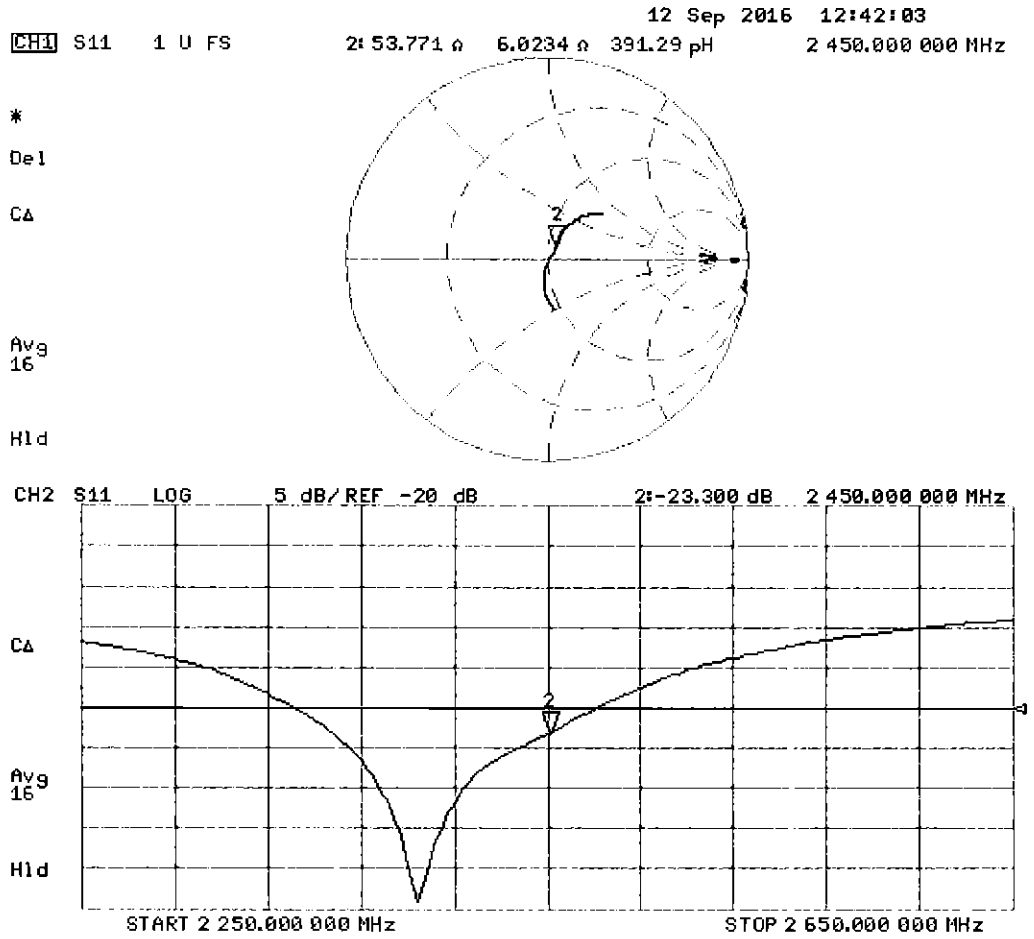
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 113.4 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 26.9 W/kg
SAR(1 g) = 13.4 W/kg; SAR(10 g) = 6.26 W/kg
Maximum value of SAR (measured) = 21.9 W/kg



0 dB = 21.9 W/kg = 13.40 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 13.09.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:797

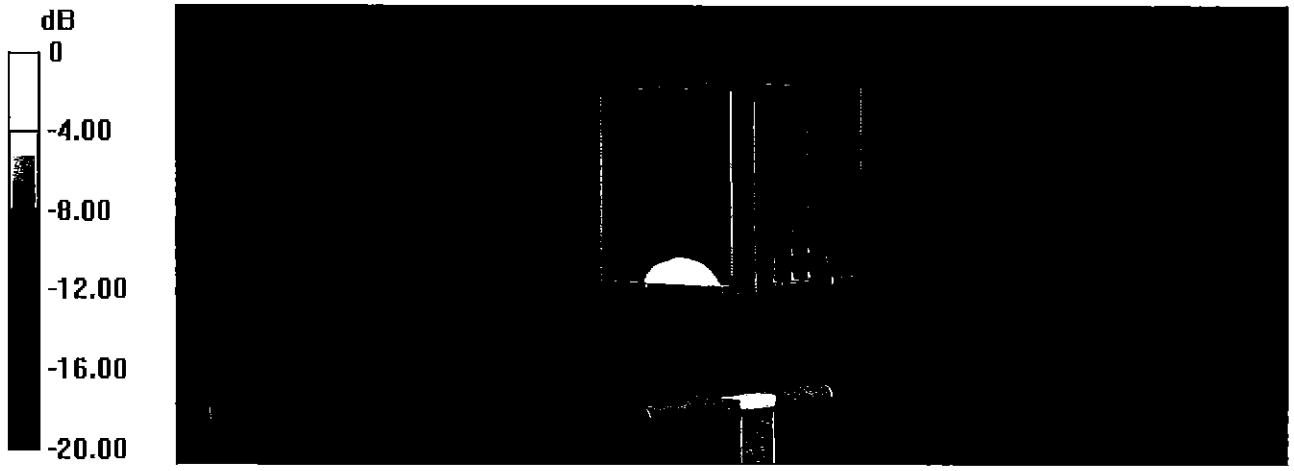
Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 2.04 S/m; ε_r = 51.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

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

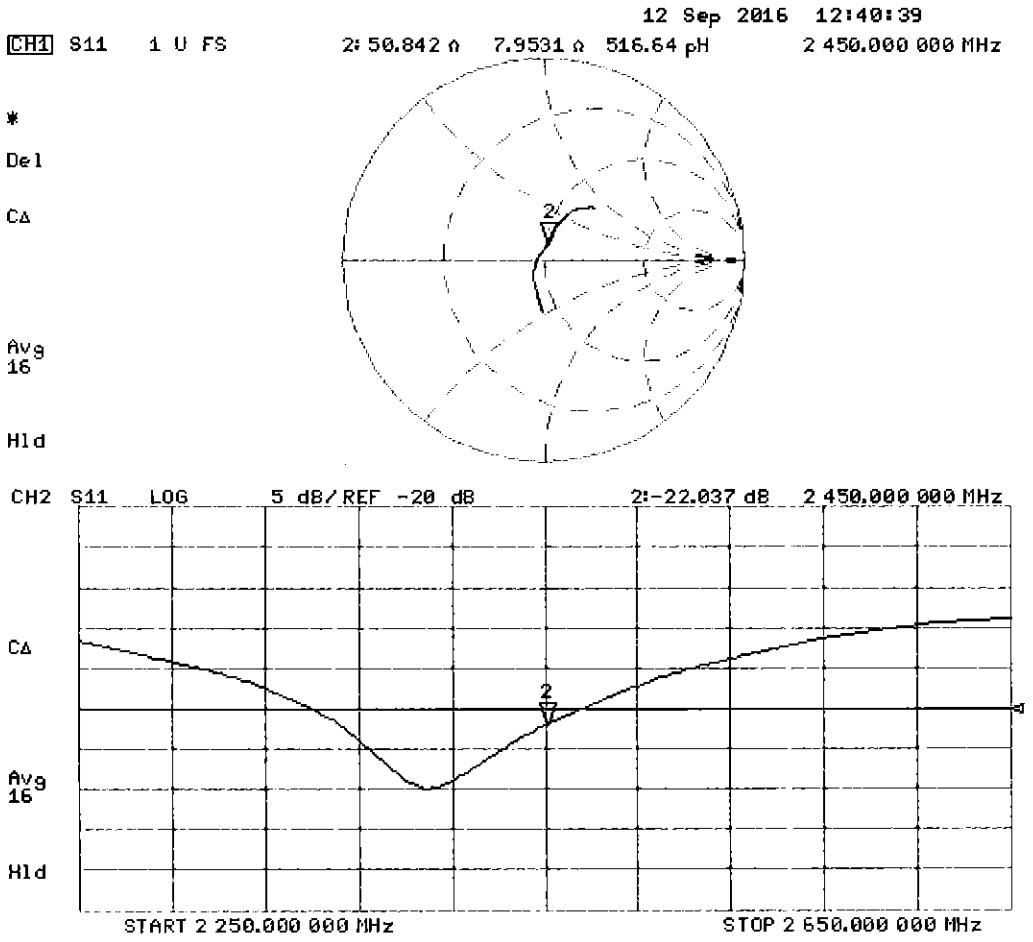
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 106.5 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 25.6 W/kg
SAR(1 g) = 13 W/kg; SAR(10 g) = 6.13 W/kg
Maximum value of SAR (measured) = 21.2 W/kg



0 dB = 21.2 W/kg = 13.26 dBW/kg

Impedance Measurement Plot for Body TSL



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

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

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

Accreditation No.: SCS 0108

Client **PC Test**

Certificate No: D5GHzV2-1120_Feb17

CALIBRATION CERTIFICATE

Object D5GHzV2 - SN:1120

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

BN ✓
03-01-2017

Calibration date: February 13, 2017

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

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

Calibration Equipment used (M&TE critical for calibration)

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

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

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

Issued: February 15, 2017

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

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

Head TSL parameters at 5250 MHz

The following parameters and calculations were applied.

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

SAR result with Head TSL at 5250 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.36 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**83.2 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.38 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.6 W/kg ± 19.5 % (k=2)**

Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

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

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.64 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**85.8 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.46 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.4 W/kg ± 19.5 % (k=2)**

Head TSL parameters at 5750 MHz

The following parameters and calculations were applied.

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

SAR result with Head TSL at 5750 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.24 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**81.8 W/kg ± 19.9 % (k=2)**

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

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	47.9 ± 6 %	5.41 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	7.57 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**75.4 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.12 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**21.1 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	47.2 ± 6 %	5.87 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	7.76 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**77.2 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.18 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	47.0 ± 6 %	6.07 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	7.74 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**77.0 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.15 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**21.4 W/kg ± 19.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 5250 MHz

Impedance, transformed to feed point	51.8 Ω - 0.9 jΩ
Return Loss	- 34.2 dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	58.5 Ω + 0.1 jΩ
Return Loss	- 22.1 dB

Antenna Parameters with Head TSL at 5750 MHz

Impedance, transformed to feed point	53.4 Ω + 5.1 jΩ
Return Loss	- 24.5 dB

Antenna Parameters with Body TSL at 5250 MHz

Impedance, transformed to feed point	51.3 Ω - 0.1 jΩ
Return Loss	- 37.9 dB

Antenna Parameters with Body TSL at 5600 MHz

Impedance, transformed to feed point	58.7 Ω + 2.3 jΩ
Return Loss	- 21.7 dB

Antenna Parameters with Body TSL at 5750 MHz

Impedance, transformed to feed point	53.6 Ω + 6.9 jΩ
Return Loss	- 22.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.207 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: 13.02.2017

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1120

Communication System: UID 0 - CW;
Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz
Medium parameters used: f = 5250 MHz; σ = 4.5 S/m; ε_r = 35.3; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5600 MHz; σ = 4.85 S/m; ε_r = 34.7; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5750 MHz; σ = 4.99 S/m; ε_r = 34.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.42, 5.42, 5.42); Calibrated: 31.12.2016, ConvF(4.94, 4.94, 4.94); Calibrated: 31.12.2016, ConvF(4.92, 4.92, 4.92); Calibrated: 31.12.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.01.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

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

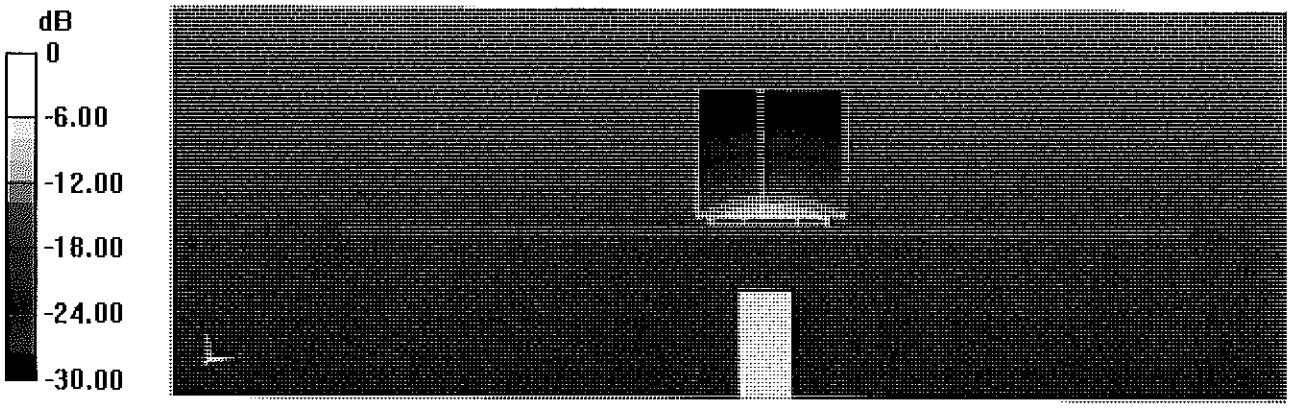
Reference Value = 73.79 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 31.8 W/kg
SAR(1 g) = 8.36 W/kg; SAR(10 g) = 2.38 W/kg
Maximum value of SAR (measured) = 19.5 W/kg

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

Reference Value = 73.28 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 35.1 W/kg
SAR(1 g) = 8.64 W/kg; SAR(10 g) = 2.46 W/kg
Maximum value of SAR (measured) = 20.8 W/kg

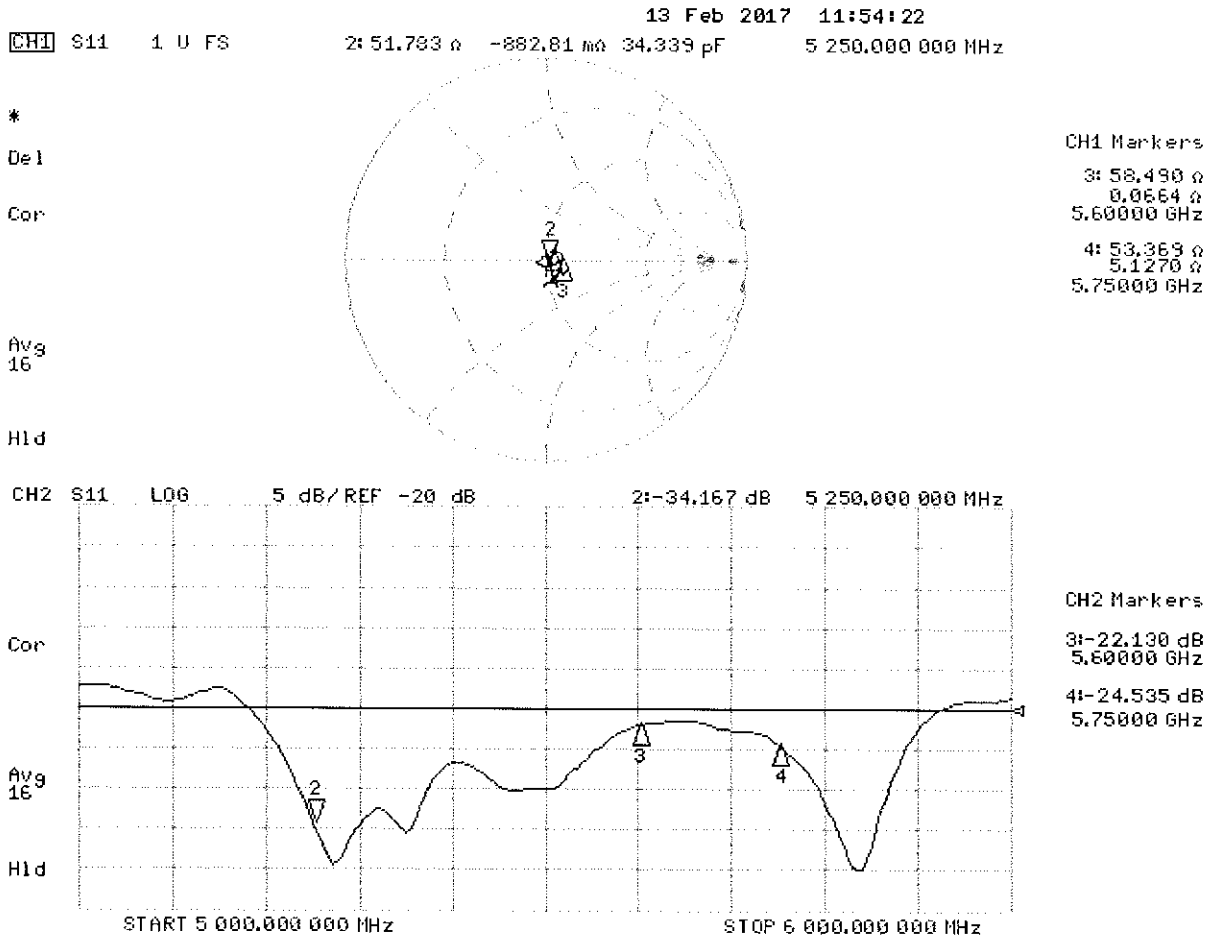
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 69.04 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 34.5 W/kg
SAR(1 g) = 8.24 W/kg; SAR(10 g) = 2.36 W/kg
Maximum value of SAR (measured) = 19.9 W/kg



0 dB = 19.5 W/kg = 12.90 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 10.02.2017

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1120

Communication System: UID 0 - CW;
Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz
Medium parameters used: f = 5250 MHz; σ = 5.41 S/m; ε_r = 47.9; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5600 MHz; σ = 5.87 S/m; ε_r = 47.2; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5750 MHz; σ = 6.07 S/m; ε_r = 47; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.14, 5.14, 5.14); Calibrated: 31.12.2016, ConvF(4.57, 4.57, 4.57); Calibrated: 31.12.2016, ConvF(4.52, 4.52, 4.52); Calibrated: 31.12.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.01.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

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

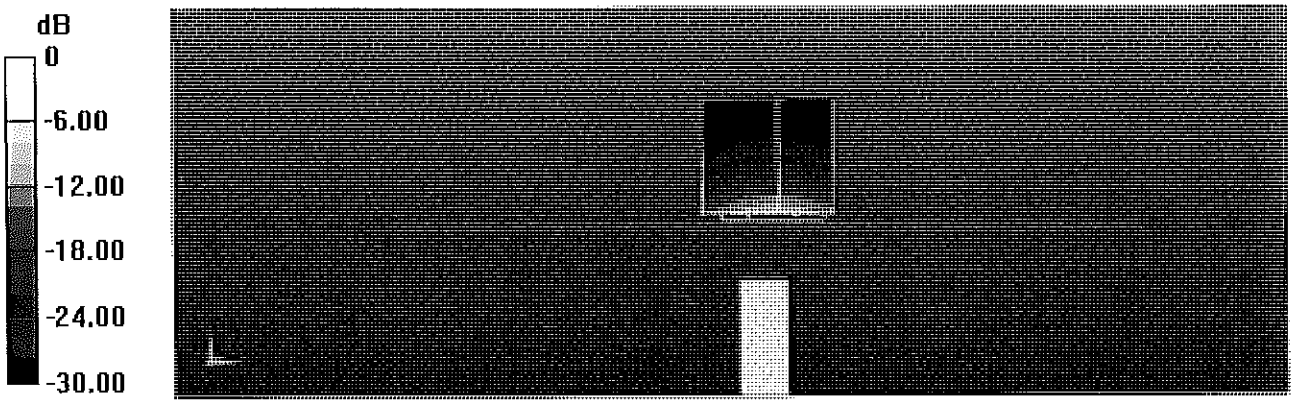
Reference Value = 64.08 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 29.3 W/kg
SAR(1 g) = 7.57 W/kg; SAR(10 g) = 2.12 W/kg
Maximum value of SAR (measured) = 17.8 W/kg

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 = 64.70 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 32.8 W/kg
SAR(1 g) = 7.76 W/kg; SAR(10 g) = 2.18 W/kg
Maximum value of SAR (measured) = 18.9 W/kg

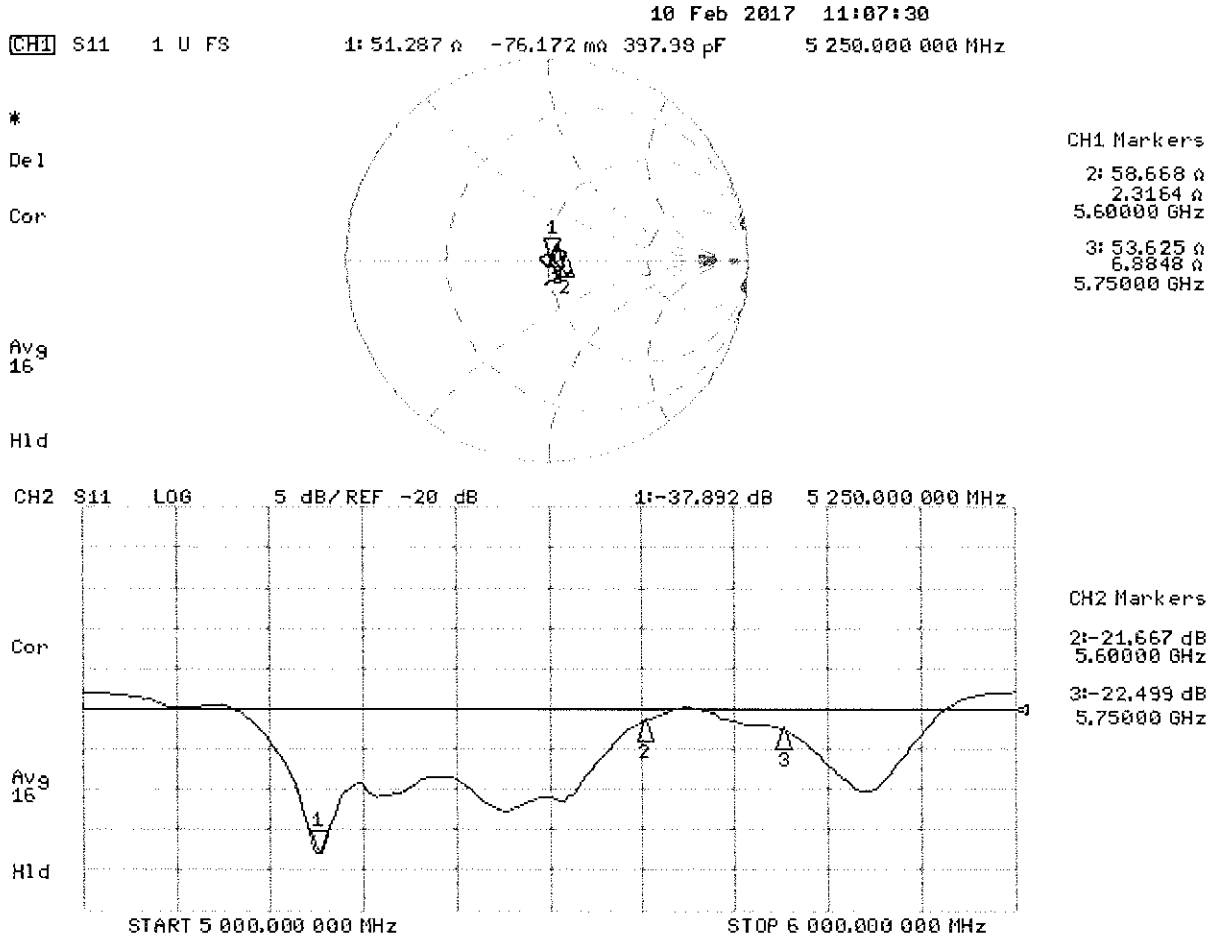
Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 63.14 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 34.3 W/kg
SAR(1 g) = 7.74 W/kg; SAR(10 g) = 2.15 W/kg
Maximum value of SAR (measured) = 19.2 W/kg



0 dB = 17.8 W/kg = 12.50 dBW/kg

Impedance Measurement Plot for Body TSL



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

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

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

Accreditation No.: SCS 0108

Client **PC Test**

Certificate No: D2450V2-981_Jul16

CALIBRATION CERTIFICATE

Object D2450V2 - SN:981

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

VPH
8/9/16

Calibration date: July 25, 2016

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: 5058 (20k)	05-Apr-16 (No. 217-02292)	Apr-17
Type-N mismatch combination	SN: 5047.2 / 06327	05-Apr-16 (No. 217-02295)	Apr-17
Reference Probe EX3DV4	SN: 7349	15-Jun-16 (No. EX3-7349_Jun16)	Jun-17
DAE4	SN: 601	30-Dec-15 (No. DAE4-601_Dec15)	Dec-16

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

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

Issued: July 27, 2016

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

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

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

Accreditation No.: SCS 0108

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	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	38.0 ± 6 %	1.86 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

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

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.26 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.7 W/kg ± 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	51.8 ± 6 %	2.03 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

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

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

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

Antenna Parameters with Body TSL

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

General Antenna Parameters and Design

Electrical Delay (one direction)	1.162 ns

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

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	December 30, 2014

DASY5 Validation Report for Head TSL

Date: 13.07.2016

Test Laboratory: SPEAG, Zurich, Switzerland

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

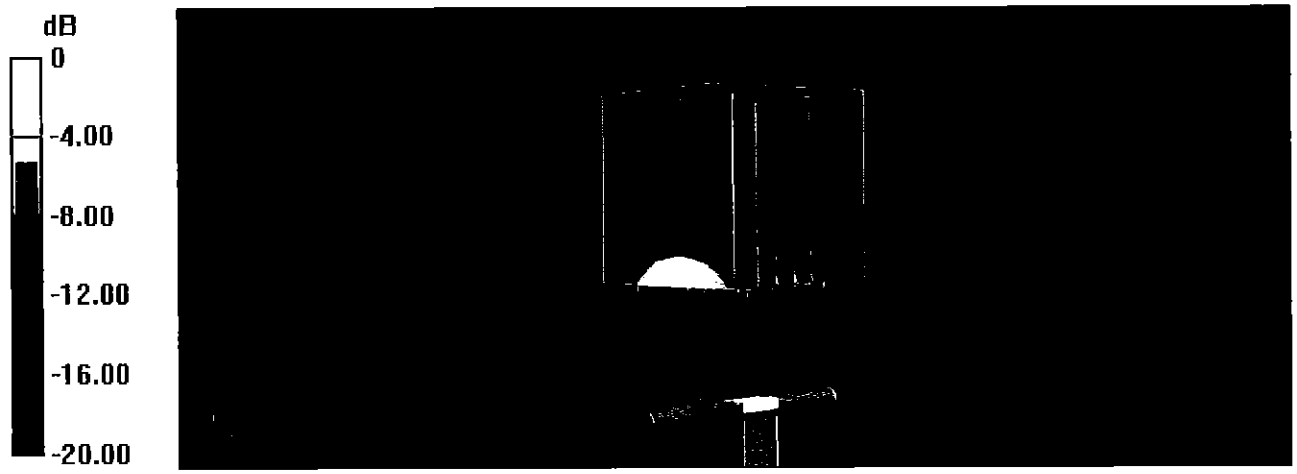
Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.86 S/m; ε_r = 38; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

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

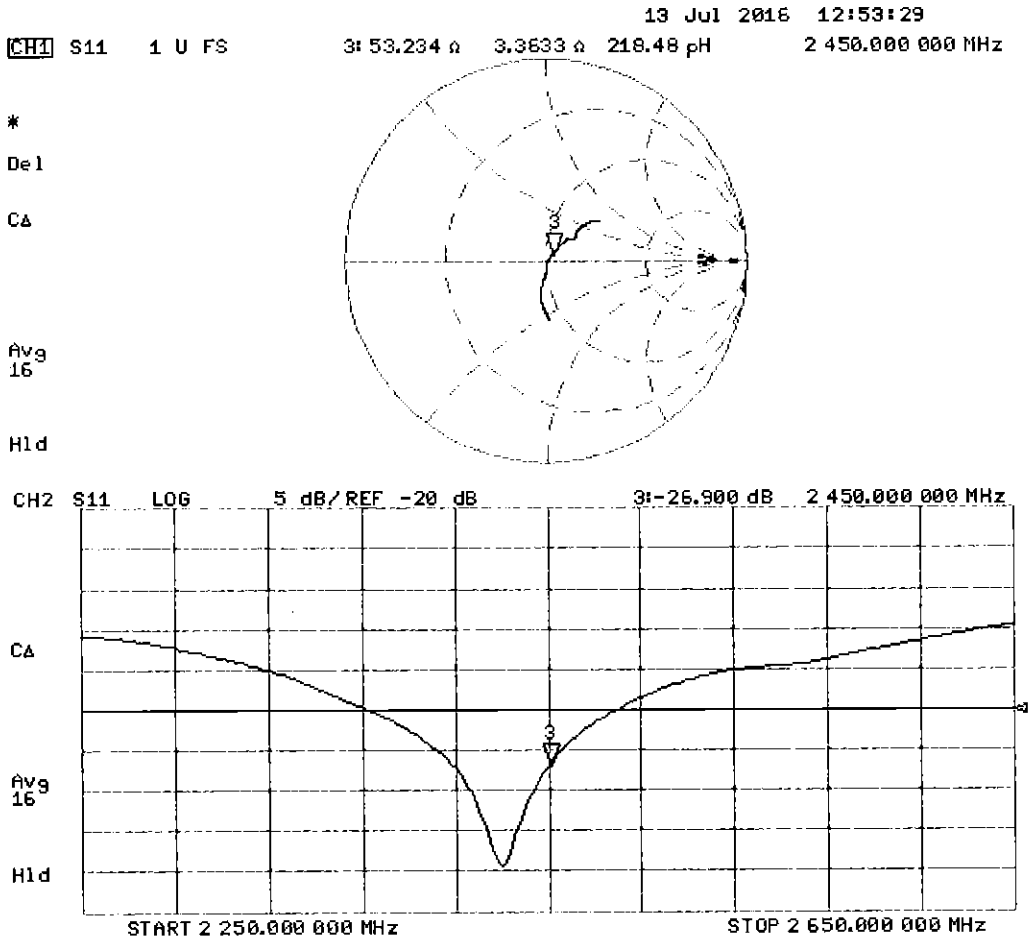
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 115.8 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 27.4 W/kg
SAR(1 g) = 13.5 W/kg; SAR(10 g) = 6.26 W/kg
Maximum value of SAR (measured) = 22.5 W/kg



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

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 25.07.2016

Test Laboratory: SPEAG, Zurich, Switzerland

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

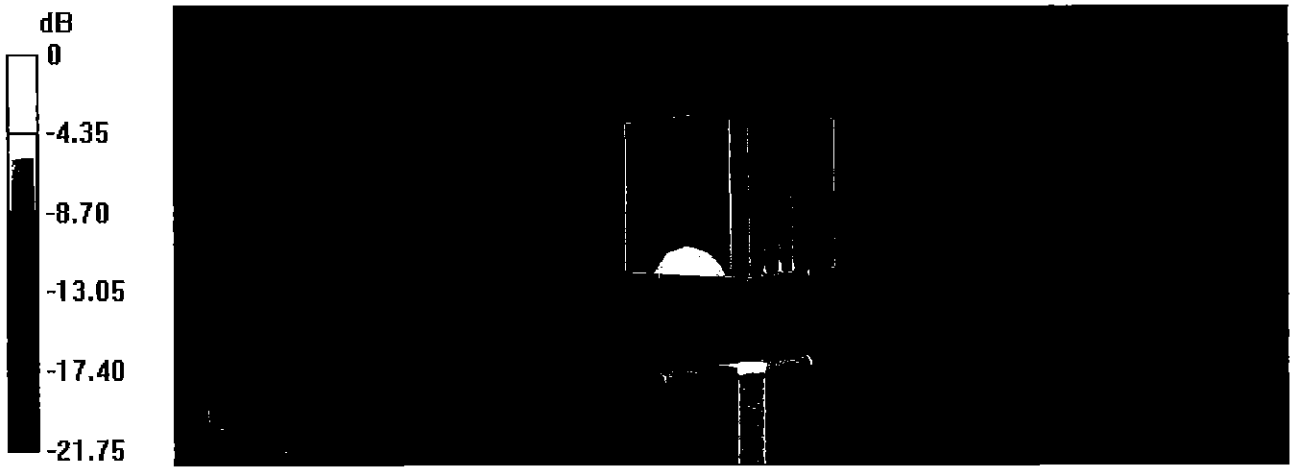
Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 2.03 S/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

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

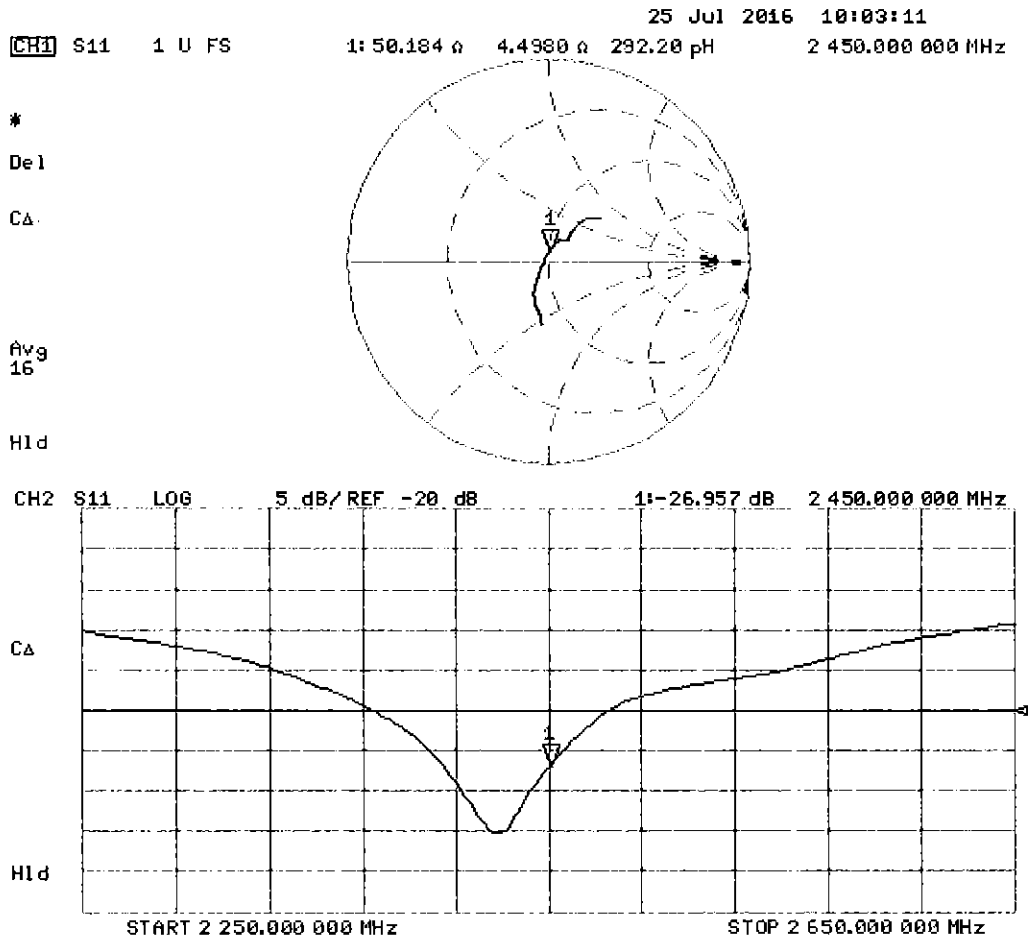
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 107.1 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 26.0 W/kg
SAR(1 g) = 13 W/kg; SAR(10 g) = 6.04 W/kg
Maximum value of SAR (measured) = 21.4 W/kg



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

Impedance Measurement Plot for Body TSL



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

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

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

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **D5GHzV2-1237_Aug16**

CALIBRATION CERTIFICATE

Object D5GHzV2 - SN:1237

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

vPT 8/9/16

Calibration date: August 02, 2016

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: 5058 (20k)	05-Apr-16 (No. 217-02292)	Apr-17
Type-N mismatch combination	SN: 5047.2 / 06327	05-Apr-16 (No. 217-02295)	Apr-17
Reference Probe EX3DV4	SN: 3503	30-Jun-16 (No. EX3-3503_Jun16)	Jun-17
DAE4	SN: 601	30-Dec-15 (No. DAE4-601_Dec15)	Dec-16

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

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

Issued: August 4, 2016

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

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

Head TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	35.9	4.71 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.4 ± 6 %	4.52 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	8.00 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**79.2 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.30 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**22.7 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	33.9 ± 6 %	4.86 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.43 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**83.3 W / kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.42 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.9 W/kg ± 19.5 % (k=2)**

Head TSL parameters at 5750 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.4	5.22 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	33.7 ± 6 %	5.02 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	8.25 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**81.5 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.35 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.2 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 %	5.42 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	7.54 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**74.8 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.12 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**21.0 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	46.5 ± 6 %	5.88 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	7.76 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**77.0 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.17 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**21.5 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 %	6.11 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5750 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.60 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**75.4 W/kg ± 19.9 % (k=2)**

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

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 5250 MHz

Impedance, transformed to feed point	48.6 Ω - 2.5 jΩ
Return Loss	- 30.7 dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	50.9 Ω + 1.5 jΩ
Return Loss	- 35.3 dB

Antenna Parameters with Head TSL at 5750 MHz

Impedance, transformed to feed point	53.8 Ω + 5.8 jΩ
Return Loss	- 23.5 dB

Antenna Parameters with Body TSL at 5250 MHz

Impedance, transformed to feed point	47.0 Ω - 3.9 jΩ
Return Loss	- 25.9 dB

Antenna Parameters with Body TSL at 5600 MHz

Impedance, transformed to feed point	51.5 Ω + 3.9 jΩ
Return Loss	- 27.7 dB

Antenna Parameters with Body TSL at 5750 MHz

Impedance, transformed to feed point	53.8 Ω + 0.3 jΩ
Return Loss	- 28.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.193 ns

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

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	May 04, 2015

DASY5 Validation Report for Head TSL

Date: 02.08.2016

Test Laboratory: SPEAG, Zurich, Switzerland

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

Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz
Medium parameters used: f = 5250 MHz; σ = 4.52 S/m; ε_r = 34.4; ρ = 1000 kg/m^3
Medium parameters used: f = 5600 MHz; σ = 4.86 S/m; ε_r = 33.9; ρ = 1000 kg/m^3
Medium parameters used: f = 5750 MHz; σ = 5.02 S/m; ε_r = 33.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

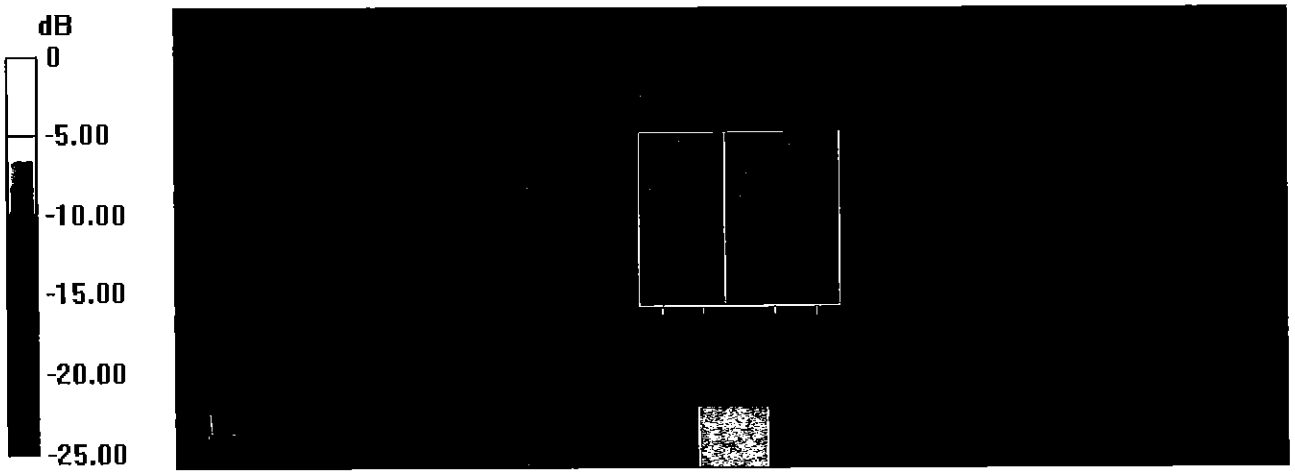
DASY52 Configuration:

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

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 74.10 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 29.5 W/kg
SAR(1 g) = 8 W/kg; SAR(10 g) = 2.3 W/kg
Maximum value of SAR (measured) = 18.3 W/kg

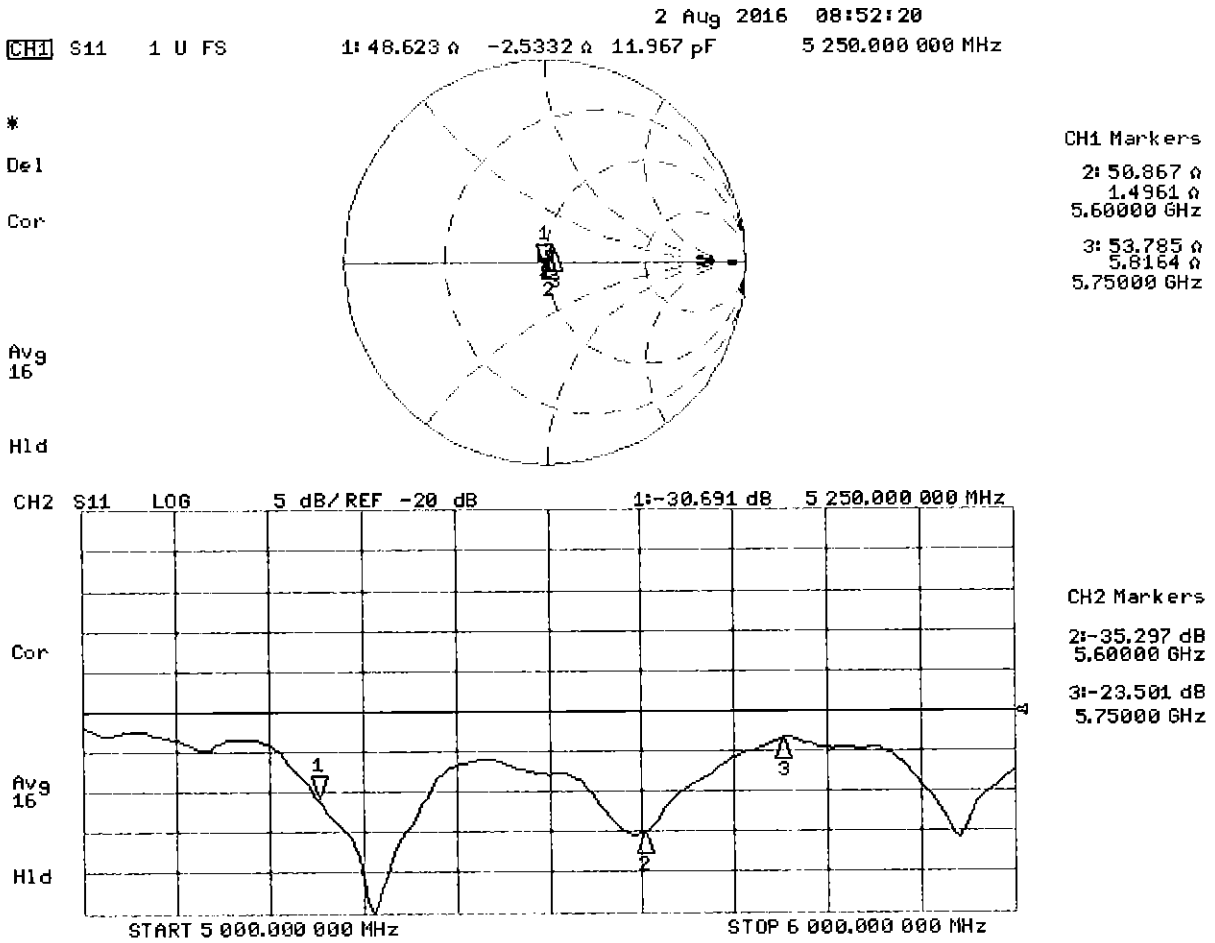
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 73.55 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 32.9 W/kg
SAR(1 g) = 8.43 W/kg; SAR(10 g) = 2.42 W/kg
Maximum value of SAR (measured) = 19.7 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 = 72.23 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 33.6 W/kg
SAR(1 g) = 8.25 W/kg; SAR(10 g) = 2.35 W/kg
Maximum value of SAR (measured) = 18.3 W/kg



0 dB = 18.3 W/kg = 12.62 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 02.08.2016

Test Laboratory: SPEAG, Zurich, Switzerland

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

Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz
Medium parameters used: f = 5250 MHz; σ = 5.42 S/m; ε_r = 47.1; ρ = 1000 kg/m^3
Medium parameters used: f = 5600 MHz; σ = 5.88 S/m; ε_r = 46.5; ρ = 1000 kg/m^3
Medium parameters used: f = 5750 MHz; σ = 6.11 S/m; ε_r = 46.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

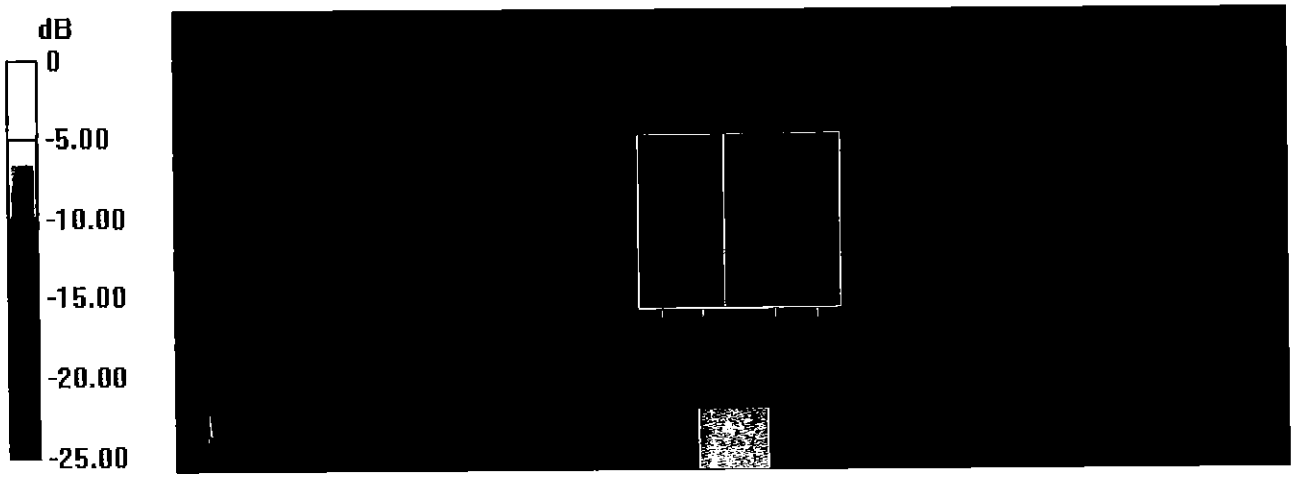
DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(4.85, 4.85, 4.85); Calibrated: 30.06.2016, ConvF(4.35, 4.35, 4.35); Calibrated: 30.06.2016, ConvF(4.3, 4.3, 4.3); Calibrated: 30.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7372)

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 = 67.19 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 28.4 W/kg
SAR(1 g) = 7.54 W/kg; SAR(10 g) = 2.12 W/kg
Maximum value of SAR (measured) = 17.3 W/kg

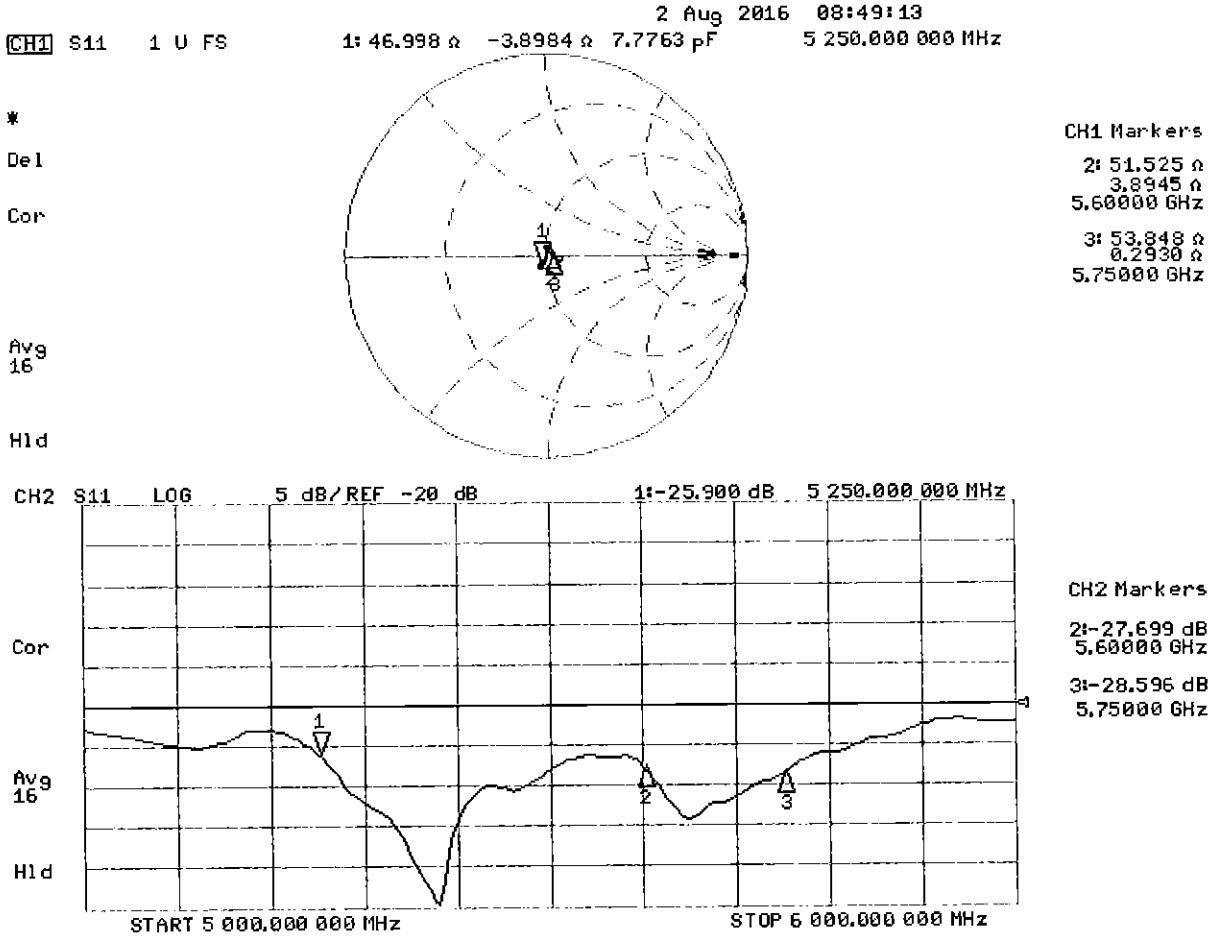
Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 66.80 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 31.9 W/kg
SAR(1 g) = 7.76 W/kg; SAR(10 g) = 2.17 W/kg
Maximum value of SAR (measured) = 18.3 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 65.31 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 32.6 W/kg
SAR(1 g) = 7.6 W/kg; SAR(10 g) = 2.11 W/kg
Maximum value of SAR (measured) = 18.4 W/kg



0 dB = 17.3 W/kg = 12.38 dBW/kg

Impedance Measurement Plot for Body TSL



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

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

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

Accreditation No.: SCS 0108

Client **PC Test**

Certificate No: ES3-3287_Sep16

CALIBRATION CERTIFICATE

Object ES3DV3 - SN:3287

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

BN ✓
09-28-2016

Calibration date: September 19, 2016

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: S5277 (20x)	05-Apr-16 (No. 217-02293)	Apr-17
Reference Probe ES3DV2	SN: 3013	31-Dec-15 (No. ES3-3013_Dec15)	Dec-16
DAE4	SN: 660	23-Dec-15 (No. DAE4-660_Dec15)	Dec-16
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-15)	In house check: Oct-16

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

Issued: September 20, 2016

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

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

Accredited by the Swiss Accreditation Service (SAS) **Accreditation No.: SCS 0108**
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
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, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- *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:3287

Manufactured: June 7, 2010
Calibrated: September 19, 2016

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

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3287

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.87	0.98	1.00	± 10.1 %
DCP (mV)[B]	101.9	101.4	106.1	

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	198.4	±3.5 %
		Y	0.0	0.0	1.0		189.6	
		Z	0.0	0.0	1.0		184.8	

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	65.67	459.4	34.07	29.08	2.68	5.077	2	0.308	1.009
Y	71.46	511.8	35.31	29.86	3.707	5.1	0.748	0.607	1.009
Z	50.48	357.3	34.55	27.84	2.262	5.1	1.583	0.279	1.01

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:3287

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	6.96	6.96	6.96	0.44	1.36	± 12.0 %
835	41.5	0.90	6.67	6.67	6.67	0.29	1.69	± 12.0 %
1750	40.1	1.37	5.49	5.49	5.49	0.43	1.42	± 12.0 %
1900	40.0	1.40	5.27	5.27	5.27	0.41	1.45	± 12.0 %
2300	39.5	1.67	4.86	4.86	4.86	0.61	1.28	± 12.0 %
2450	39.2	1.80	4.54	4.54	4.54	0.47	1.51	± 12.0 %
2600	39.0	1.96	4.41	4.41	4.41	0.77	1.18	± 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:3287

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	6.64	6.64	6.64	0.27	1.86	± 12.0 %
835	55.2	0.97	6.55	6.55	6.55	0.50	1.37	± 12.0 %
1750	53.4	1.49	5.11	5.11	5.11	0.33	1.85	± 12.0 %
1900	53.3	1.52	4.94	4.94	4.94	0.42	1.59	± 12.0 %
2300	52.9	1.81	4.55	4.55	4.55	0.55	1.42	± 12.0 %
2450	52.7	1.95	4.35	4.35	4.35	0.80	1.09	± 12.0 %
2600	52.5	2.16	4.12	4.12	4.12	0.80	1.10	± 12.0 %

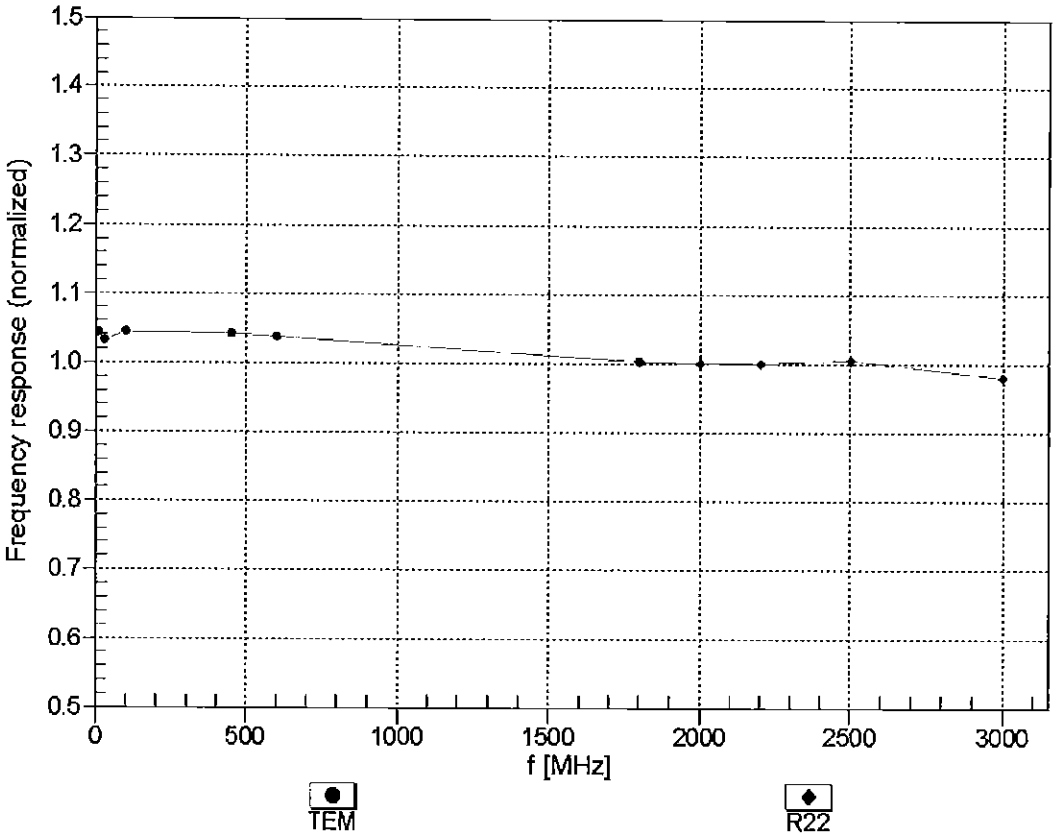
[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz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

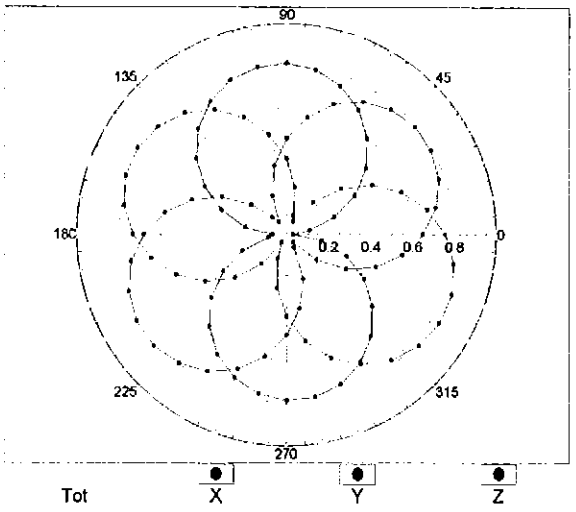
(TEM-Cell:ifi110 EXX, Waveguide: R22)



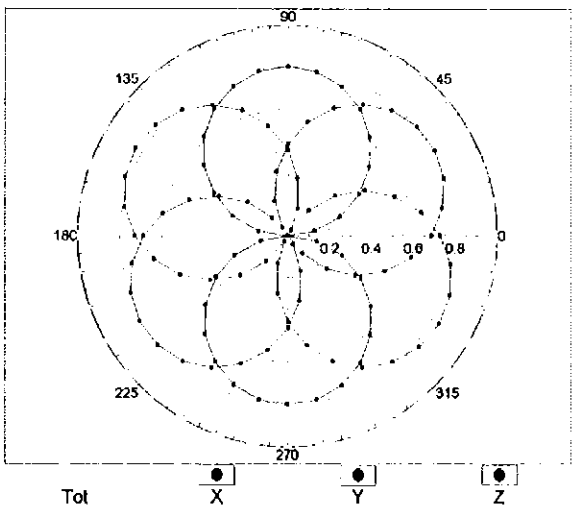
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

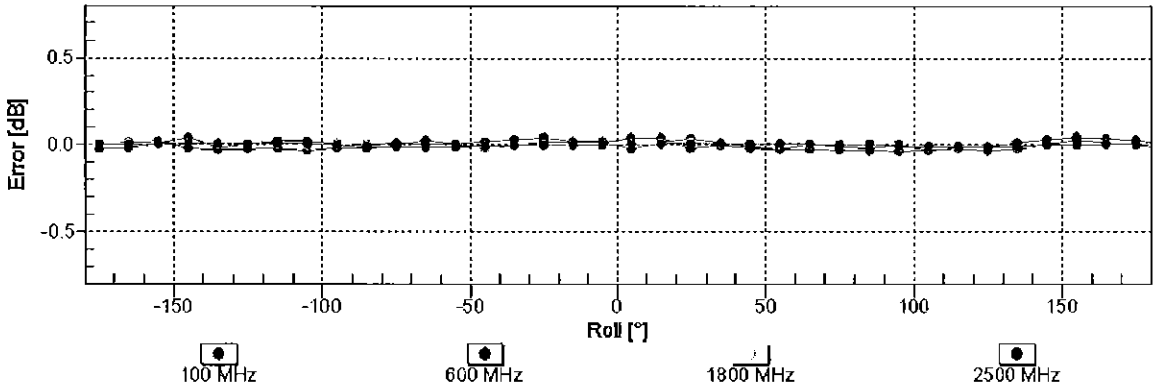
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



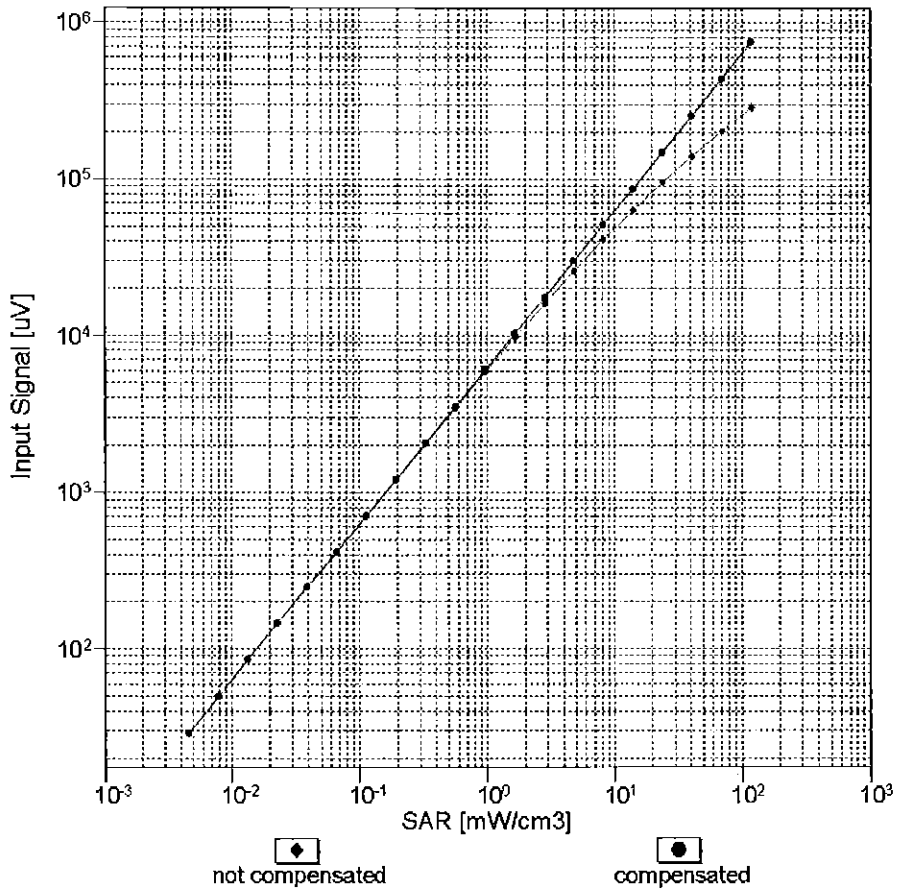
f=1800 MHz,R22

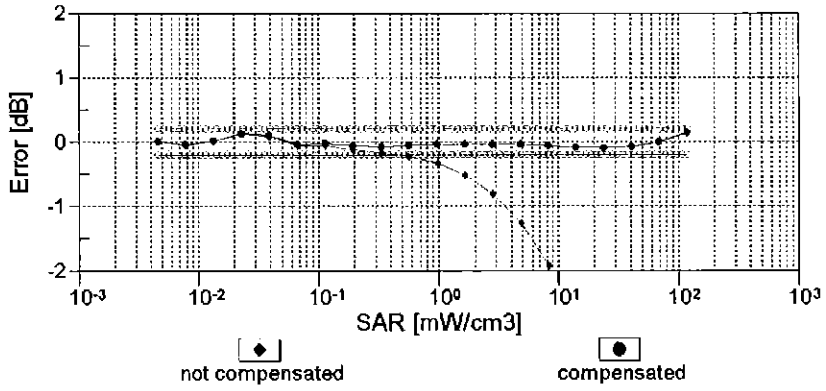




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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

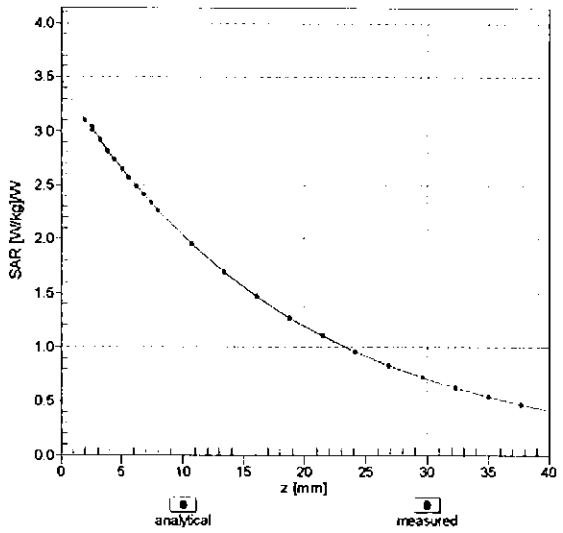




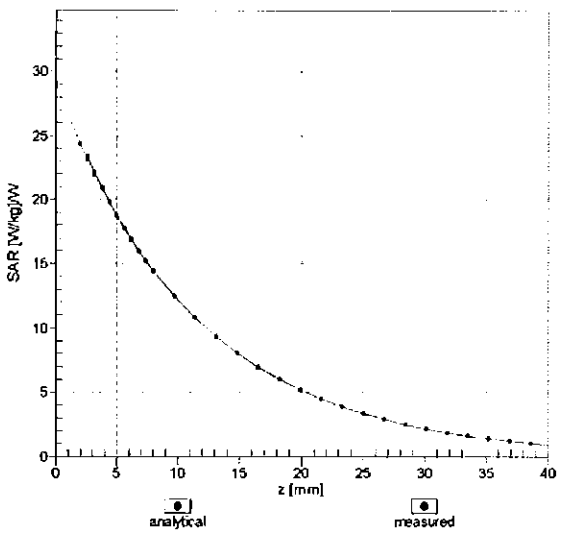
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

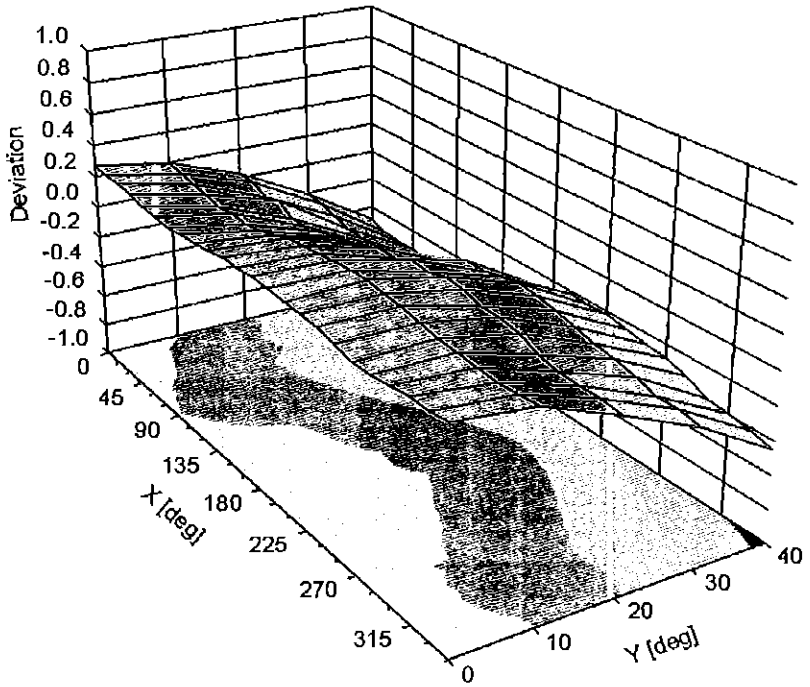


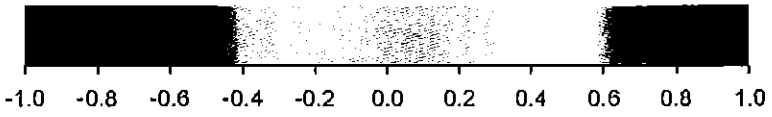
f = 1900 MHz,WGLS R22 (H_convF)



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:3287

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	84.9
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	198.4	± 3.5 %
		Y	0.00	0.00	1.00		189.6	
		Z	0.00	0.00	1.00		184.8	
10010-CAA	SAR Validation (Square, 100ms, 10ms)	X	9.57	81.27	19.66	10.00	25.0	± 9.6 %
		Y	9.48	81.17	20.59		25.0	
		Z	11.44	84.72	20.81		25.0	
10011-CAB	UMTS-FDD (WCDMA)	X	1.41	73.12	18.60	0.00	150.0	± 9.6 %
		Y	1.09	67.36	15.29		150.0	
		Z	1.04	67.24	15.12		150.0	
10012-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	1.39	66.79	17.15	0.41	150.0	± 9.6 %
		Y	1.33	64.98	15.75		150.0	
		Z	1.31	64.97	15.66		150.0	
10013-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	X	5.20	67.40	17.54	1.46	150.0	± 9.6 %
		Y	5.27	67.18	17.41		150.0	
		Z	5.09	67.33	17.40		150.0	
10021-DAB	GSM-FDD (TDMA, GMSK)	X	25.12	98.64	27.15	9.39	50.0	± 9.6 %
		Y	16.05	91.61	25.96		50.0	
		Z	54.58	112.47	31.02		50.0	
10023-DAB	GPRS-FDD (TDMA, GMSK, TN 0)	X	21.90	96.28	26.48	9.57	50.0	± 9.6 %
		Y	15.04	90.31	25.57		50.0	
		Z	40.95	107.64	29.77		50.0	
10024-DAB	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	100.00	118.44	30.60	6.56	60.0	± 9.6 %
		Y	56.85	112.42	30.28		60.0	
		Z	100.00	119.26	30.80		60.0	
10025-DAB	EDGE-FDD (TDMA, 8PSK, TN 0)	X	15.98	100.03	37.68	12.57	50.0	± 9.6 %
		Y	12.36	89.89	33.32		50.0	
		Z	14.92	100.13	38.33		50.0	
10026-DAB	EDGE-FDD (TDMA, 8PSK, TN 0-1)	X	19.89	102.72	35.15	9.56	60.0	± 9.6 %
		Y	15.11	94.49	32.22		60.0	
		Z	21.16	106.39	36.94		60.0	
10027-DAB	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	100.00	117.46	29.21	4.80	80.0	± 9.6 %
		Y	100.00	119.97	30.83		80.0	
		Z	100.00	118.35	29.47		80.0	
10028-DAB	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	X	100.00	117.97	28.63	3.55	100.0	± 9.6 %
		Y	100.00	119.91	29.91		100.0	
		Z	100.00	118.74	28.84		100.0	
10029-DAB	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	X	14.03	95.19	31.54	7.80	80.0	± 9.6 %
		Y	11.54	89.32	29.33		80.0	
		Z	13.09	95.17	31.96		80.0	
10030-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	X	100.00	117.04	29.36	5.30	70.0	± 9.6 %
		Y	100.00	119.78	31.12		70.0	
		Z	100.00	117.69	29.49		70.0	
10031-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	X	100.00	120.90	28.34	1.88	100.0	± 9.6 %
		Y	100.00	121.14	28.78		100.0	
		Z	100.00	119.84	27.78		100.0	

10032-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	X	100.00	128.75	30.50	1.17	100.0	± 9.6 %
		Y	100.00	125.19	29.33		100.0	
		Z	100.00	124.54	28.68		100.0	
10033-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	X	24.47	102.44	28.62	5.30	70.0	± 9.6 %
		Y	12.93	91.34	25.64		70.0	
		Z	20.22	99.06	27.27		70.0	
10034-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	X	15.75	99.73	26.60	1.88	100.0	± 9.6 %
		Y	6.06	84.29	21.90		100.0	
		Z	7.41	86.87	21.79		100.0	
10035-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	X	8.06	91.60	24.06	1.17	100.0	± 9.6 %
		Y	3.71	78.74	19.66		100.0	
		Z	4.06	80.00	19.16		100.0	
10036-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	X	31.59	106.91	29.95	5.30	70.0	± 9.6 %
		Y	14.71	93.73	26.48		70.0	
		Z	25.49	103.04	28.49		70.0	
10037-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	X	15.02	99.00	26.34	1.88	100.0	± 9.6 %
		Y	5.91	83.93	21.74		100.0	
		Z	6.95	86.01	21.48		100.0	
10038-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	X	8.64	92.97	24.58	1.17	100.0	± 9.6 %
		Y	3.82	79.37	19.97		100.0	
		Z	4.16	80.58	19.47		100.0	
10039-CAB	CDMA2000 (1xRTT, RC1)	X	3.32	80.83	20.52	0.00	150.0	± 9.6 %
		Y	1.99	71.59	16.56		150.0	
		Z	1.78	71.38	15.53		150.0	
10042-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	X	93.96	116.51	30.17	7.78	50.0	± 9.6 %
		Y	28.36	100.31	27.04		50.0	
		Z	100.00	118.01	30.46		50.0	
10044-CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	X	0.00	110.81	0.68	0.00	150.0	± 9.6 %
		Y	0.00	94.68	0.92		150.0	
		Z	0.01	95.27	0.89		150.0	
10048-CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	X	12.13	84.40	24.33	13.80	25.0	± 9.6 %
		Y	11.03	81.88	24.36		25.0	
		Z	15.47	90.17	26.32		25.0	
10049-CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	X	14.56	88.92	24.53	10.79	40.0	± 9.6 %
		Y	12.34	85.94	24.48		40.0	
		Z	20.46	95.78	26.73		40.0	
10056-CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	X	13.90	88.80	25.15	9.03	50.0	± 9.6 %
		Y	11.60	84.93	24.34		50.0	
		Z	15.96	92.01	26.12		50.0	
10058-DAB	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	X	10.54	89.79	28.95	6.55	100.0	± 9.6 %
		Y	9.17	85.43	27.21		100.0	
		Z	9.28	88.15	28.66		100.0	
10059-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	X	1.62	69.54	18.42	0.61	110.0	± 9.6 %
		Y	1.52	67.09	16.78		110.0	
		Z	1.47	67.00	16.67		110.0	
10060-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	X	100.00	133.57	34.76	1.30	110.0	± 9.6 %
		Y	47.37	119.92	31.34		110.0	
		Z	100.00	131.70	33.88		110.0	

10061-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	X	24.29	111.37	31.49	2.04	110.0	± 9.6 %
		Y	7.57	90.21	25.12		110.0	
		Z	8.96	94.42	26.47		110.0	
10062-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	X	4.94	67.26	16.92	0.49	100.0	± 9.6 %
		Y	4.99	66.94	16.70		100.0	
		Z	4.80	67.06	16.67		100.0	
10063-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	X	4.98	67.42	17.05	0.72	100.0	± 9.6 %
		Y	5.03	67.12	16.85		100.0	
		Z	4.84	67.22	16.80		100.0	
10064-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	X	5.33	67.75	17.30	0.86	100.0	± 9.6 %
		Y	5.40	67.50	17.13		100.0	
		Z	5.14	67.52	17.06		100.0	
10065-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	X	5.22	67.77	17.45	1.21	100.0	± 9.6 %
		Y	5.30	67.55	17.30		100.0	
		Z	5.05	67.55	17.23		100.0	
10066-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	X	5.28	67.89	17.67	1.46	100.0	± 9.6 %
		Y	5.37	67.69	17.54		100.0	
		Z	5.11	67.69	17.47		100.0	
10067-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	X	5.58	67.96	18.07	2.04	100.0	± 9.6 %
		Y	5.70	67.83	17.99		100.0	
		Z	5.44	67.94	17.97		100.0	
10068-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	X	5.73	68.36	18.44	2.55	100.0	± 9.6 %
		Y	5.86	68.26	18.38		100.0	
		Z	5.56	68.20	18.31		100.0	
10069-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	X	5.80	68.22	18.58	2.67	100.0	± 9.6 %
		Y	5.93	68.12	18.53		100.0	
		Z	5.64	68.21	18.51		100.0	
10071-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	X	5.34	67.61	17.91	1.99	100.0	± 9.6 %
		Y	5.43	67.44	17.80		100.0	
		Z	5.23	67.57	17.79		100.0	
10072-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	X	5.41	68.20	18.23	2.30	100.0	± 9.6 %
		Y	5.52	68.04	18.13		100.0	
		Z	5.28	68.10	18.11		100.0	
10073-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	X	5.54	68.52	18.63	2.83	100.0	± 9.6 %
		Y	5.67	68.41	18.56		100.0	
		Z	5.42	68.46	18.55		100.0	
10074-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	X	5.57	68.60	18.89	3.30	100.0	± 9.6 %
		Y	5.71	68.53	18.84		100.0	
		Z	5.46	68.55	18.80		100.0	
10075-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	X	5.74	69.13	19.40	3.82	90.0	± 9.6 %
		Y	5.91	69.12	19.39		90.0	
		Z	5.60	68.97	19.28		90.0	
10076-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	X	5.73	68.87	19.48	4.15	90.0	± 9.6 %
		Y	5.91	68.89	19.48		90.0	
		Z	5.64	68.84	19.44		90.0	
10077-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	X	5.76	68.96	19.58	4.30	90.0	± 9.6 %
		Y	5.95	68.98	19.59		90.0	
		Z	5.68	68.95	19.55		90.0	

10081-CAB	CDMA2000 (1xRTT, RC3)	X	1.45	73.74	17.54	0.00	150.0	± 9.6 %
		Y	1.01	66.70	13.93		150.0	
		Z	0.86	65.95	12.65		150.0	
10082-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	X	2.22	64.23	9.03	4.77	80.0	± 9.6 %
		Y	2.60	65.39	10.25		80.0	
		Z	2.07	64.06	8.86		80.0	
10090-DAB	GPRS-FDD (TDMA, GMSK, TN 0-4)	X	100.00	118.52	30.65	6.56	60.0	± 9.6 %
		Y	54.54	111.83	30.17		60.0	
		Z	100.00	119.33	30.85		60.0	
10097-CAB	UMTS-FDD (HSDPA)	X	2.07	69.87	17.29	0.00	150.0	± 9.6 %
		Y	1.87	67.25	15.70		150.0	
		Z	1.83	67.53	15.55		150.0	
10098-CAB	UMTS-FDD (HSUPA, Subtest 2)	X	2.03	69.88	17.28	0.00	150.0	± 9.6 %
		Y	1.83	67.20	15.65		150.0	
		Z	1.80	67.49	15.52		150.0	
10099-DAB	EDGE-FDD (TDMA, 8PSK, TN 0-4)	X	19.79	102.55	35.10	9.56	60.0	± 9.6 %
		Y	15.06	94.38	32.19		60.0	
		Z	21.07	106.24	36.89		60.0	
10100-CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	3.71	73.15	18.05	0.00	150.0	± 9.6 %
		Y	3.34	70.68	16.71		150.0	
		Z	3.15	70.31	16.60		150.0	
10101-CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	3.53	68.94	16.73	0.00	150.0	± 9.6 %
		Y	3.44	67.88	16.03		150.0	
		Z	3.28	67.66	15.91		150.0	
10102-CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	3.62	68.78	16.77	0.00	150.0	± 9.6 %
		Y	3.55	67.81	16.12		150.0	
		Z	3.38	67.61	16.00		150.0	
10103-CAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	9.03	78.84	21.45	3.98	65.0	± 9.6 %
		Y	8.52	77.08	20.81		65.0	
		Z	8.79	79.04	21.64		65.0	
10104-CAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	8.83	77.31	21.70	3.98	65.0	± 9.6 %
		Y	8.68	76.21	21.28		65.0	
		Z	8.45	77.10	21.68		65.0	
10105-CAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	8.12	75.63	21.27	3.98	65.0	± 9.6 %
		Y	7.58	73.53	20.37		65.0	
		Z	7.68	75.16	21.11		65.0	
10108-CAC	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	3.26	72.24	17.88	0.00	150.0	± 9.6 %
		Y	2.97	69.86	16.52		150.0	
		Z	2.76	69.54	16.43		150.0	
10109-CAC	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	3.21	68.83	16.74	0.00	150.0	± 9.6 %
		Y	3.12	67.65	15.97		150.0	
		Z	2.93	67.47	15.80		150.0	
10110-CAC	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	2.68	71.31	17.65	0.00	150.0	± 9.6 %
		Y	2.45	68.82	16.19		150.0	
		Z	2.25	68.65	16.05		150.0	
10111-CAC	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	2.94	69.70	17.25	0.00	150.0	± 9.6 %
		Y	2.81	68.04	16.25		150.0	
		Z	2.63	68.09	16.01		150.0	

10112-CAC	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	3.32	68.66	16.72	0.00	150.0	± 9.6 %
		Y	3.24	67.56	16.01		150.0	
		Z	3.06	67.45	15.85		150.0	
10113-CAC	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	3.09	69.65	17.28	0.00	150.0	± 9.6 %
		Y	2.97	68.11	16.35		150.0	
		Z	2.78	68.22	16.13		150.0	
10114-CAB	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	X	5.30	67.67	16.69	0.00	150.0	± 9.6 %
		Y	5.32	67.34	16.45		150.0	
		Z	5.18	67.41	16.46		150.0	
10115-CAB	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	X	5.68	67.95	16.83	0.00	150.0	± 9.6 %
		Y	5.74	67.75	16.66		150.0	
		Z	5.49	67.60	16.57		150.0	
10116-CAB	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	X	5.43	67.93	16.74	0.00	150.0	± 9.6 %
		Y	5.45	67.58	16.50		150.0	
		Z	5.29	67.63	16.50		150.0	
10117-CAB	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	5.31	67.69	16.73	0.00	150.0	± 9.6 %
		Y	5.33	67.35	16.48		150.0	
		Z	5.15	67.28	16.42		150.0	
10118-CAB	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	X	5.73	68.05	16.89	0.00	150.0	± 9.6 %
		Y	5.76	67.71	16.65		150.0	
		Z	5.58	67.82	16.69		150.0	
10119-CAB	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	X	5.40	67.88	16.73	0.00	150.0	± 9.6 %
		Y	5.42	67.54	16.49		150.0	
		Z	5.26	67.56	16.48		150.0	
10140-CAB	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	3.67	68.77	16.68	0.00	150.0	± 9.6 %
		Y	3.60	67.81	16.05		150.0	
		Z	3.42	67.62	15.92		150.0	
10141-CAB	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	3.79	68.75	16.79	0.00	150.0	± 9.6 %
		Y	3.72	67.84	16.19		150.0	
		Z	3.54	67.70	16.08		150.0	
10142-CAC	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	2.48	71.58	17.67	0.00	150.0	± 9.6 %
		Y	2.22	68.66	16.03		150.0	
		Z	2.02	68.57	15.71		150.0	
10143-CAC	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	2.90	70.86	17.43	0.00	150.0	± 9.6 %
		Y	2.68	68.61	16.20		150.0	
		Z	2.48	68.71	15.71		150.0	
10144-CAC	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	2.65	68.53	15.87	0.00	150.0	± 9.6 %
		Y	2.53	66.90	14.94		150.0	
		Z	2.29	66.75	14.27		150.0	
10145-CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	2.00	71.65	16.48	0.00	150.0	± 9.6 %
		Y	1.64	67.49	14.42		150.0	
		Z	1.28	65.53	12.17		150.0	
10146-CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	6.65	82.42	19.81	0.00	150.0	± 9.6 %
		Y	3.51	73.00	16.51		150.0	
		Z	2.73	70.16	13.72		150.0	
10147-CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	11.62	90.60	22.70	0.00	150.0	± 9.6 %
		Y	4.34	76.22	18.03		150.0	
		Z	3.53	73.44	15.25		150.0	

10149-CAB	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	3.22	68.90	16.79	0.00	150.0	± 9.6 %
		Y	3.13	67.70	16.01		150.0	
		Z	2.94	67.52	15.84		150.0	
10150-CAB	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	3.33	68.71	16.76	0.00	150.0	± 9.6 %
		Y	3.25	67.61	16.05		150.0	
		Z	3.06	67.50	15.89		150.0	
10151-CAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	9.59	81.08	22.43	3.98	65.0	± 9.6 %
		Y	8.87	78.87	21.64		65.0	
		Z	9.33	81.38	22.62		65.0	
10152-CAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	8.50	77.58	21.63	3.98	65.0	± 9.6 %
		Y	8.30	76.31	21.16		65.0	
		Z	8.08	77.33	21.50		65.0	
10153-CAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	8.85	78.28	22.25	3.98	65.0	± 9.6 %
		Y	8.62	76.95	21.75		65.0	
		Z	8.48	78.15	22.17		65.0	
10154-CAC	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	2.77	71.95	18.01	0.00	150.0	± 9.6 %
		Y	2.51	69.32	16.50		150.0	
		Z	2.29	69.01	16.28		150.0	
10155-CAC	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	2.94	69.69	17.25	0.00	150.0	± 9.6 %
		Y	2.80	68.03	16.25		150.0	
		Z	2.63	68.10	16.02		150.0	
10156-CAC	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	2.40	72.31	17.91	0.00	150.0	± 9.6 %
		Y	2.09	68.89	16.05		150.0	
		Z	1.86	68.62	15.51		150.0	
10157-CAC	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	2.55	69.65	16.30	0.00	150.0	± 9.6 %
		Y	2.36	67.46	15.11		150.0	
		Z	2.12	67.25	14.30		150.0	
10158-CAC	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	3.10	69.70	17.32	0.00	150.0	± 9.6 %
		Y	2.97	68.15	16.39		150.0	
		Z	2.78	68.27	16.17		150.0	
10159-CAC	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	2.69	70.18	16.62	0.00	150.0	± 9.6 %
		Y	2.48	67.89	15.40		150.0	
		Z	2.22	67.66	14.56		150.0	
10160-CAB	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	3.10	70.43	17.35	0.00	150.0	± 9.6 %
		Y	2.94	68.69	16.29		150.0	
		Z	2.78	68.69	16.25		150.0	
10161-CAB	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	3.22	68.62	16.74	0.00	150.0	± 9.6 %
		Y	3.14	67.48	16.00		150.0	
		Z	2.96	67.42	15.82		150.0	
10162-CAB	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	3.32	68.61	16.76	0.00	150.0	± 9.6 %
		Y	3.24	67.49	16.04		150.0	
		Z	3.07	67.56	15.92		150.0	
10166-CAC	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	4.32	72.20	20.50	3.01	150.0	± 9.6 %
		Y	4.09	70.13	19.37		150.0	
		Z	3.89	71.03	19.86		150.0	
10167-CAC	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	6.13	77.20	21.71	3.01	150.0	± 9.6 %
		Y	5.31	73.40	20.02		150.0	
		Z	5.17	75.28	20.82		150.0	

10168-CAC	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	6.94	79.87	23.11	3.01	150.0	± 9.6 %
		Y	5.79	75.28	21.14		150.0	
		Z	5.82	77.80	22.20		150.0	
10169-CAB	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	4.47	76.31	22.20	3.01	150.0	± 9.6 %
		Y	3.93	72.42	20.26		150.0	
		Z	3.45	71.87	20.27		150.0	
10170-CAB	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	9.97	90.37	26.89	3.01	150.0	± 9.6 %
		Y	6.08	79.64	22.84		150.0	
		Z	5.69	81.07	23.66		150.0	
10171-AAB	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	6.58	81.51	22.72	3.01	150.0	± 9.6 %
		Y	4.82	74.69	19.94		150.0	
		Z	4.39	75.54	20.48		150.0	
10172-CAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	73.64	126.23	37.77	6.02	65.0	± 9.6 %
		Y	18.65	98.22	29.94		65.0	
		Z	50.70	122.38	37.42		65.0	
10173-CAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	94.74	123.96	35.21	6.02	65.0	± 9.6 %
		Y	22.61	98.04	28.47		65.0	
		Z	96.90	127.66	36.64		65.0	
10174-CAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	56.11	113.11	31.91	6.02	65.0	± 9.6 %
		Y	18.59	93.53	26.66		65.0	
		Z	65.46	118.77	33.84		65.0	
10175-CAC	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	4.37	75.74	21.85	3.01	150.0	± 9.6 %
		Y	3.86	71.99	19.97		150.0	
		Z	3.41	71.52	20.02		150.0	
10176-CAC	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	9.99	90.41	26.90	3.01	150.0	± 9.6 %
		Y	6.09	79.66	22.85		150.0	
		Z	5.70	81.10	23.67		150.0	
10177-CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	4.43	76.02	22.00	3.01	150.0	± 9.6 %
		Y	3.90	72.21	20.10		150.0	
		Z	3.44	71.69	20.11		150.0	
10178-CAC	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	9.65	89.71	26.63	3.01	150.0	± 9.6 %
		Y	5.97	79.26	22.66		150.0	
		Z	5.62	80.80	23.53		150.0	
10179-CAC	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	7.97	85.43	24.54	3.01	150.0	± 9.6 %
		Y	5.36	76.88	21.19		150.0	
		Z	4.98	78.13	21.92		150.0	
10180-CAC	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	6.51	81.29	22.61	3.01	150.0	± 9.6 %
		Y	4.79	74.55	19.86		150.0	
		Z	4.38	75.44	20.42		150.0	
10181-CAB	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	4.42	75.99	21.99	3.01	150.0	± 9.6 %
		Y	3.90	72.19	20.09		150.0	
		Z	3.43	71.67	20.11		150.0	
10182-CAB	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	9.63	89.67	26.62	3.01	150.0	± 9.6 %
		Y	5.96	79.23	22.65		150.0	
		Z	5.61	80.77	23.51		150.0	
10183-AAA	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	6.50	81.25	22.60	3.01	150.0	± 9.6 %
		Y	4.78	74.53	19.85		150.0	
		Z	4.37	75.41	20.41		150.0	

10184-CAC	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	4.44	76.05	22.02	3.01	150.0	± 9.6 %
		Y	3.91	72.24	20.12		150.0	
		Z	3.45	71.72	20.13		150.0	
10185-CAC	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	9.70	89.80	26.67	3.01	150.0	± 9.6 %
		Y	5.99	79.32	22.68		150.0	
		Z	5.64	80.86	23.56		150.0	
10186-AAC	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	6.54	81.37	22.64	3.01	150.0	± 9.6 %
		Y	4.81	74.60	19.88		150.0	
		Z	4.39	75.50	20.45		150.0	
10187-CAC	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	4.45	76.10	22.07	3.01	150.0	± 9.6 %
		Y	3.92	72.26	20.15		150.0	
		Z	3.46	71.78	20.19		150.0	
10188-CAC	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	10.51	91.45	27.34	3.01	150.0	± 9.6 %
		Y	6.26	80.23	23.14		150.0	
		Z	5.89	81.76	24.00		150.0	
10189-AAC	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	6.85	82.27	23.07	3.01	150.0	± 9.6 %
		Y	4.94	75.14	20.19		150.0	
		Z	4.52	76.06	20.77		150.0	
10193-CAB	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	X	4.73	67.10	16.51	0.00	150.0	± 9.6 %
		Y	4.75	66.68	16.23		150.0	
		Z	4.57	66.79	16.16		150.0	
10194-CAB	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	X	4.94	67.48	16.62	0.00	150.0	± 9.6 %
		Y	4.96	67.08	16.34		150.0	
		Z	4.75	67.11	16.28		150.0	
10195-CAB	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	X	4.98	67.48	16.62	0.00	150.0	± 9.6 %
		Y	5.00	67.07	16.34		150.0	
		Z	4.79	67.14	16.30		150.0	
10196-CAB	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	4.76	67.21	16.55	0.00	150.0	± 9.6 %
		Y	4.78	66.80	16.27		150.0	
		Z	4.58	66.86	16.18		150.0	
10197-CAB	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	X	4.96	67.50	16.63	0.00	150.0	± 9.6 %
		Y	4.98	67.09	16.35		150.0	
		Z	4.76	67.14	16.30		150.0	
10198-CAB	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	X	4.99	67.50	16.63	0.00	150.0	± 9.6 %
		Y	5.01	67.09	16.35		150.0	
		Z	4.79	67.16	16.31		150.0	
10219-CAB	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	X	4.71	67.23	16.53	0.00	150.0	± 9.6 %
		Y	4.73	66.82	16.24		150.0	
		Z	4.53	66.87	16.14		150.0	
10220-CAB	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	X	4.96	67.50	16.63	0.00	150.0	± 9.6 %
		Y	4.98	67.10	16.35		150.0	
		Z	4.76	67.11	16.29		150.0	
10221-CAB	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	X	4.99	67.43	16.62	0.00	150.0	± 9.6 %
		Y	5.01	67.03	16.34		150.0	
		Z	4.80	67.09	16.30		150.0	
10222-CAB	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	X	5.29	67.72	16.73	0.00	150.0	± 9.6 %
		Y	5.31	67.38	16.49		150.0	
		Z	5.12	67.29	16.41		150.0	

10223-CAB	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	X	5.67	68.03	16.90	0.00	150.0	± 9.6 %
		Y	5.70	67.71	16.67		150.0	
		Z	5.43	67.50	16.54		150.0	
10224-CAB	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	X	5.35	67.84	16.72	0.00	150.0	± 9.6 %
		Y	5.37	67.51	16.48		150.0	
		Z	5.17	67.40	16.39		150.0	
10225-CAB	UMTS-FDD (HSPA+)	X	3.03	67.01	16.18	0.00	150.0	± 9.6 %
		Y	3.00	66.12	15.59		150.0	
		Z	2.84	66.23	15.31		150.0	
10226-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	100.00	125.13	35.58	6.02	65.0	± 9.6 %
		Y	23.60	98.91	28.82		65.0	
		Z	100.00	128.43	36.91		65.0	
10227-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	61.16	114.83	32.47	6.02	65.0	± 9.6 %
		Y	19.96	94.87	27.16		65.0	
		Z	73.77	120.96	34.46		65.0	
10228-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	72.18	126.53	38.01	6.02	65.0	± 9.6 %
		Y	21.44	101.40	31.05		65.0	
		Z	53.16	123.89	37.96		65.0	
10229-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	94.57	123.93	35.21	6.02	65.0	± 9.6 %
		Y	22.66	98.06	28.49		65.0	
		Z	96.87	127.65	36.65		65.0	
10230-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	56.39	113.28	31.99	6.02	65.0	± 9.6 %
		Y	19.26	94.16	26.88		65.0	
		Z	66.99	119.13	33.93		65.0	
10231-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	66.18	124.67	37.45	6.02	65.0	± 9.6 %
		Y	20.62	100.55	30.72		65.0	
		Z	48.89	122.07	37.41		65.0	
10232-CAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	94.69	123.96	35.21	6.02	65.0	± 9.6 %
		Y	22.64	98.05	28.48		65.0	
		Z	97.00	127.68	36.66		65.0	
10233-CAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	56.52	113.33	32.00	6.02	65.0	± 9.6 %
		Y	19.26	94.17	26.88		65.0	
		Z	67.07	119.16	33.94		65.0	
10234-CAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	60.26	122.59	36.81	6.02	65.0	± 9.6 %
		Y	19.81	99.63	30.34		65.0	
		Z	45.11	120.21	36.81		65.0	
10235-CAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	95.38	124.09	35.25	6.02	65.0	± 9.6 %
		Y	22.67	98.09	28.50		65.0	
		Z	97.77	127.84	36.70		65.0	
10236-CAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	57.18	113.50	32.04	6.02	65.0	± 9.6 %
		Y	19.38	94.26	26.90		65.0	
		Z	68.10	119.39	33.99		65.0	
10237-CAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	67.28	125.01	37.54	6.02	65.0	± 9.6 %
		Y	20.74	100.68	30.76		65.0	
		Z	49.59	122.38	37.49		65.0	
10238-CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	95.00	124.02	35.23	6.02	65.0	± 9.6 %
		Y	22.64	98.06	28.49		65.0	
		Z	97.19	127.73	36.66		65.0	

10239-CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	56.67	113.39	32.01	6.02	65.0	± 9.6 %
		Y	19.26	94.19	26.88		65.0	
		Z	67.13	119.19	33.94		65.0	
10240-CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	67.00	124.93	37.52	6.02	65.0	± 9.6 %
		Y	20.68	100.63	30.74		65.0	
		Z	49.37	122.30	37.47		65.0	
10241-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	14.43	89.77	28.56	6.98	65.0	± 9.6 %
		Y	12.31	85.00	26.80		65.0	
		Z	13.89	90.56	28.94		65.0	
10242-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	13.70	88.57	28.03	6.98	65.0	± 9.6 %
		Y	10.82	82.08	25.53		65.0	
		Z	13.16	89.30	28.37		65.0	
10243-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	10.55	84.90	27.56	6.98	65.0	± 9.6 %
		Y	8.88	79.49	25.25		65.0	
		Z	9.99	85.03	27.70		65.0	
10244-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	11.43	83.67	22.47	3.98	65.0	± 9.6 %
		Y	9.78	80.48	21.64		65.0	
		Z	9.76	81.22	20.90		65.0	
10245-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	11.21	83.09	22.22	3.98	65.0	± 9.6 %
		Y	9.71	80.13	21.47		65.0	
		Z	9.48	80.50	20.58		65.0	
10246-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	10.58	85.22	23.00	3.98	65.0	± 9.6 %
		Y	8.86	81.57	21.94		65.0	
		Z	9.16	83.05	21.67		65.0	
10247-CAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	8.25	78.94	21.22	3.98	65.0	± 9.6 %
		Y	7.85	77.32	20.79		65.0	
		Z	7.47	77.61	20.18		65.0	
10248-CAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	8.20	78.37	20.99	3.98	65.0	± 9.6 %
		Y	7.89	76.93	20.61		65.0	
		Z	7.41	77.03	19.93		65.0	
10249-CAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	11.20	86.28	23.89	3.98	65.0	± 9.6 %
		Y	9.29	82.26	22.62		65.0	
		Z	10.48	85.66	23.36		65.0	
10250-CAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	8.93	80.25	22.81	3.98	65.0	± 9.6 %
		Y	8.46	78.37	22.14		65.0	
		Z	8.46	79.88	22.48		65.0	
10251-CAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	8.39	77.98	21.64	3.98	65.0	± 9.6 %
		Y	8.12	76.54	21.14		65.0	
		Z	7.98	77.74	21.34		65.0	
10252-CAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	10.53	84.51	23.78	3.98	65.0	± 9.6 %
		Y	9.19	81.18	22.63		65.0	
		Z	10.24	84.82	23.86		65.0	
10253-CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	8.25	76.95	21.44	3.98	65.0	± 9.6 %
		Y	8.10	75.77	21.00		65.0	
		Z	7.89	76.78	21.28		65.0	
10254-CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	8.62	77.66	22.02	3.98	65.0	± 9.6 %
		Y	8.44	76.43	21.56		65.0	
		Z	8.28	77.57	21.89		65.0	

10255-CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	9.25	80.67	22.52	3.98	65.0	± 9.6 %
		Y	8.61	78.53	21.74		65.0	
		Z	9.00	80.97	22.67		65.0	
10256-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	10.45	81.80	21.06	3.98	65.0	± 9.6 %
		Y	9.25	79.43	20.63		65.0	
		Z	8.10	77.76	18.69		65.0	
10257-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	10.14	80.97	20.68	3.98	65.0	± 9.6 %
		Y	9.17	78.95	20.38		65.0	
		Z	7.78	76.81	18.23		65.0	
10258-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	9.51	83.16	21.76	3.98	65.0	± 9.6 %
		Y	8.34	80.46	21.12		65.0	
		Z	7.35	79.00	19.46		65.0	
10259-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	8.50	79.32	21.74	3.98	65.0	± 9.6 %
		Y	8.08	77.61	21.22		65.0	
		Z	7.86	78.44	21.00		65.0	
10260-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	8.50	79.04	21.65	3.98	65.0	± 9.6 %
		Y	8.14	77.44	21.18		65.0	
		Z	7.85	78.11	20.87		65.0	
10261-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	10.46	84.88	23.66	3.98	65.0	± 9.6 %
		Y	8.99	81.35	22.49		65.0	
		Z	9.90	84.54	23.31		65.0	
10262-CAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	8.92	80.22	22.77	3.98	65.0	± 9.6 %
		Y	8.45	78.35	22.11		65.0	
		Z	8.45	79.83	22.45		65.0	
10263-CAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	8.39	77.98	21.64	3.98	65.0	± 9.6 %
		Y	8.12	76.54	21.14		65.0	
		Z	7.97	77.72	21.33		65.0	
10264-CAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	10.46	84.37	23.71	3.98	65.0	± 9.6 %
		Y	9.15	81.08	22.57		65.0	
		Z	10.16	84.65	23.78		65.0	
10265-CAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	8.50	77.59	21.64	3.98	65.0	± 9.6 %
		Y	8.29	76.32	21.16		65.0	
		Z	8.08	77.33	21.51		65.0	
10266-CAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	8.85	78.27	22.25	3.98	65.0	± 9.6 %
		Y	8.62	76.95	21.75		65.0	
		Z	8.48	78.14	22.17		65.0	
10267-CAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	9.58	81.04	22.42	3.98	65.0	± 9.6 %
		Y	8.86	78.85	21.63		65.0	
		Z	9.31	81.34	22.60		65.0	
10268-CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	8.89	76.95	21.70	3.98	65.0	± 9.6 %
		Y	8.78	75.95	21.31		65.0	
		Z	8.54	76.83	21.69		65.0	
10269-CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	8.79	76.51	21.59	3.98	65.0	± 9.6 %
		Y	8.71	75.58	21.23		65.0	
		Z	8.47	76.42	21.58		65.0	
10270-CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	8.98	78.26	21.47	3.98	65.0	± 9.6 %
		Y	8.66	76.86	20.96		65.0	
		Z	8.70	78.39	21.61		65.0	

10274-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	X	2.76	67.40	16.12	0.00	150.0	± 9.6 %
		Y	2.68	66.20	15.35		150.0	
		Z	2.61	66.55	15.21		150.0	
10275-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	X	1.97	71.33	17.64	0.00	150.0	± 9.6 %
		Y	1.71	67.84	15.61		150.0	
		Z	1.63	67.82	15.44		150.0	
10277-CAA	PHS (QPSK)	X	5.79	70.12	14.44	9.03	50.0	± 9.6 %
		Y	6.71	72.04	16.24		50.0	
		Z	5.20	69.01	13.39		50.0	
10278-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	X	10.14	81.72	21.64	9.03	50.0	± 9.6 %
		Y	10.00	81.13	22.16		50.0	
		Z	8.80	79.36	20.19		50.0	
10279-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	X	10.33	81.92	21.72	9.03	50.0	± 9.6 %
		Y	10.19	81.33	22.24		50.0	
		Z	8.92	79.53	20.27		50.0	
10290-AAB	CDMA2000, RC1, SO55, Full Rate	X	2.41	75.76	18.30	0.00	150.0	± 9.6 %
		Y	1.70	69.18	15.23		150.0	
		Z	1.46	68.58	14.00		150.0	
10291-AAB	CDMA2000, RC3, SO55, Full Rate	X	1.39	73.22	17.31	0.00	150.0	± 9.6 %
		Y	0.98	66.45	13.79		150.0	
		Z	0.85	65.74	12.53		150.0	
10292-AAB	CDMA2000, RC3, SO32, Full Rate	X	2.43	83.14	21.70	0.00	150.0	± 9.6 %
		Y	1.15	69.63	15.75		150.0	
		Z	1.04	69.40	14.71		150.0	
10293-AAB	CDMA2000, RC3, SO3, Full Rate	X	5.22	96.14	26.57	0.00	150.0	± 9.6 %
		Y	1.48	73.58	17.97		150.0	
		Z	1.47	74.43	17.37		150.0	
10295-AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	X	10.48	83.75	24.32	9.03	50.0	± 9.6 %
		Y	9.84	81.54	23.85		50.0	
		Z	11.88	86.37	24.91		50.0	
10297-AAA	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	3.28	72.37	17.95	0.00	150.0	± 9.6 %
		Y	2.98	69.95	16.59		150.0	
		Z	2.77	69.63	16.49		150.0	
10298-AAB	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	2.26	72.62	17.48	0.00	150.0	± 9.6 %
		Y	1.88	68.51	15.39		150.0	
		Z	1.59	67.65	14.14		150.0	
10299-AAB	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	6.40	81.89	20.37	0.00	150.0	± 9.6 %
		Y	3.78	73.44	17.26		150.0	
		Z	3.62	73.66	16.18		150.0	
10300-AAB	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	3.72	72.73	16.07	0.00	150.0	± 9.6 %
		Y	2.96	68.88	14.55		150.0	
		Z	2.44	67.52	12.75		150.0	
10301-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	X	5.70	68.03	18.84	4.17	80.0	± 9.6 %
		Y	5.77	67.36	18.35		80.0	
		Z	5.64	68.37	18.74		80.0	
10302-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)	X	6.21	68.72	19.60	4.96	80.0	± 9.6 %
		Y	6.41	68.65	19.47		80.0	
		Z	6.13	69.05	19.54		80.0	

10303-AAA	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	X	6.07	68.83	19.70	4.96	80.0	± 9.6 %
		Y	6.30	68.82	19.58		80.0	
		Z	5.97	69.08	19.56		80.0	
10304-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	X	5.71	68.13	18.89	4.17	80.0	± 9.6 %
		Y	5.89	68.01	18.73		80.0	
		Z	5.61	68.35	18.73		80.0	
10305-AAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	X	6.90	74.81	23.11	6.02	50.0	± 9.6 %
		Y	9.48	82.28	26.60		50.0	
		Z	9.03	82.45	26.20		50.0	
10306-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)	X	6.40	71.34	21.64	6.02	50.0	± 9.6 %
		Y	6.75	71.50	21.57		50.0	
		Z	6.43	72.04	21.56		50.0	
10307-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)	X	6.49	72.10	21.82	6.02	50.0	± 9.6 %
		Y	6.85	72.21	21.70		50.0	
		Z	6.50	72.67	21.67		50.0	
10308-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	X	6.53	72.49	22.02	6.02	50.0	± 9.6 %
		Y	6.89	72.58	21.88		50.0	
		Z	6.59	73.18	21.92		50.0	
10309-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)	X	6.52	71.66	21.81	6.02	50.0	± 9.6 %
		Y	6.86	71.77	21.70		50.0	
		Z	6.53	72.35	21.74		50.0	
10310-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)	X	6.41	71.57	21.66	6.02	50.0	± 9.6 %
		Y	6.75	71.71	21.56		50.0	
		Z	6.45	72.29	21.59		50.0	
10311-AAA	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	3.66	71.55	17.51	0.00	150.0	± 9.6 %
		Y	3.33	69.32	16.27		150.0	
		Z	3.12	68.94	16.14		150.0	
10313-AAA	iDEN 1:3	X	8.19	79.62	19.16	6.99	70.0	± 9.6 %
		Y	7.35	77.72	18.90		70.0	
		Z	8.21	80.46	19.57		70.0	
10314-AAA	iDEN 1:6	X	11.35	86.83	24.06	10.00	30.0	± 9.6 %
		Y	8.72	81.68	22.69		30.0	
		Z	10.81	87.34	24.49		30.0	
10315-AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	X	1.24	66.34	16.99	0.17	150.0	± 9.6 %
		Y	1.18	64.44	15.46		150.0	
		Z	1.17	64.45	15.36		150.0	
10316-AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	X	4.83	67.25	16.68	0.17	150.0	± 9.6 %
		Y	4.86	66.88	16.43		150.0	
		Z	4.68	66.99	16.39		150.0	
10317-AAB	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	X	4.83	67.25	16.68	0.17	150.0	± 9.6 %
		Y	4.86	66.88	16.43		150.0	
		Z	4.68	66.99	16.39		150.0	
10400-AAC	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)	X	4.96	67.54	16.61	0.00	150.0	± 9.6 %
		Y	4.98	67.13	16.32		150.0	
		Z	4.75	67.19	16.29		150.0	
10401-AAC	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)	X	5.54	67.49	16.61	0.00	150.0	± 9.6 %
		Y	5.56	67.14	16.37		150.0	
		Z	5.45	67.43	16.49		150.0	

10402-AAC	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)	X	5.87	68.11	16.75	0.00	150.0	± 9.6 %
		Y	5.89	67.80	16.54		150.0	
		Z	5.70	67.70	16.47		150.0	
10403-AAB	CDMA2000 (1xEV-DO, Rev. 0)	X	2.41	75.76	18.30	0.00	115.0	± 9.6 %
		Y	1.70	69.18	15.23		115.0	
		Z	1.46	68.58	14.00		115.0	
10404-AAB	CDMA2000 (1xEV-DO, Rev. A)	X	2.41	75.76	18.30	0.00	115.0	± 9.6 %
		Y	1.70	69.18	15.23		115.0	
		Z	1.46	68.58	14.00		115.0	
10406-AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	X	100.00	120.32	30.30	0.00	100.0	± 9.6 %
		Y	37.67	108.93	28.46		100.0	
		Z	100.00	119.28	29.39		100.0	
10410-AAA	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	118.51	29.90	3.23	80.0	± 9.6 %
		Y	100.00	119.74	30.88		80.0	
		Z	100.00	120.99	30.71		80.0	
10415-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	X	1.06	64.54	16.02	0.00	150.0	± 9.6 %
		Y	1.03	62.90	14.57		150.0	
		Z	1.03	63.04	14.51		150.0	
10416-AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	X	4.73	67.12	16.55	0.00	150.0	± 9.6 %
		Y	4.75	66.70	16.25		150.0	
		Z	4.58	66.83	16.23		150.0	
10417-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	X	4.73	67.12	16.55	0.00	150.0	± 9.6 %
		Y	4.75	66.70	16.25		150.0	
		Z	4.58	66.83	16.23		150.0	
10418-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preambule)	X	4.72	67.27	16.56	0.00	150.0	± 9.6 %
		Y	4.73	66.83	16.25		150.0	
		Z	4.56	66.98	16.24		150.0	
10419-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preambule)	X	4.75	67.23	16.56	0.00	150.0	± 9.6 %
		Y	4.76	66.80	16.26		150.0	
		Z	4.59	66.94	16.24		150.0	
10422-AAA	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	X	4.87	67.22	16.56	0.00	150.0	± 9.6 %
		Y	4.89	66.82	16.28		150.0	
		Z	4.71	66.94	16.26		150.0	
10423-AAA	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	X	5.09	67.62	16.71	0.00	150.0	± 9.6 %
		Y	5.12	67.23	16.44		150.0	
		Z	4.88	67.27	16.38		150.0	
10424-AAA	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	X	5.00	67.56	16.68	0.00	150.0	± 9.6 %
		Y	5.02	67.15	16.39		150.0	
		Z	4.80	67.22	16.35		150.0	
10425-AAA	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	X	5.55	67.83	16.78	0.00	150.0	± 9.6 %
		Y	5.59	67.55	16.57		150.0	
		Z	5.40	67.57	16.55		150.0	
10426-AAA	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	X	5.56	67.88	16.79	0.00	150.0	± 9.6 %
		Y	5.60	67.58	16.58		150.0	
		Z	5.41	67.59	16.56		150.0	

10427-AAA	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	X	5.59	67.91	16.80	0.00	150.0	± 9.6 %
		Y	5.63	67.61	16.59		150.0	
		Z	5.42	67.56	16.54		150.0	
10430-AAA	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	X	4.54	71.07	18.70	0.00	150.0	± 9.6 %
		Y	4.46	69.99	18.11		150.0	
		Z	4.20	70.41	17.89		150.0	
10431-AAA	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	X	4.50	67.77	16.69	0.00	150.0	± 9.6 %
		Y	4.51	67.23	16.34		150.0	
		Z	4.26	67.36	16.21		150.0	
10432-AAA	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	X	4.78	67.63	16.67	0.00	150.0	± 9.6 %
		Y	4.80	67.18	16.37		150.0	
		Z	4.56	67.25	16.29		150.0	
10433-AAA	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	X	5.01	67.62	16.71	0.00	150.0	± 9.6 %
		Y	5.04	67.21	16.43		150.0	
		Z	4.81	67.25	16.37		150.0	
10434-AAA	W-CDMA (BS Test Model 1, 64 DPCH)	X	4.66	71.93	18.79	0.00	150.0	± 9.6 %
		Y	4.53	70.61	18.11		150.0	
		Z	4.27	71.15	17.82		150.0	
10435-AAA	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	118.35	29.82	3.23	80.0	± 9.6 %
		Y	100.00	119.61	30.82		80.0	
		Z	100.00	120.81	30.62		80.0	
10447-AAA	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.85	68.02	16.38	0.00	150.0	± 9.6 %
		Y	3.83	67.22	15.92		150.0	
		Z	3.54	67.32	15.53		150.0	
10448-AAA	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%)	X	4.31	67.56	16.56	0.00	150.0	± 9.6 %
		Y	4.32	66.99	16.19		150.0	
		Z	4.10	67.13	16.07		150.0	
10449-AAA	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%)	X	4.56	67.47	16.59	0.00	150.0	± 9.6 %
		Y	4.57	66.98	16.26		150.0	
		Z	4.37	67.07	16.19		150.0	
10450-AAA	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.73	67.38	16.58	0.00	150.0	± 9.6 %
		Y	4.74	66.94	16.27		150.0	
		Z	4.56	67.01	16.22		150.0	
10451-AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	X	3.81	68.42	16.23	0.00	150.0	± 9.6 %
		Y	3.77	67.50	15.73		150.0	
		Z	3.44	67.49	15.16		150.0	
10456-AAA	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)	X	6.40	68.45	16.93	0.00	150.0	± 9.6 %
		Y	6.44	68.23	16.77		150.0	
		Z	6.27	68.12	16.71		150.0	
10457-AAA	UMTS-FDD (DC-HSDPA)	X	3.89	65.77	16.30	0.00	150.0	± 9.6 %
		Y	3.90	65.36	15.99		150.0	
		Z	3.82	65.47	15.93		150.0	
10458-AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	X	3.60	67.53	15.71	0.00	150.0	± 9.6 %
		Y	3.56	66.59	15.22		150.0	
		Z	3.27	66.88	14.62		150.0	
10459-AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	X	4.70	65.53	16.21	0.00	150.0	± 9.6 %
		Y	4.63	64.60	15.71		150.0	
		Z	4.27	64.85	15.38		150.0	

10460-AAA	UMTS-FDD (WCDMA, AMR)	X	1.28	75.29	20.20	0.00	150.0	± 9.6 %
		Y	0.92	67.71	15.91		150.0	
		Z	0.90	67.71	15.78		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	122.97	32.01	3.29	80.0	± 9.6 %
		Y	100.00	121.34	31.70		80.0	
		Z	100.00	125.58	32.88		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	108.03	24.84	3.23	80.0	± 9.6 %
		Y	100.00	109.86	26.18		80.0	
		Z	100.00	108.99	24.93		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	105.21	23.49	3.23	80.0	± 9.6 %
		Y	47.92	99.26	23.13		80.0	
		Z	100.00	105.71	23.36		80.0	
10464-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	121.12	31.00	3.23	80.0	± 9.6 %
		Y	100.00	119.76	30.82		80.0	
		Z	100.00	123.61	31.80		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	107.54	24.59	3.23	80.0	± 9.6 %
		Y	92.10	108.50	25.75		80.0	
		Z	100.00	108.47	24.68		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	104.76	23.28	3.23	80.0	± 9.6 %
		Y	27.79	92.79	21.40		80.0	
		Z	53.71	98.96	21.73		80.0	
10467-AAA	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	121.32	31.10	3.23	80.0	± 9.6 %
		Y	100.00	119.93	30.90		80.0	
		Z	100.00	123.83	31.91		80.0	
10468-AAA	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	107.68	24.66	3.23	80.0	± 9.6 %
		Y	100.00	109.58	26.02		80.0	
		Z	100.00	108.64	24.75		80.0	
10469-AAA	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	104.76	23.27	3.23	80.0	± 9.6 %
		Y	28.45	93.06	21.47		80.0	
		Z	57.15	99.60	21.88		80.0	
10470-AAA	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	121.35	31.10	3.23	80.0	± 9.6 %
		Y	100.00	119.95	30.90		80.0	
		Z	100.00	123.86	31.91		80.0	
10471-AAA	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	107.63	24.63	3.23	80.0	± 9.6 %
		Y	100.00	109.54	26.00		80.0	
		Z	100.00	108.59	24.73		80.0	
10472-AAA	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	104.72	23.24	3.23	80.0	± 9.6 %
		Y	28.52	93.08	21.46		80.0	
		Z	57.07	99.54	21.85		80.0	
10473-AAA	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	121.32	31.09	3.23	80.0	± 9.6 %
		Y	100.00	119.92	30.89		80.0	
		Z	100.00	123.84	31.90		80.0	
10474-AAA	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	107.64	24.63	3.23	80.0	± 9.6 %
		Y	100.00	109.55	26.00		80.0	
		Z	100.00	108.60	24.73		80.0	
10475-AAA	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	104.73	23.25	3.23	80.0	± 9.6 %
		Y	28.13	92.93	21.42		80.0	
		Z	55.36	99.25	21.78		80.0	

10477-AAA	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	107.49	24.56	3.23	80.0	± 9.6 %
		Y	96.57	109.01	25.85		80.0	
		Z	100.00	108.42	24.64		80.0	
10478-AAA	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	104.68	23.23	3.23	80.0	± 9.6 %
		Y	27.68	92.72	21.36		80.0	
		Z	53.23	98.81	21.67		80.0	
10479-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	26.63	104.01	29.13	3.23	80.0	± 9.6 %
		Y	9.63	86.48	23.96		80.0	
		Z	24.30	102.59	28.22		80.0	
10480-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	38.31	102.90	27.02	3.23	80.0	± 9.6 %
		Y	11.50	85.06	22.20		80.0	
		Z	29.11	98.49	25.10		80.0	
10481-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	30.40	98.59	25.52	3.23	80.0	± 9.6 %
		Y	10.74	83.47	21.41		80.0	
		Z	20.94	92.98	23.18		80.0	
10482-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	8.51	84.82	22.25	2.23	80.0	± 9.6 %
		Y	5.60	77.58	19.80		80.0	
		Z	5.41	78.09	19.19		80.0	
10483-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	14.01	88.92	23.41	2.23	80.0	± 9.6 %
		Y	8.14	80.18	20.73		80.0	
		Z	9.32	82.50	20.44		80.0	
10484-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	12.47	87.00	22.82	2.23	80.0	± 9.6 %
		Y	7.81	79.33	20.43		80.0	
		Z	8.26	80.64	19.81		80.0	
10485-AAA	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	8.06	84.25	22.66	2.23	80.0	± 9.6 %
		Y	5.75	77.87	20.37		80.0	
		Z	5.68	79.10	20.42		80.0	
10486-AAA	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.66	75.87	19.43	2.23	80.0	± 9.6 %
		Y	4.94	72.86	18.29		80.0	
		Z	4.62	73.05	17.69		80.0	
10487-AAA	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.56	75.25	19.19	2.23	80.0	± 9.6 %
		Y	4.94	72.51	18.16		80.0	
		Z	4.56	72.51	17.46		80.0	
10488-AAA	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.10	80.82	21.84	2.23	80.0	± 9.6 %
		Y	5.79	76.47	20.13		80.0	
		Z	5.49	77.19	20.36		80.0	
10489-AAA	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.34	73.87	19.44	2.23	80.0	± 9.6 %
		Y	5.00	71.87	18.57		80.0	
		Z	4.68	72.17	18.47		80.0	
10490-AAA	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.35	73.36	19.26	2.23	80.0	± 9.6 %
		Y	5.06	71.53	18.46		80.0	
		Z	4.74	71.87	18.36		80.0	
10491-AAA	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.36	77.12	20.56	2.23	80.0	± 9.6 %
		Y	5.66	74.28	19.36		80.0	
		Z	5.31	74.67	19.54		80.0	
10492-AAA	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.41	72.24	18.98	2.23	80.0	± 9.6 %
		Y	5.23	70.84	18.33		80.0	
		Z	4.89	71.01	18.29		80.0	

10493-AAA	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.44	71.94	18.88	2.23	80.0	± 9.6 %
		Y	5.28	70.63	18.27		80.0	
		Z	4.94	70.81	18.22		80.0	
10494-AAA	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.43	79.70	21.31	2.23	80.0	± 9.6 %
		Y	6.30	76.13	19.88		80.0	
		Z	5.88	76.40	20.05		80.0	
10495-AAA	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.56	72.97	19.25	2.23	80.0	± 9.6 %
		Y	5.33	71.45	18.55		80.0	
		Z	4.97	71.48	18.50		80.0	
10496-AAA	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.54	72.39	19.06	2.23	80.0	± 9.6 %
		Y	5.37	71.03	18.42		80.0	
		Z	5.01	71.08	18.38		80.0	
10497-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.31	82.38	20.82	2.23	80.0	± 9.6 %
		Y	4.87	75.75	18.64		80.0	
		Z	4.03	73.68	16.68		80.0	
10498-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.73	73.29	16.69	2.23	80.0	± 9.6 %
		Y	4.12	70.77	15.97		80.0	
		Z	2.73	66.24	12.60		80.0	
10499-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.59	72.54	16.27	2.23	80.0	± 9.6 %
		Y	4.10	70.38	15.70		80.0	
		Z	2.62	65.47	12.11		80.0	
10500-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.19	81.83	22.01	2.23	80.0	± 9.6 %
		Y	5.57	76.69	20.07		80.0	
		Z	5.44	77.85	20.24		80.0	
10501-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.46	74.81	19.33	2.23	80.0	± 9.6 %
		Y	4.94	72.30	18.33		80.0	
		Z	4.65	72.67	17.97		80.0	
10502-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.46	74.43	19.15	2.23	80.0	± 9.6 %
		Y	4.98	72.05	18.20		80.0	
		Z	4.68	72.41	17.81		80.0	
10503-AAA	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.99	80.56	21.73	2.23	80.0	± 9.6 %
		Y	5.72	76.28	20.04		80.0	
		Z	5.42	76.98	20.27		80.0	
10504-AAA	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.31	73.78	19.39	2.23	80.0	± 9.6 %
		Y	4.98	71.79	18.52		80.0	
		Z	4.66	72.08	18.42		80.0	
10505-AAA	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.32	73.26	19.21	2.23	80.0	± 9.6 %
		Y	5.03	71.44	18.41		80.0	
		Z	4.72	71.78	18.31		80.0	
10506-AAA	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.35	79.52	21.23	2.23	80.0	± 9.6 %
		Y	6.24	75.99	19.82		80.0	
		Z	5.83	76.25	19.98		80.0	
10507-AAA	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.53	72.90	19.22	2.23	80.0	± 9.6 %
		Y	5.31	71.39	18.51		80.0	
		Z	4.95	71.42	18.47		80.0	

10508-AAA	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.52	72.31	19.02	2.23	80.0	± 9.6 %
		Y	5.35	70.96	18.38		80.0	
		Z	4.99	71.02	18.34		80.0	
10509-AAA	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.86	76.40	20.08	2.23	80.0	± 9.6 %
		Y	6.23	74.05	19.09		80.0	
		Z	5.83	74.13	19.18		80.0	
10510-AAA	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.89	72.04	18.91	2.23	80.0	± 9.6 %
		Y	5.75	70.91	18.36		80.0	
		Z	5.36	70.80	18.32		80.0	
10511-AAA	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.86	71.58	18.77	2.23	80.0	± 9.6 %
		Y	5.75	70.55	18.27		80.0	
		Z	5.39	70.48	18.23		80.0	
10512-AAA	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.85	79.24	20.97	2.23	80.0	± 9.6 %
		Y	6.75	76.04	19.69		80.0	
		Z	6.30	76.05	19.77		80.0	
10513-AAA	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.88	72.72	19.16	2.23	80.0	± 9.6 %
		Y	5.70	71.43	18.55		80.0	
		Z	5.29	71.21	18.47		80.0	
10514-AAA	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.77	72.00	18.94	2.23	80.0	± 9.6 %
		Y	5.64	70.86	18.38		80.0	
		Z	5.26	70.69	18.32		80.0	
10515-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	X	1.03	64.88	16.19	0.00	150.0	± 9.6 %
		Y	0.99	63.07	14.62		150.0	
		Z	0.99	63.20	14.56		150.0	
10516-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	X	1.64	91.04	26.85	0.00	150.0	± 9.6 %
		Y	0.59	69.22	16.60		150.0	
		Z	0.59	69.23	16.57		150.0	
10517-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	X	0.96	68.68	17.89	0.00	150.0	± 9.6 %
		Y	0.84	64.94	15.18		150.0	
		Z	0.84	64.94	15.09		150.0	
10518-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	X	4.73	67.22	16.54	0.00	150.0	± 9.6 %
		Y	4.75	66.79	16.24		150.0	
		Z	4.57	66.91	16.20		150.0	
10519-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	X	4.96	67.51	16.67	0.00	150.0	± 9.6 %
		Y	4.99	67.12	16.39		150.0	
		Z	4.76	67.15	16.33		150.0	
10520-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	X	4.82	67.52	16.62	0.00	150.0	± 9.6 %
		Y	4.84	67.09	16.32		150.0	
		Z	4.61	67.11	16.25		150.0	
10521-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	X	4.75	67.54	16.61	0.00	150.0	± 9.6 %
		Y	4.77	67.10	16.31		150.0	
		Z	4.54	67.10	16.23		150.0	
10522-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	X	4.79	67.47	16.62	0.00	150.0	± 9.6 %
		Y	4.80	67.00	16.30		150.0	
		Z	4.60	67.19	16.31		150.0	

10523-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	X	4.66	67.41	16.50	0.00	150.0	± 9.6 %
		Y	4.67	66.95	16.18		150.0	
		Z	4.48	67.04	16.16		150.0	
10524-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	X	4.74	67.44	16.62	0.00	150.0	± 9.6 %
		Y	4.76	66.99	16.31		150.0	
		Z	4.54	67.10	16.28		150.0	
10525-AAA	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	X	4.69	66.48	16.21	0.00	150.0	± 9.6 %
		Y	4.70	66.02	15.89		150.0	
		Z	4.53	66.15	15.87		150.0	
10526-AAA	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)	X	4.91	66.90	16.35	0.00	150.0	± 9.6 %
		Y	4.91	66.43	16.04		150.0	
		Z	4.70	66.52	16.01		150.0	
10527-AAA	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)	X	4.82	66.89	16.32	0.00	150.0	± 9.6 %
		Y	4.83	66.42	16.00		150.0	
		Z	4.62	66.47	15.95		150.0	
10528-AAA	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)	X	4.84	66.91	16.35	0.00	150.0	± 9.6 %
		Y	4.85	66.44	16.03		150.0	
		Z	4.63	66.49	15.99		150.0	
10529-AAA	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)	X	4.84	66.91	16.35	0.00	150.0	± 9.6 %
		Y	4.85	66.44	16.03		150.0	
		Z	4.63	66.49	15.99		150.0	
10531-AAA	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)	X	4.86	67.08	16.39	0.00	150.0	± 9.6 %
		Y	4.87	66.60	16.06		150.0	
		Z	4.63	66.60	16.00		150.0	
10532-AAA	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)	X	4.71	66.97	16.35	0.00	150.0	± 9.6 %
		Y	4.72	66.49	16.02		150.0	
		Z	4.49	66.45	15.93		150.0	
10533-AAA	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)	X	4.86	66.93	16.33	0.00	150.0	± 9.6 %
		Y	4.87	66.45	16.01		150.0	
		Z	4.64	66.54	15.97		150.0	
10534-AAA	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	X	5.34	67.03	16.36	0.00	150.0	± 9.6 %
		Y	5.36	66.66	16.11		150.0	
		Z	5.17	66.62	16.06		150.0	
10535-AAA	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)	X	5.42	67.17	16.42	0.00	150.0	± 9.6 %
		Y	5.43	66.80	16.16		150.0	
		Z	5.24	66.80	16.14		150.0	
10536-AAA	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)	X	5.29	67.18	16.41	0.00	150.0	± 9.6 %
		Y	5.30	66.78	16.13		150.0	
		Z	5.11	66.74	16.09		150.0	
10537-AAA	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)	X	5.35	67.14	16.39	0.00	150.0	± 9.6 %
		Y	5.36	66.75	16.12		150.0	
		Z	5.16	66.71	16.08		150.0	
10538-AAA	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)	X	5.47	67.20	16.46	0.00	150.0	± 9.6 %
		Y	5.49	66.85	16.21		150.0	
		Z	5.26	66.74	16.13		150.0	
10540-AAA	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)	X	5.36	67.15	16.45	0.00	150.0	± 9.6 %
		Y	5.38	66.77	16.18		150.0	
		Z	5.19	66.76	16.16		150.0	

10541-AAA	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)	X	5.35	67.08	16.42	0.00	150.0	± 9.6 %
		Y	5.38	66.75	16.17		150.0	
		Z	5.16	66.62	16.08		150.0	
10542-AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)	X	5.49	67.08	16.42	0.00	150.0	± 9.6 %
		Y	5.51	66.73	16.18		150.0	
		Z	5.31	66.69	16.13		150.0	
10543-AAA	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)	X	5.58	67.09	16.44	0.00	150.0	± 9.6 %
		Y	5.61	66.77	16.21		150.0	
		Z	5.39	66.74	16.17		150.0	
10544-AAA	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)	X	5.61	67.12	16.33	0.00	150.0	± 9.6 %
		Y	5.62	66.77	16.09		150.0	
		Z	5.48	66.74	16.05		150.0	
10545-AAA	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)	X	5.83	67.51	16.46	0.00	150.0	± 9.6 %
		Y	5.84	67.15	16.22		150.0	
		Z	5.68	67.16	16.22		150.0	
10546-AAA	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)	X	5.72	67.42	16.44	0.00	150.0	± 9.6 %
		Y	5.73	67.08	16.20		150.0	
		Z	5.55	66.95	16.13		150.0	
10547-AAA	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)	X	5.81	67.48	16.46	0.00	150.0	± 9.6 %
		Y	5.83	67.17	16.24		150.0	
		Z	5.62	66.99	16.14		150.0	
10548-AAA	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)	X	6.10	68.50	16.94	0.00	150.0	± 9.6 %
		Y	6.15	68.24	16.74		150.0	
		Z	5.89	67.98	16.61		150.0	
10550-AAA	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)	X	5.74	67.36	16.42	0.00	150.0	± 9.6 %
		Y	5.75	67.01	16.18		150.0	
		Z	5.57	66.96	16.14		150.0	
10551-AAA	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)	X	5.76	67.47	16.43	0.00	150.0	± 9.6 %
		Y	5.78	67.14	16.20		150.0	
		Z	5.58	67.00	16.12		150.0	
10552-AAA	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)	X	5.66	67.23	16.33	0.00	150.0	± 9.6 %
		Y	5.67	66.89	16.10		150.0	
		Z	5.49	66.80	16.03		150.0	
10553-AAA	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)	X	5.75	67.26	16.37	0.00	150.0	± 9.6 %
		Y	5.76	66.93	16.14		150.0	
		Z	5.58	66.84	16.08		150.0	
10554-AAA	IEEE 1602.11ac WiFi (160MHz, MCS0, 99pc duty cycle)	X	6.01	67.49	16.42	0.00	150.0	± 9.6 %
		Y	6.02	67.17	16.20		150.0	
		Z	5.89	67.10	16.15		150.0	
10555-AAA	IEEE 1602.11ac WiFi (160MHz, MCS1, 99pc duty cycle)	X	6.17	67.85	16.56	0.00	150.0	± 9.6 %
		Y	6.20	67.56	16.36		150.0	
		Z	6.02	67.41	16.28		150.0	
10556-AAA	IEEE 1602.11ac WiFi (160MHz, MCS2, 99pc duty cycle)	X	6.18	67.83	16.55	0.00	150.0	± 9.6 %
		Y	6.19	67.51	16.33		150.0	
		Z	6.04	67.46	16.30		150.0	
10557-AAA	IEEE 1602.11ac WiFi (160MHz, MCS3, 99pc duty cycle)	X	6.17	67.82	16.57	0.00	150.0	± 9.6 %
		Y	6.19	67.52	16.36		150.0	
		Z	6.00	67.36	16.27		150.0	

10558-AAA	IEEE 1602.11ac WiFi (160MHz, MCS4, 99pc duty cycle)	X	6.23	68.01	16.68	0.00	150.0	± 9.6 %
		Y	6.25	67.72	16.47		150.0	
		Z	6.05	67.53	16.37		150.0	
10560-AAA	IEEE 1602.11ac WiFi (160MHz, MCS6, 99pc duty cycle)	X	6.22	67.85	16.63	0.00	150.0	± 9.6 %
		Y	6.25	67.56	16.43		150.0	
		Z	6.05	67.37	16.33		150.0	
10561-AAA	IEEE 1602.11ac WiFi (160MHz, MCS7, 99pc duty cycle)	X	6.13	67.79	16.64	0.00	150.0	± 9.6 %
		Y	6.15	67.49	16.43		150.0	
		Z	5.97	67.35	16.35		150.0	
10562-AAA	IEEE 1602.11ac WiFi (160MHz, MCS8, 99pc duty cycle)	X	6.29	68.28	16.89	0.00	150.0	± 9.6 %
		Y	6.33	68.01	16.70		150.0	
		Z	6.10	67.74	16.55		150.0	
10563-AAA	IEEE 1602.11ac WiFi (160MHz, MCS9, 99pc duty cycle)	X	6.57	68.63	17.00	0.00	150.0	± 9.6 %
		Y	6.57	68.27	16.77		150.0	
		Z	6.35	68.10	16.68		150.0	
10564-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	X	5.07	67.31	16.69	0.46	150.0	± 9.6 %
		Y	5.10	66.95	16.44		150.0	
		Z	4.91	67.04	16.40		150.0	
10565-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	X	5.34	67.80	17.01	0.46	150.0	± 9.6 %
		Y	5.38	67.46	16.78		150.0	
		Z	5.14	67.47	16.71		150.0	
10566-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	X	5.17	67.69	16.85	0.46	150.0	± 9.6 %
		Y	5.21	67.33	16.61		150.0	
		Z	4.97	67.33	16.54		150.0	
10567-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	X	5.20	68.09	17.20	0.46	150.0	± 9.6 %
		Y	5.23	67.71	16.94		150.0	
		Z	5.00	67.68	16.86		150.0	
10568-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	X	5.08	67.38	16.59	0.46	150.0	± 9.6 %
		Y	5.11	67.01	16.33		150.0	
		Z	4.90	67.16	16.34		150.0	
10569-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	X	5.14	68.11	17.22	0.46	150.0	± 9.6 %
		Y	5.16	67.71	16.95		150.0	
		Z	4.96	67.77	16.91		150.0	
10570-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	X	5.18	67.92	17.15	0.46	150.0	± 9.6 %
		Y	5.21	67.52	16.88		150.0	
		Z	4.99	67.63	16.86		150.0	
10571-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	X	1.45	67.97	17.69	0.46	130.0	± 9.6 %
		Y	1.38	65.84	16.15		130.0	
		Z	1.34	65.80	16.05		130.0	
10572-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	X	1.49	68.86	18.18	0.46	130.0	± 9.6 %
		Y	1.40	66.47	16.51		130.0	
		Z	1.36	66.39	16.40		130.0	
10573-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	X	100.00	149.30	40.22	0.46	130.0	± 9.6 %
		Y	3.11	88.03	23.54		130.0	
		Z	3.23	89.37	24.00		130.0	
10574-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	X	2.21	80.01	23.13	0.46	130.0	± 9.6 %
		Y	1.65	72.75	19.44		130.0	
		Z	1.56	72.33	19.21		130.0	

10575-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	X	4.88	67.15	16.77	0.46	130.0	± 9.6 %
		Y	4.92	66.81	16.54		130.0	
		Z	4.73	66.93	16.51		130.0	
10576-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	X	4.91	67.32	16.84	0.46	130.0	± 9.6 %
		Y	4.94	66.97	16.61		130.0	
		Z	4.75	67.08	16.56		130.0	
10577-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	X	5.15	67.65	17.01	0.46	130.0	± 9.6 %
		Y	5.20	67.33	16.79		130.0	
		Z	4.96	67.36	16.73		130.0	
10578-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	X	5.05	67.86	17.13	0.46	130.0	± 9.6 %
		Y	5.09	67.50	16.89		130.0	
		Z	4.85	67.51	16.82		130.0	
10579-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle)	X	4.82	67.24	16.51	0.46	130.0	± 9.6 %
		Y	4.87	66.90	16.27		130.0	
		Z	4.63	66.89	16.19		130.0	
10580-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	X	4.86	67.17	16.48	0.46	130.0	± 9.6 %
		Y	4.91	66.83	16.25		130.0	
		Z	4.68	66.92	16.22		130.0	
10581-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	X	4.96	67.97	17.11	0.46	130.0	± 9.6 %
		Y	5.00	67.61	16.86		130.0	
		Z	4.76	67.57	16.77		130.0	
10582-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	X	4.78	66.97	16.29	0.46	130.0	± 9.6 %
		Y	4.83	66.64	16.06		130.0	
		Z	4.58	66.67	16.00		130.0	
10583-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	X	4.88	67.15	16.77	0.46	130.0	± 9.6 %
		Y	4.92	66.81	16.54		130.0	
		Z	4.73	66.93	16.51		130.0	
10584-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	X	4.91	67.32	16.84	0.46	130.0	± 9.6 %
		Y	4.94	66.97	16.61		130.0	
		Z	4.75	67.08	16.56		130.0	
10585-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	X	5.15	67.65	17.01	0.46	130.0	± 9.6 %
		Y	5.20	67.33	16.79		130.0	
		Z	4.96	67.36	16.73		130.0	
10586-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	X	5.05	67.86	17.13	0.46	130.0	± 9.6 %
		Y	5.09	67.50	16.89		130.0	
		Z	4.85	67.51	16.82		130.0	
10587-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	X	4.82	67.24	16.51	0.46	130.0	± 9.6 %
		Y	4.87	66.90	16.27		130.0	
		Z	4.63	66.89	16.19		130.0	
10588-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	X	4.86	67.17	16.48	0.46	130.0	± 9.6 %
		Y	4.91	66.83	16.25		130.0	
		Z	4.68	66.92	16.22		130.0	
10589-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	X	4.96	67.97	17.11	0.46	130.0	± 9.6 %
		Y	5.00	67.61	16.86		130.0	
		Z	4.76	67.57	16.77		130.0	
10590-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	X	4.78	66.97	16.29	0.46	130.0	± 9.6 %
		Y	4.83	66.64	16.06		130.0	
		Z	4.58	66.67	16.00		130.0	

10591-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	X	5.03	67.20	16.86	0.46	130.0	± 9.6 %
		Y	5.07	66.88	16.64		130.0	
		Z	4.88	66.97	16.60		130.0	
10592-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)	X	5.21	67.55	16.98	0.46	130.0	± 9.6 %
		Y	5.26	67.23	16.76		130.0	
		Z	5.03	67.30	16.73		130.0	
10593-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)	X	5.14	67.52	16.89	0.46	130.0	± 9.6 %
		Y	5.19	67.20	16.68		130.0	
		Z	4.96	67.23	16.62		130.0	
10594-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)	X	5.19	67.66	17.03	0.46	130.0	± 9.6 %
		Y	5.24	67.33	16.81		130.0	
		Z	5.01	67.38	16.76		130.0	
10595-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)	X	5.17	67.65	16.95	0.46	130.0	± 9.6 %
		Y	5.23	67.33	16.73		130.0	
		Z	4.98	67.35	16.67		130.0	
10596-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)	X	5.11	67.64	16.94	0.46	130.0	± 9.6 %
		Y	5.16	67.30	16.71		130.0	
		Z	4.92	67.35	16.67		130.0	
10597-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)	X	5.06	67.59	16.86	0.46	130.0	± 9.6 %
		Y	5.11	67.26	16.64		130.0	
		Z	4.87	67.26	16.56		130.0	
10598-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)	X	5.05	67.87	17.14	0.46	130.0	± 9.6 %
		Y	5.09	67.53	16.91		130.0	
		Z	4.85	67.47	16.80		130.0	
10599-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	5.68	67.76	17.01	0.46	130.0	± 9.6 %
		Y	5.74	67.54	16.84		130.0	
		Z	5.54	67.51	16.80		130.0	
10600-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)	X	5.91	68.42	17.31	0.46	130.0	± 9.6 %
		Y	6.00	68.29	17.19		130.0	
		Z	5.69	67.96	17.01		130.0	
10601-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	X	5.75	68.03	17.13	0.46	130.0	± 9.6 %
		Y	5.81	67.81	16.96		130.0	
		Z	5.57	67.70	16.89		130.0	
10602-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)	X	5.85	68.05	17.05	0.46	130.0	± 9.6 %
		Y	5.93	67.91	16.93		130.0	
		Z	5.67	67.73	16.83		130.0	
10603-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	X	5.97	68.46	17.38	0.46	130.0	± 9.6 %
		Y	6.05	68.29	17.25		130.0	
		Z	5.74	68.01	17.09		130.0	
10604-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	X	5.70	67.75	17.03	0.46	130.0	± 9.6 %
		Y	5.76	67.53	16.86		130.0	
		Z	5.55	67.48	16.81		130.0	
10605-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)	X	5.80	68.03	17.16	0.46	130.0	± 9.6 %
		Y	5.86	67.81	17.00		130.0	
		Z	5.67	67.84	17.00		130.0	
10606-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)	X	5.58	67.53	16.79	0.46	130.0	± 9.6 %
		Y	5.62	67.26	16.60		130.0	
		Z	5.41	67.19	16.54		130.0	

10607-AAA	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	4.86	66.52	16.48	0.46	130.0	± 9.6 %
		Y	4.89	66.14	16.23		130.0	
		Z	4.71	66.27	16.21		130.0	
10608-AAA	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	X	5.09	66.96	16.64	0.46	130.0	± 9.6 %
		Y	5.12	66.58	16.39		130.0	
		Z	4.90	66.67	16.37		130.0	
10609-AAA	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)	X	4.98	66.85	16.52	0.46	130.0	± 9.6 %
		Y	5.01	66.47	16.26		130.0	
		Z	4.79	66.53	16.22		130.0	
10610-AAA	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)	X	5.03	67.01	16.67	0.46	130.0	± 9.6 %
		Y	5.06	66.63	16.42		130.0	
		Z	4.84	66.68	16.37		130.0	
10611-AAA	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)	X	4.96	66.86	16.54	0.46	130.0	± 9.6 %
		Y	4.99	66.50	16.29		130.0	
		Z	4.76	66.50	16.23		130.0	
10612-AAA	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)	X	4.97	67.00	16.58	0.46	130.0	± 9.6 %
		Y	5.01	66.61	16.31		130.0	
		Z	4.77	66.66	16.28		130.0	
10613-AAA	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)	X	4.99	66.94	16.49	0.46	130.0	± 9.6 %
		Y	5.03	66.55	16.23		130.0	
		Z	4.77	66.56	16.17		130.0	
10614-AAA	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)	X	4.92	67.15	16.73	0.46	130.0	± 9.6 %
		Y	4.95	66.76	16.47		130.0	
		Z	4.71	66.71	16.38		130.0	
10615-AAA	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)	X	4.95	66.65	16.31	0.46	130.0	± 9.6 %
		Y	4.99	66.28	16.06		130.0	
		Z	4.76	66.36	16.03		130.0	
10616-AAA	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	X	5.51	67.07	16.65	0.46	130.0	± 9.6 %
		Y	5.55	66.78	16.45		130.0	
		Z	5.35	66.74	16.40		130.0	
10617-AAA	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)	X	5.58	67.18	16.67	0.46	130.0	± 9.6 %
		Y	5.62	66.89	16.46		130.0	
		Z	5.43	66.92	16.46		130.0	
10618-AAA	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)	X	5.47	67.27	16.74	0.46	130.0	± 9.6 %
		Y	5.50	66.95	16.52		130.0	
		Z	5.31	66.92	16.47		130.0	
10619-AAA	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)	X	5.49	67.07	16.57	0.46	130.0	± 9.6 %
		Y	5.52	66.76	16.36		130.0	
		Z	5.33	66.76	16.33		130.0	
10620-AAA	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)	X	5.62	67.19	16.68	0.46	130.0	± 9.6 %
		Y	5.67	66.93	16.49		130.0	
		Z	5.42	66.79	16.40		130.0	
10621-AAA	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)	X	5.59	67.25	16.82	0.46	130.0	± 9.6 %
		Y	5.63	66.98	16.62		130.0	
		Z	5.41	66.88	16.56		130.0	
10622-AAA	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)	X	5.58	67.35	16.86	0.46	130.0	± 9.6 %
		Y	5.62	67.06	16.66		130.0	
		Z	5.43	67.06	16.64		130.0	

10623-AAA	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	X	5.48	66.99	16.57	0.46	130.0	± 9.6 %
		Y	5.54	66.75	16.40		130.0	
		Z	5.31	66.61	16.29		130.0	
10624-AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)	X	5.65	67.09	16.68	0.46	130.0	± 9.6 %
		Y	5.69	66.81	16.49		130.0	
		Z	5.50	66.79	16.45		130.0	
10625-AAA	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	X	6.03	68.01	17.18	0.46	130.0	± 9.6 %
		Y	6.05	67.65	16.95		130.0	
		Z	5.88	67.81	17.01		130.0	
10626-AAA	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	5.76	67.09	16.57	0.46	130.0	± 9.6 %
		Y	5.79	66.81	16.38		130.0	
		Z	5.64	66.79	16.35		130.0	
10627-AAA	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)	X	6.01	67.60	16.77	0.46	130.0	± 9.6 %
		Y	6.04	67.32	16.58		130.0	
		Z	5.89	67.37	16.60		130.0	
10628-AAA	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)	X	5.83	67.28	16.56	0.46	130.0	± 9.6 %
		Y	5.87	67.01	16.37		130.0	
		Z	5.69	66.92	16.32		130.0	
10629-AAA	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)	X	5.93	67.36	16.58	0.46	130.0	± 9.6 %
		Y	5.99	67.16	16.43		130.0	
		Z	5.77	67.00	16.35		130.0	
10630-AAA	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)	X	6.47	69.11	17.45	0.46	130.0	± 9.6 %
		Y	6.56	68.99	17.34		130.0	
		Z	6.24	68.58	17.14		130.0	
10631-AAA	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)	X	6.36	68.89	17.53	0.46	130.0	± 9.6 %
		Y	6.44	68.71	17.39		130.0	
		Z	6.09	68.24	17.15		130.0	
10632-AAA	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)	X	6.00	67.73	16.97	0.46	130.0	± 9.6 %
		Y	6.05	67.48	16.79		130.0	
		Z	5.85	67.39	16.74		130.0	
10633-AAA	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	X	5.95	67.59	16.73	0.46	130.0	± 9.6 %
		Y	6.01	67.38	16.58		130.0	
		Z	5.74	67.05	16.41		130.0	
10634-AAA	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	X	5.92	67.56	16.78	0.46	130.0	± 9.6 %
		Y	5.98	67.34	16.62		130.0	
		Z	5.72	67.07	16.47		130.0	
10635-AAA	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	X	5.80	66.87	16.18	0.46	130.0	± 9.6 %
		Y	5.85	66.64	16.01		130.0	
		Z	5.62	66.48	15.93		130.0	
10636-AAA	IEEE 1602.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	X	6.16	67.47	16.65	0.46	130.0	± 9.6 %
		Y	6.19	67.22	16.49		130.0	
		Z	6.06	67.16	16.44		130.0	
10637-AAA	IEEE 1602.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	X	6.34	67.89	16.84	0.46	130.0	± 9.6 %
		Y	6.39	67.69	16.69		130.0	
		Z	6.22	67.55	16.62		130.0	
10638-AAA	IEEE 1602.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	X	6.33	67.82	16.78	0.46	130.0	± 9.6 %
		Y	6.36	67.57	16.61		130.0	
		Z	6.21	67.52	16.58		130.0	

10639-AAA	IEEE 1602.11ac WiFi (160MHz, MCS3, 90pc duty cycle)	X	6.34	67.88	16.86	0.46	130.0	± 9.6 %
		Y	6.38	67.64	16.70		130.0	
		Z	6.19	67.47	16.60		130.0	
10640-AAA	IEEE 1602.11ac WiFi (160MHz, MCS4, 90pc duty cycle)	X	6.37	67.96	16.84	0.46	130.0	± 9.6 %
		Y	6.42	67.75	16.69		130.0	
		Z	6.20	67.51	16.57		130.0	
10641-AAA	IEEE 1602.11ac WiFi (160MHz, MCS5, 90pc duty cycle)	X	6.36	67.66	16.71	0.46	130.0	± 9.6 %
		Y	6.40	67.44	16.56		130.0	
		Z	6.24	67.40	16.53		130.0	
10642-AAA	IEEE 1602.11ac WiFi (160MHz, MCS6, 90pc duty cycle)	X	6.44	68.03	17.05	0.46	130.0	± 9.6 %
		Y	6.49	67.81	16.91		130.0	
		Z	6.28	67.62	16.80		130.0	
10643-AAA	IEEE 1602.11ac WiFi (160MHz, MCS7, 90pc duty cycle)	X	6.26	67.70	16.80	0.46	130.0	± 9.6 %
		Y	6.31	67.48	16.64		130.0	
		Z	6.12	67.34	16.57		130.0	
10644-AAA	IEEE 1602.11ac WiFi (160MHz, MCS8, 90pc duty cycle)	X	6.50	68.41	17.18	0.46	130.0	± 9.6 %
		Y	6.57	68.25	17.05		130.0	
		Z	6.29	67.86	16.85		130.0	
10645-AAA	IEEE 1602.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	X	6.78	68.77	17.29	0.46	130.0	± 9.6 %
		Y	6.81	68.48	17.11		130.0	
		Z	6.68	68.60	17.18		130.0	
10646-AAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	X	37.14	116.21	38.03	9.30	60.0	± 9.6 %
		Y	19.95	100.33	33.06		60.0	
		Z	62.05	131.91	43.22		60.0	
10647-AAA	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	X	38.52	117.84	38.64	9.30	60.0	± 9.6 %
		Y	20.25	101.35	33.50		60.0	
		Z	63.43	133.45	43.81		60.0	
10648-AAA	CDMA2000 (1x Advanced)	X	1.03	68.68	14.68	0.00	150.0	± 9.6 %
		Y	0.85	64.54	12.30		150.0	
		Z	0.71	63.65	10.90		150.0	

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

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

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

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

Accreditation No.: SCS 0108

Client PC Test

Certificate No: EX3-3914_Feb17

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN:3914

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

BN ✓ 03-01-2017

Calibration date: February 13, 2017

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

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

Calibration Equipment used (M&TE critical for calibration)

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

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

Issued: February 13, 2017

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

- *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:3914

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

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

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

Basic Calibration Parameters

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

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	156.6	±3.3 %
		Y	0.0	0.0	1.0		139.0	
		Z	0.0	0.0	1.0		149.0	

Note: For details on UID parameters see Appendix.

Sensor Model Parameters

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

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

[A] The uncertainties of Norm X,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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

Calibration Parameter Determined in Head Tissue Simulating Media

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

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

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

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

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

Calibration Parameter Determined in Body Tissue Simulating Media

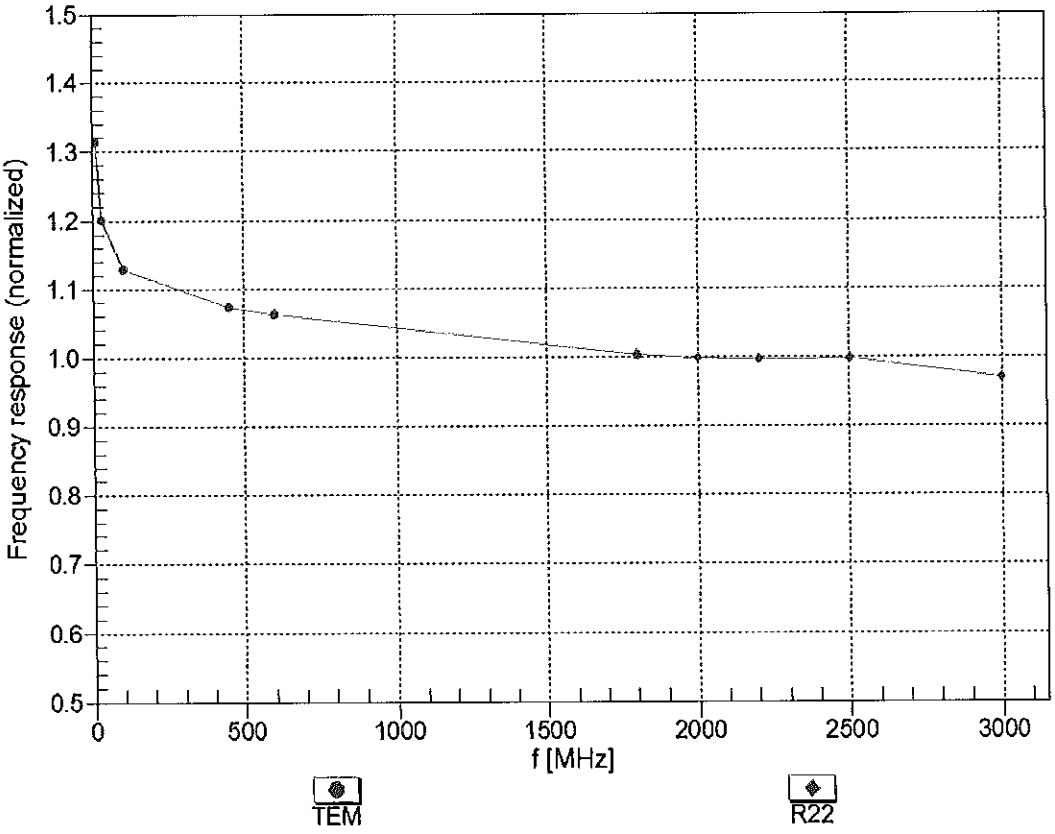
f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	55.5	0.96	9.98	9.98	9.98	0.45	0.88	± 12.0 %
835	55.2	0.97	9.73	9.73	9.73	0.40	0.88	± 12.0 %
1750	53.4	1.49	8.01	8.01	8.01	0.32	1.02	± 12.0 %
1900	53.3	1.52	7.75	7.75	7.75	0.34	0.95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

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

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

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

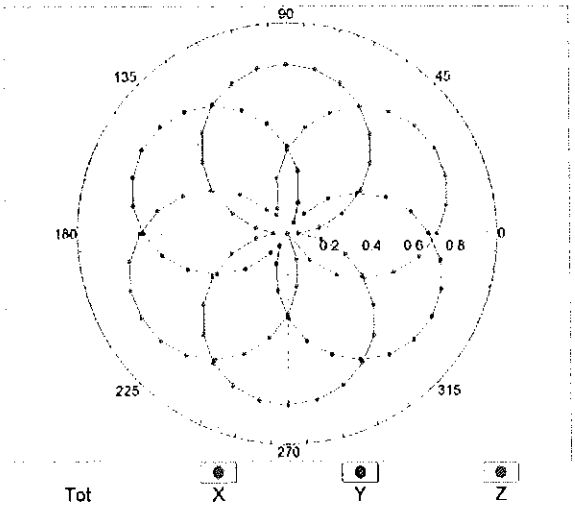
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



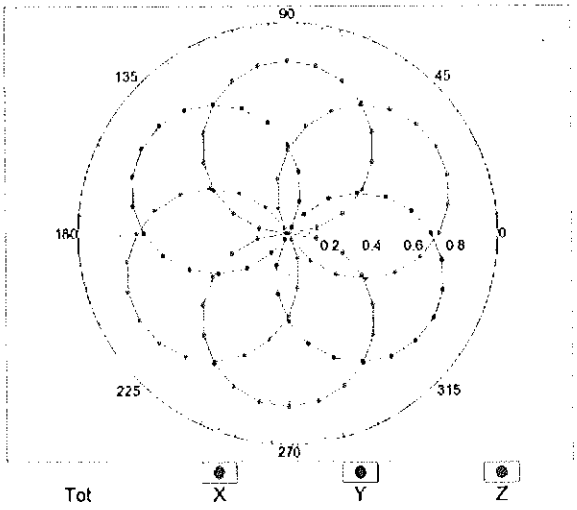
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

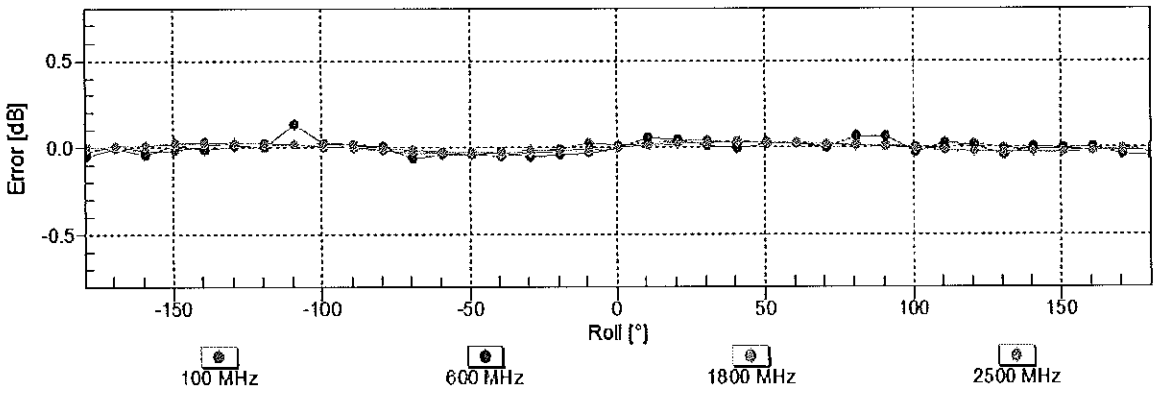
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



f=1800 MHz,R22

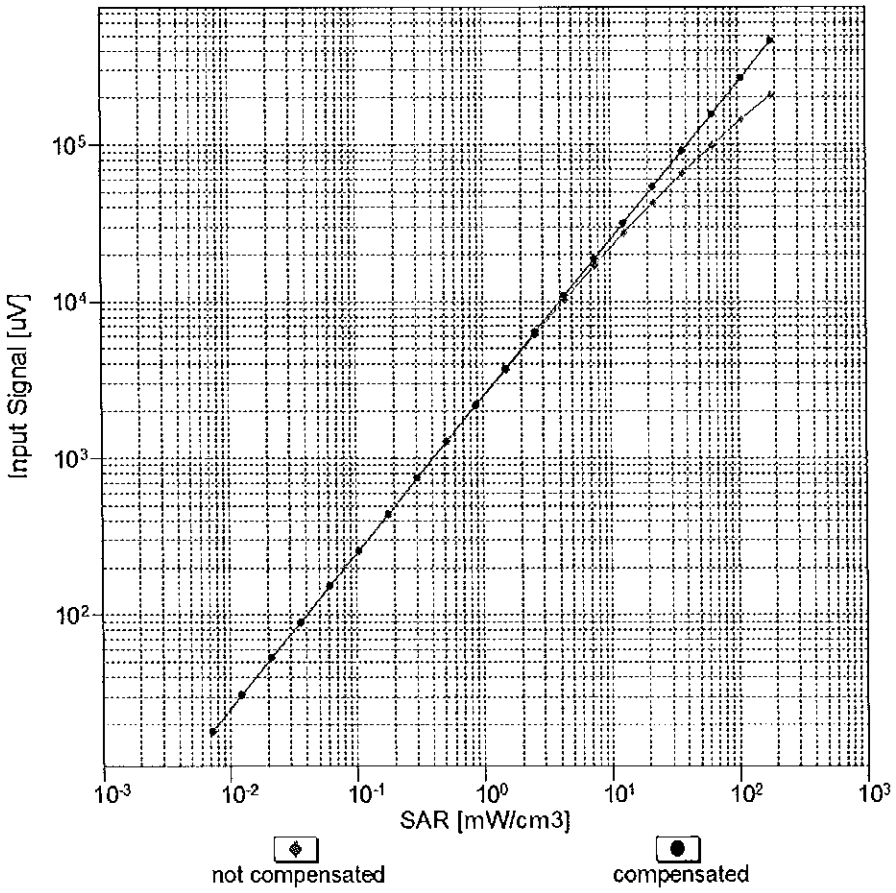


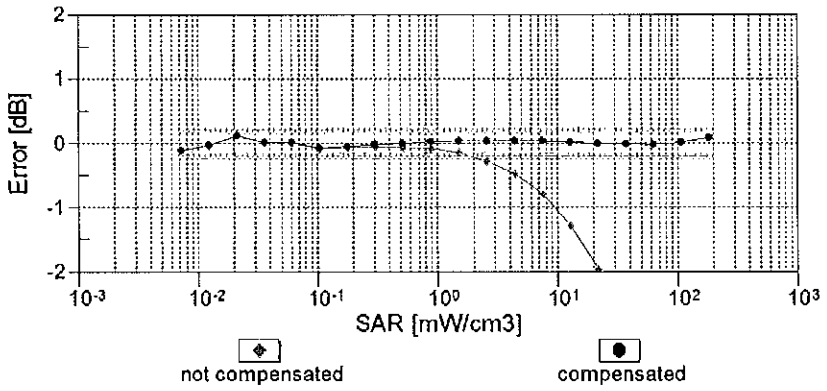


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})

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

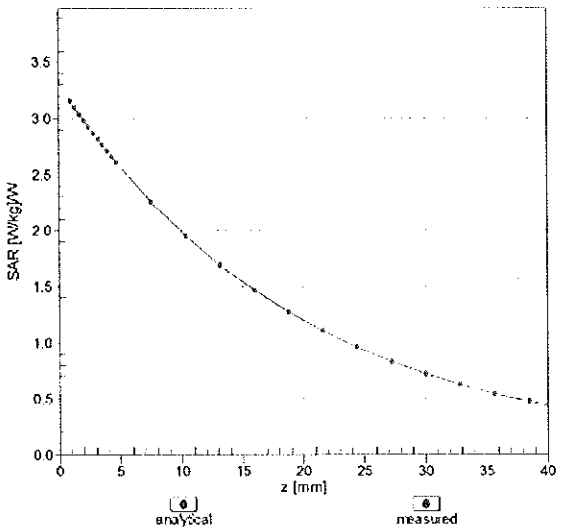




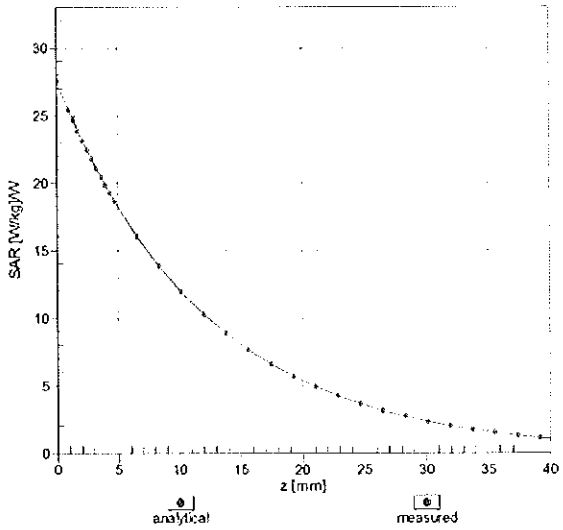
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (M_convF)

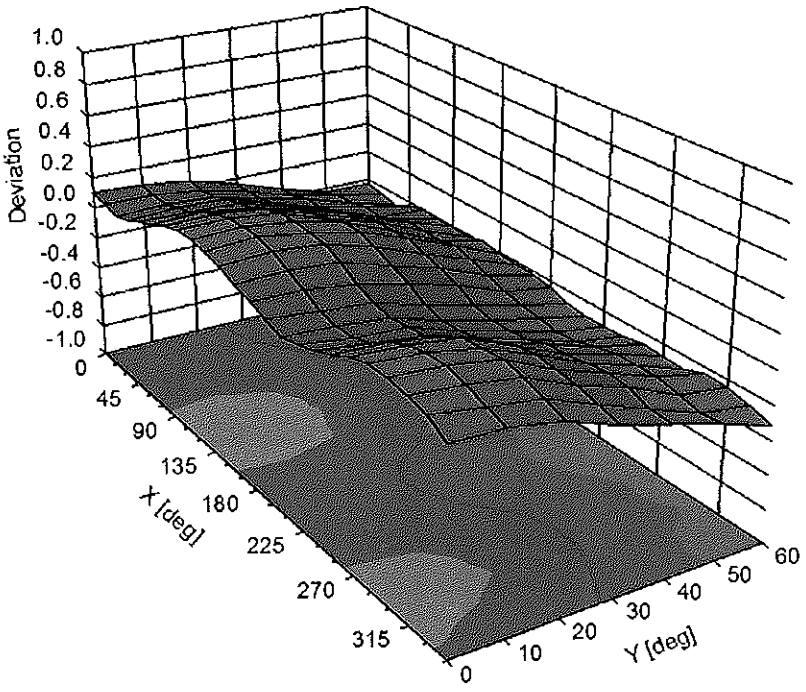


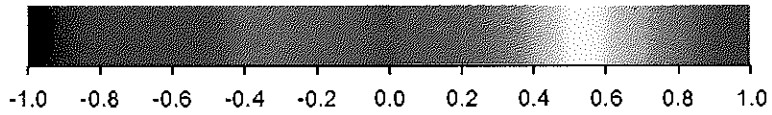
f = 1900 MHz,WGLS R22 (M_convF)



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:3914

Other Probe Parameters

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

Appendix: Modulation Calibration Parameters

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Accreditation No.: SCS 0108

Client **PC Test** | **Certificate No: EX3-7406_Apr16**

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:7406
Calibration procedure(s)	QA CAL-01.v9, QA CAL-23.v5, QA CAL-25.v6 Calibration procedure for dosimetric E-field probes
Calibration date:	April 19, 2016

BN 04/26/2016

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: S5277 (20x)	05-Apr-16 (No. 217-02293)	Apr-17
Reference Probe ES3DV2	SN: 3013	31-Dec-15 (No. ES3-3013_Dec15)	Dec-16
DAE4	SN: 660	23-Dec-15 (No. DAE4-660_Dec15)	Dec-16
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (No. 217-02285/02284)	In house check: Jun-16
Power sensor E4412A	SN: MY41498087	06-Apr-16 (No. 217-02285)	In house check: Jun-16
Power sensor E4412A	SN: 000110210	06-Apr-16 (No. 217-02284)	In house check: Jun-16
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Apr-13)	In house check: Jun-16
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-15)	In house check: Oct-16

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

Issued: April 20, 2016

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

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

Accredited by the Swiss Accreditation Service (SAS) **Accreditation No.: SCS 0108**
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
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, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- *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:7406

Manufactured: November 24, 2015
Calibrated: April 19, 2016

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7406

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.48	0.44	0.47	± 10.1 %
DCP (mV)[B]	100.7	97.9	98.6	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	120.4	±3.3 %
		Y	0.0	0.0	1.0		148.3	
		Z	0.0	0.0	1.0		146.7	
10010-CAA	SAR Validation (Square, 100ms, 10ms)	X	0.81	54.6	7.4	10.00	50.3	±2.2 %
		Y	0.68	55.1	7.9		47.9	
		Z	1.34	61.0	11.0		46.8	
10012-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	2.83	68.0	18.3	1.87	127.8	±0.5 %
		Y	2.82	68.4	18.4		117.8	
		Z	3.00	69.2	19.0		115.9	
10100-CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	6.54	67.4	19.5	5.67	142.1	±1.2 %
		Y	6.19	66.7	19.3		127.6	
		Z	6.37	66.7	19.2		125.7	
10103-CAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	7.58	67.9	21.8	9.29	114.4	±1.7 %
		Y	7.34	68.3	22.5		144.3	
		Z	7.53	67.7	21.8		139.5	
10108-CAC	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	6.34	66.9	19.4	5.80	137.5	±1.2 %
		Y	5.90	65.9	19.0		123.8	
		Z	6.24	66.4	19.2		123.7	
10151-CAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	7.17	67.2	21.5	9.28	109.5	±1.7 %
		Y	6.83	67.6	22.3		137.0	
		Z	7.23	67.4	21.7		135.1	
10154-CAC	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	5.99	66.4	19.2	5.75	132.4	±0.9 %
		Y	5.61	65.8	19.1		119.4	
		Z	5.91	65.9	19.0		120.1	
10160-CAB	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	6.47	67.0	19.5	5.82	137.0	±1.2 %
		Y	5.96	66.0	19.1		123.9	
		Z	6.33	66.3	19.1		124.2	
10169-CAB	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	4.71	65.5	18.9	5.73	113.2	±1.2 %
		Y	4.60	66.2	19.6		144.2	
		Z	4.93	66.5	19.5		143.2	
10172-CAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	5.68	68.2	22.4	9.21	117.6	±1.7 %
		Y	5.56	70.1	24.1		146.1	
		Z	5.87	69.4	23.2		143.7	
10175-CAC	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	4.75	65.7	19.1	5.72	112.3	±0.9 %
		Y	4.58	66.1	19.5		143.2	
		Z	4.95	66.7	19.6		142.0	

10181-CAB	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	4.71	65.5	18.9	5.72	110.2	±0.9 %
		Y	4.53	65.8	19.4		141.4	
		Z	4.90	66.5	19.5		138.1	
10237-CAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	5.69	68.3	22.5	9.21	117.3	±1.7 %
		Y	5.47	69.5	23.8		145.1	
		Z	5.85	69.3	23.1		142.0	
10252-CAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	7.04	68.1	22.2	9.24	141.2	±1.9 %
		Y	6.35	67.2	22.2		125.4	
		Z	6.82	67.1	21.7		127.5	
10267-CAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	7.45	68.3	22.2	9.30	148.0	±1.9 %
		Y	6.84	67.5	22.3		132.0	
		Z	7.24	67.4	21.8		134.6	
10297-AAA	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	6.35	66.9	19.4	5.81	135.3	±1.2 %
		Y	5.92	65.9	19.0		122.9	
		Z	6.26	66.4	19.2		122.1	
10311-AAA	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	6.92	67.4	19.7	6.06	139.3	±1.2 %
		Y	6.52	66.6	19.5		127.9	
		Z	6.82	66.9	19.5		126.8	

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 6 and 7).
[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:7406

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	41.9	0.89	10.52	10.52	10.52	0.52	0.89	± 12.0 %
835	41.5	0.90	9.83	9.83	9.83	0.54	0.80	± 12.0 %
1750	40.1	1.37	8.85	8.85	8.85	0.49	0.85	± 12.0 %
1900	40.0	1.40	8.22	8.22	8.22	0.40	0.88	± 12.0 %
2300	39.5	1.67	7.67	7.67	7.67	0.36	0.89	± 12.0 %
2450	39.2	1.80	7.29	7.29	7.29	0.40	0.80	± 12.0 %
2600	39.0	1.96	7.08	7.08	7.08	0.37	0.95	± 12.0 %

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

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

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7406

Calibration Parameter Determined in Body Tissue Simulating Media

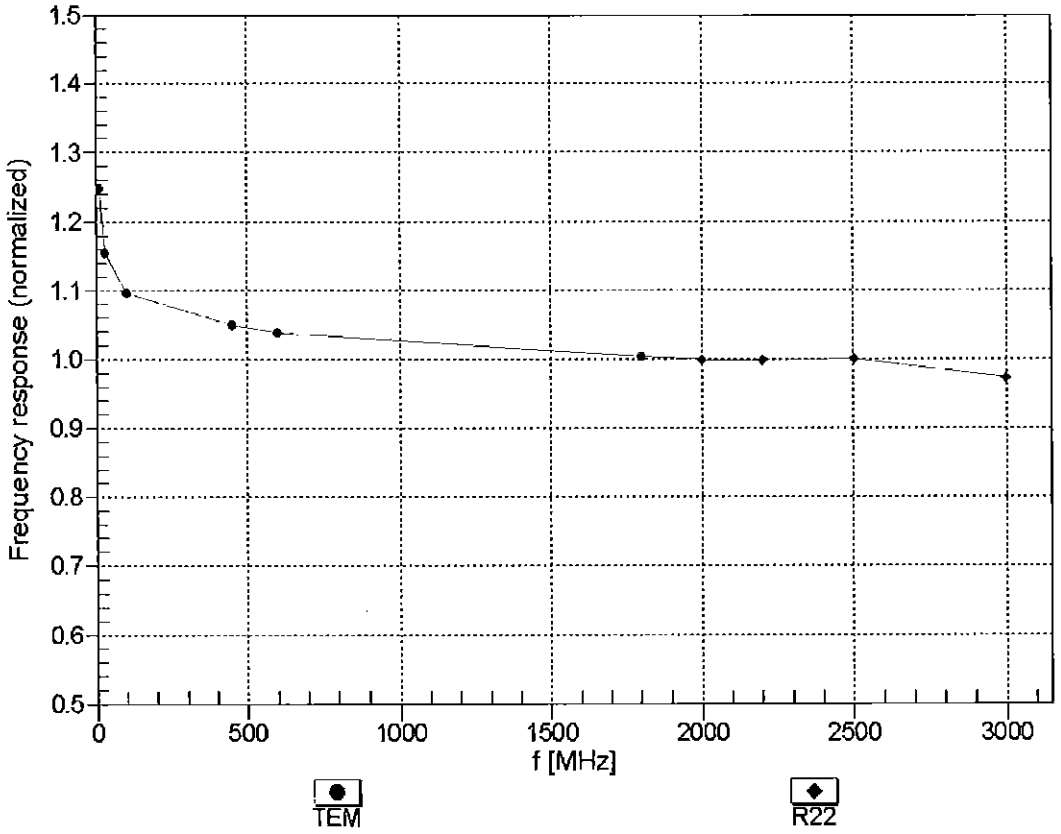
f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	55.5	0.96	9.54	9.54	9.54	0.46	0.80	± 12.0 %
835	55.2	0.97	9.35	9.35	9.35	0.45	0.84	± 12.0 %
1750	53.4	1.49	7.78	7.78	7.78	0.37	0.85	± 12.0 %
1900	53.3	1.52	7.49	7.49	7.49	0.33	0.91	± 12.0 %
2300	52.9	1.81	7.37	7.37	7.37	0.42	0.80	± 12.0 %
2450	52.7	1.95	7.24	7.24	7.24	0.37	0.88	± 12.0 %
2600	52.5	2.16	6.94	6.94	6.94	0.27	0.99	± 12.0 %

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

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

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

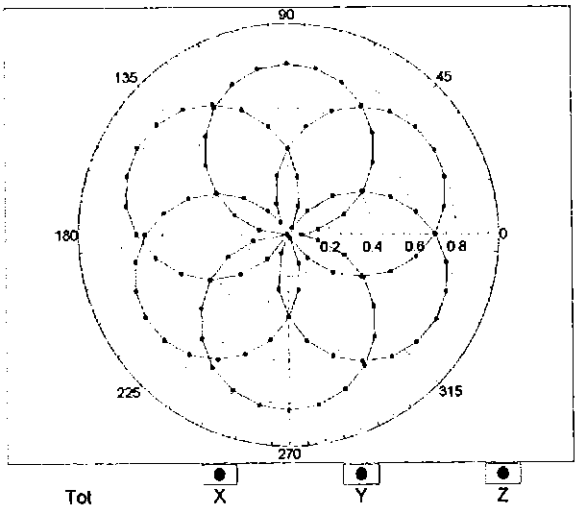
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



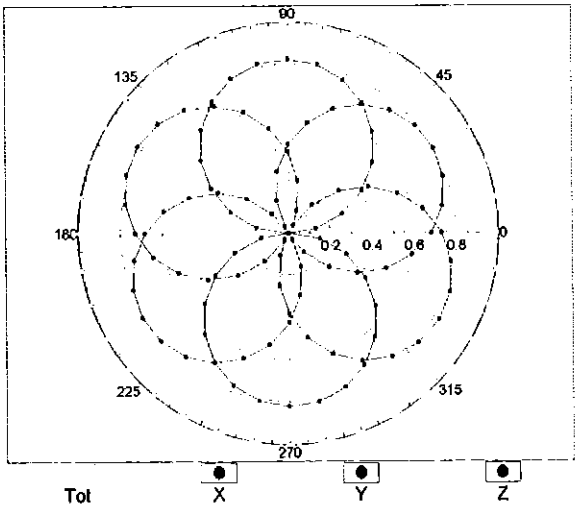
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

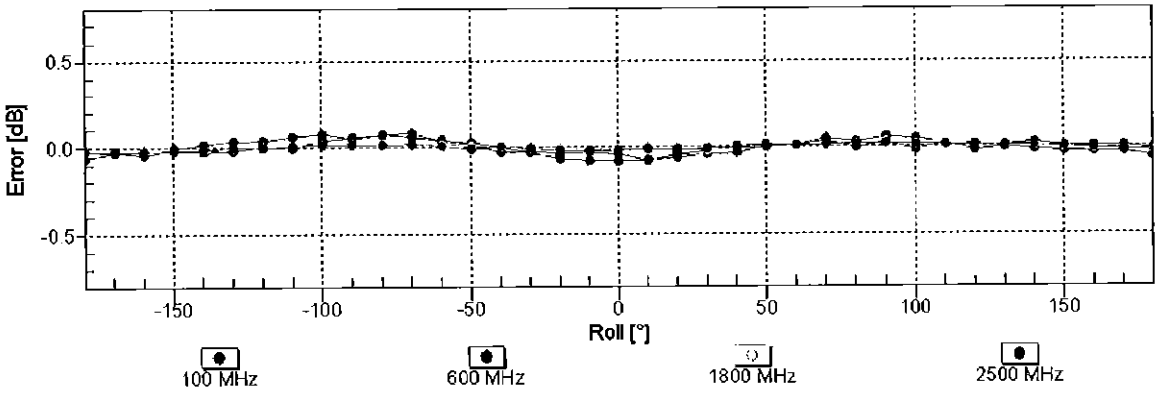
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



f=1800 MHz,R22

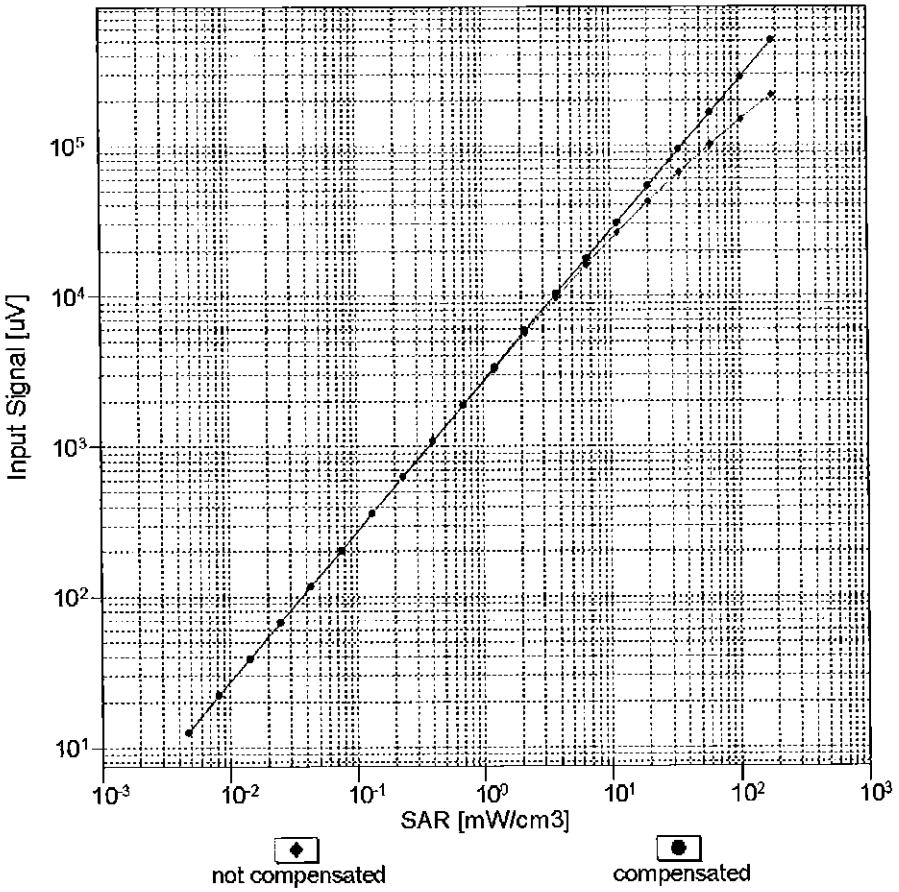


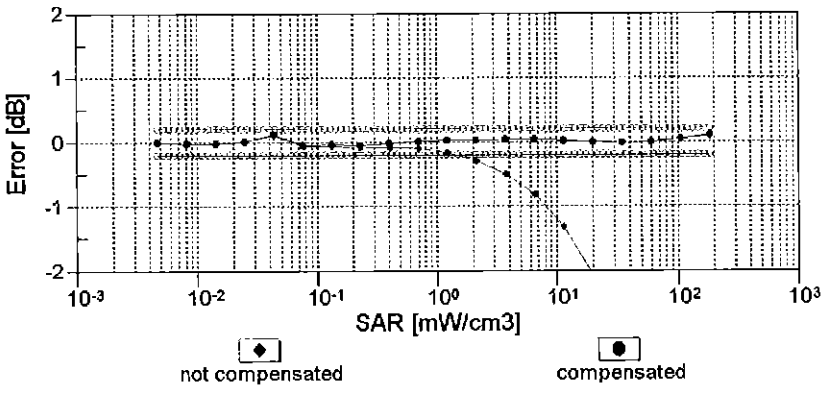


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})

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

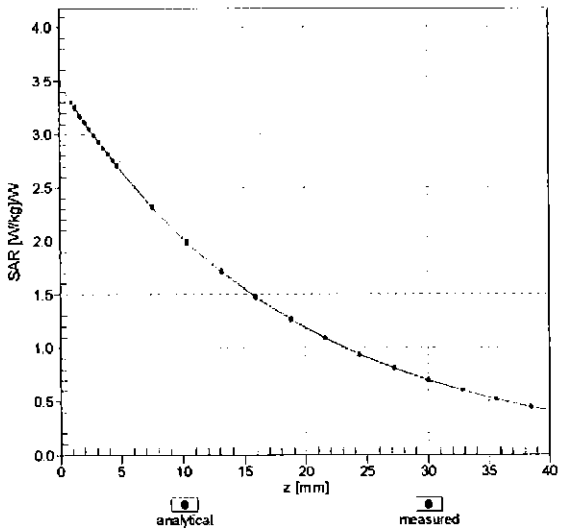




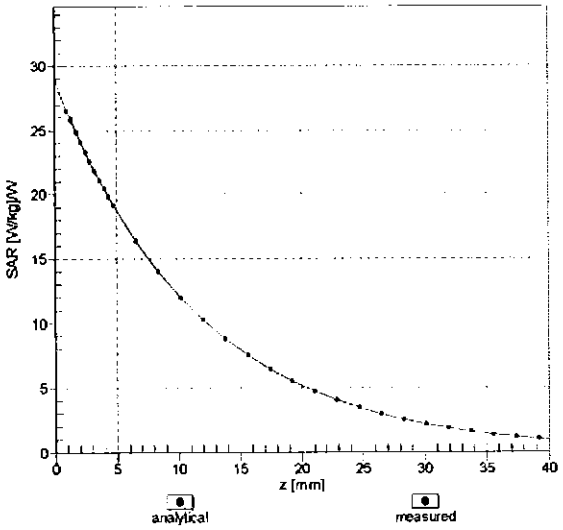
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

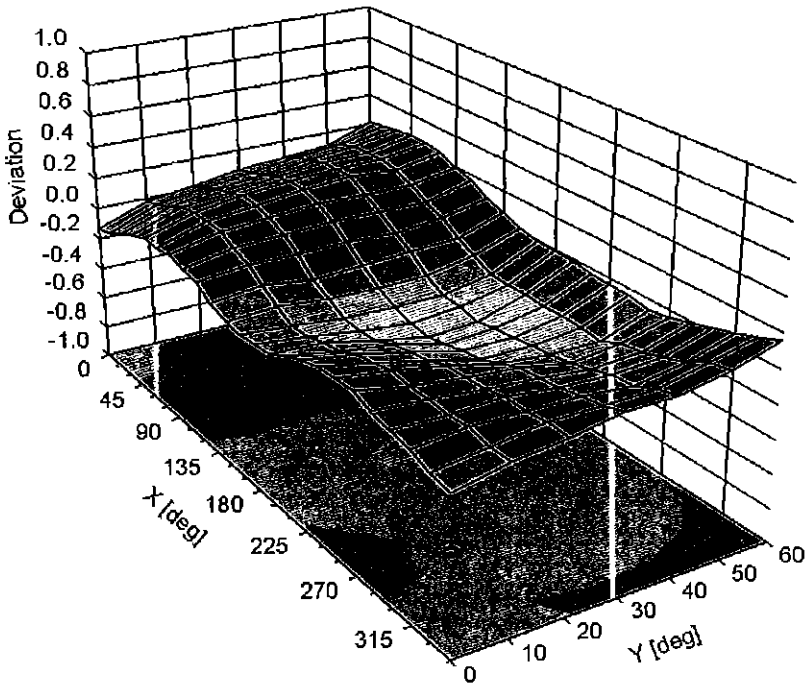


f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7406

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	0.4
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

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

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

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

Accreditation No.: SCS 0108

Client **PC Test**

Certificate No: EX3-7308_Jul16

CALIBRATION CERTIFICATE

Object EX3DV4 - SN:7308

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

BN ✓ 07/27/2016

Calibration date: July 21, 2016

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: S5277 (20x)	05-Apr-16 (No. 217-02293)	Apr-17
Reference Probe ES3DV2	SN: 3013	31-Dec-15 (No. ES3-3013_Dec15)	Dec-16
DAE4	SN: 660	23-Dec-15 (No. DAE4-660_Dec15)	Dec-16
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-15)	In house check: Oct-16

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

Issued: July 21, 2016

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

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

Accredited by the Swiss Accreditation Service (SAS) **Accreditation No.: SCS 0108**
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
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, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- *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:7308

Manufactured: March 11, 2014
Calibrated: July 21, 2016

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7308

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.52	0.60	0.44	± 10.1 %
DCP (mV)[B]	98.3	94.6	98.8	

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	140.2	±3.3 %
		Y	0.0	0.0	1.0		155.1	
		Z	0.0	0.0	1.0		146.8	

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	60.26	455	36.5	14.2	0.975	4.987	0	0.469	1.003
Y	62.87	478.8	36.94	14.22	1.185	5.005	0	0.587	1.005
Z	46.53	347.2	35.64	7.972	0.771	4.965	1.295	0.134	1.004

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:7308

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
5250	35.9	4.71	5.21	5.21	5.21	0.35	1.80	± 13.1 %
5600	35.5	5.07	4.63	4.63	4.63	0.45	1.80	± 13.1 %
5750	35.4	5.22	4.86	4.86	4.86	0.45	1.80	± 13.1 %

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

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

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7308

Calibration Parameter Determined in Body Tissue Simulating Media

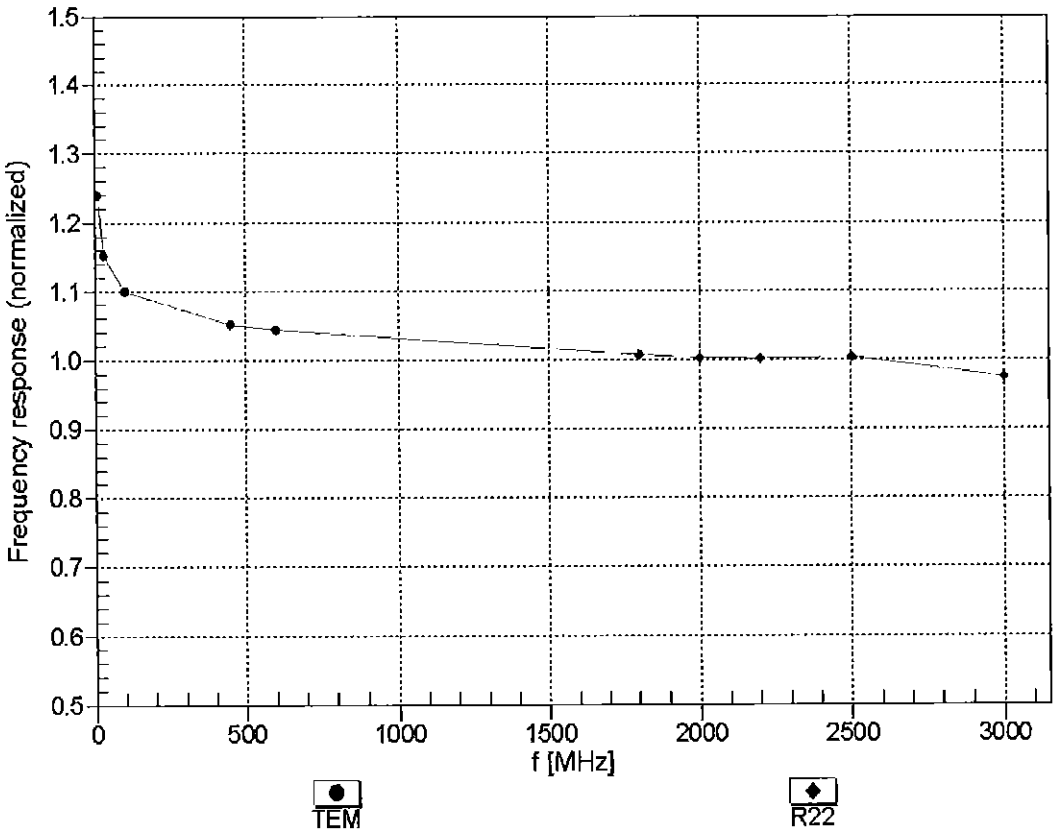
f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	55.5	0.96	9.66	9.66	9.66	0.46	0.80	± 12.0 %
835	55.2	0.97	9.63	9.63	9.63	0.47	0.80	± 12.0 %
1750	53.4	1.49	8.00	8.00	8.00	0.45	0.80	± 12.0 %
1900	53.3	1.52	7.73	7.73	7.73	0.42	0.80	± 12.0 %
2300	52.9	1.81	7.53	7.53	7.53	0.40	0.80	± 12.0 %
2450	52.7	1.95	7.36	7.36	7.36	0.39	0.80	± 12.0 %
2600	52.5	2.16	7.16	7.16	7.16	0.34	0.80	± 12.0 %
5250	48.9	5.36	4.45	4.45	4.45	0.50	1.90	± 13.1 %
5600	48.5	5.77	3.75	3.75	3.75	0.60	1.90	± 13.1 %
5750	48.3	5.94	4.04	4.04	4.04	0.60	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.

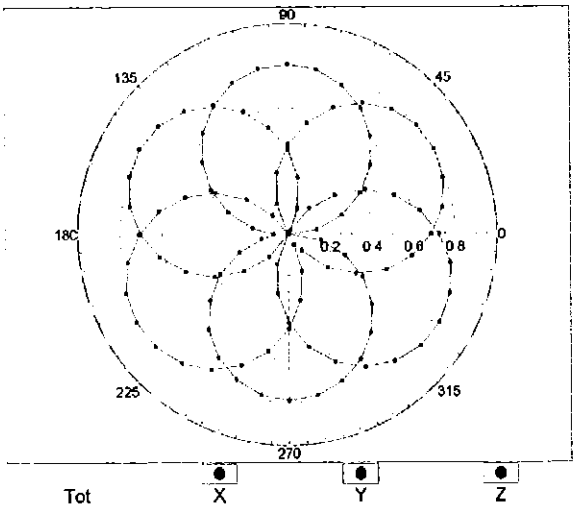
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



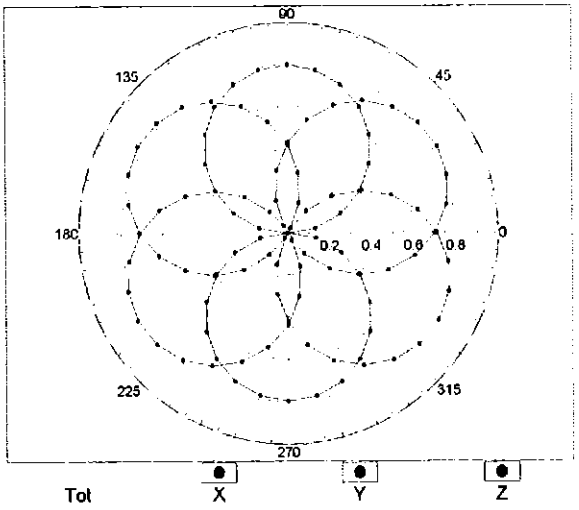
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

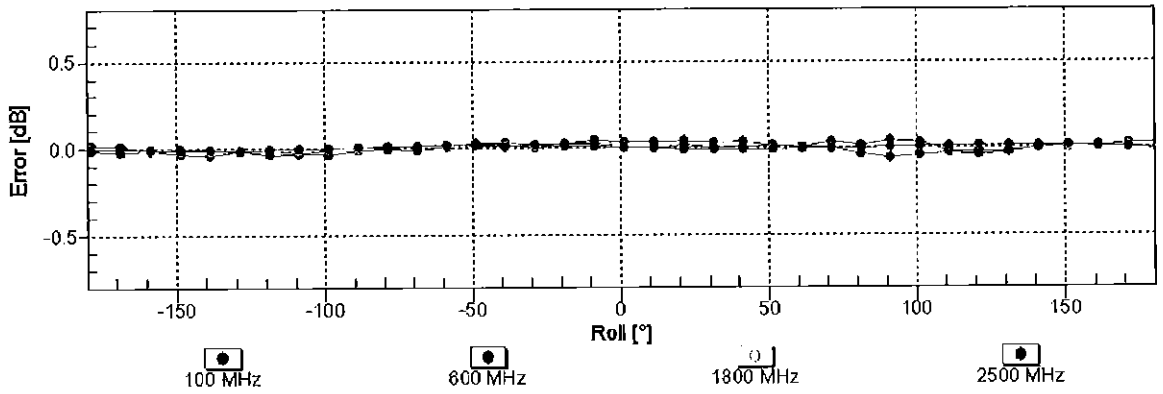
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



f=1800 MHz,R22

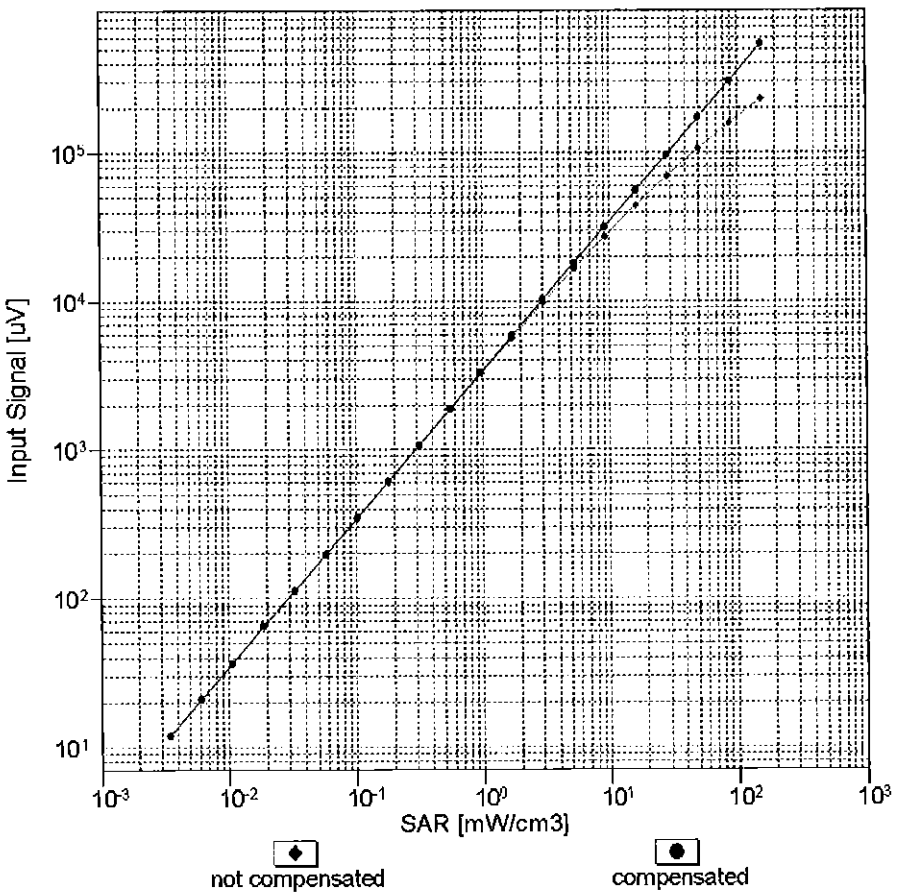


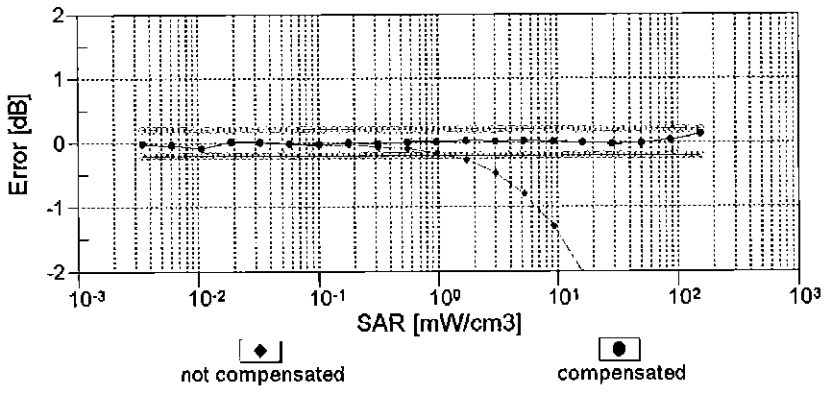


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})

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

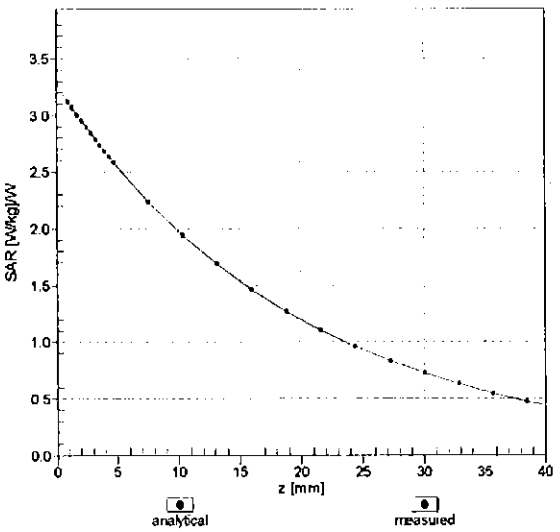




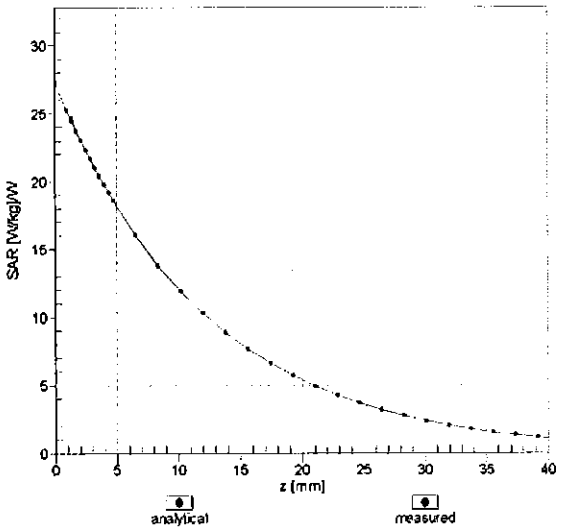
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (M_convF)

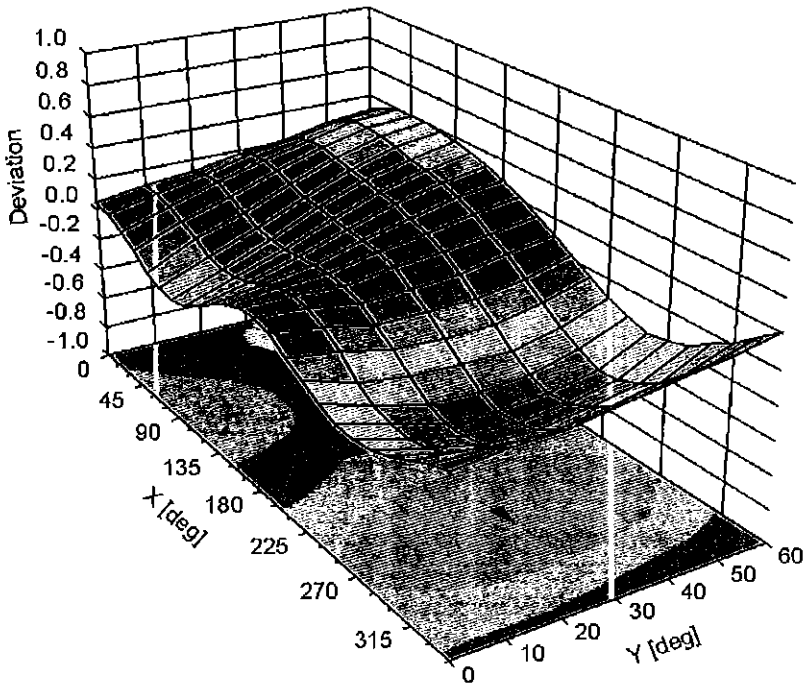


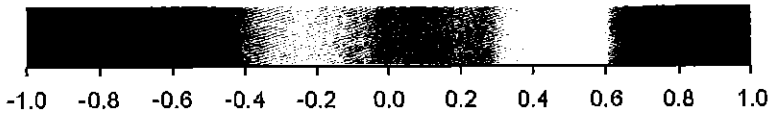
f = 1900 MHz,WGLS R22 (M_convF)



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:7308

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	111.3
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	140.2	± 3.3 %
		Y	0.00	0.00	1.00		155.1	
		Z	0.00	0.00	1.00		146.8	
10010-CAA	SAR Validation (Square, 100ms, 10ms)	X	2.83	67.00	11.27	10.00	20.0	± 9.6 %
		Y	3.34	68.78	12.50		20.0	
		Z	2.28	64.60	9.60		20.0	
10011-CAB	UMTS-FDD (WCDMA)	X	1.34	71.85	18.12	0.00	150.0	± 9.6 %
		Y	1.13	68.23	16.00		150.0	
		Z	1.10	68.59	16.08		150.0	
10012-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	1.23	64.83	16.25	0.41	150.0	± 9.6 %
		Y	1.20	63.91	15.45		150.0	
		Z	1.15	63.75	15.24		150.0	
10013-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	X	4.98	66.56	17.14	1.46	150.0	± 9.6 %
		Y	5.01	66.42	17.03		150.0	
		Z	4.80	66.45	16.86		150.0	
10021-DAB	GSM-FDD (TDMA, GMSK)	X	25.48	94.55	22.26	9.39	50.0	± 9.6 %
		Y	40.46	102.10	25.04		50.0	
		Z	7.12	77.75	16.17		50.0	
10023-DAB	GPRS-FDD (TDMA, GMSK, TN 0)	X	18.38	90.36	21.10	9.57	50.0	± 9.6 %
		Y	27.25	96.78	23.65		50.0	
		Z	6.28	76.05	15.59		50.0	
10024-DAB	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	100.00	109.33	24.46	6.56	60.0	± 9.6 %
		Y	100.00	111.81	25.81		60.0	
		Z	9.25	82.27	16.44		60.0	
10025-DAB	EDGE-FDD (TDMA, 8PSK, TN 0)	X	14.42	106.23	41.47	12.57	50.0	± 9.6 %
		Y	7.47	84.59	32.35		50.0	
		Z	8.60	90.69	35.00		50.0	
10026-DAB	EDGE-FDD (TDMA, 8PSK, TN 0-1)	X	12.91	98.45	34.49	9.56	60.0	± 9.6 %
		Y	11.05	93.55	32.55		60.0	
		Z	8.49	89.59	31.21		60.0	
10027-DAB	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	100.00	109.19	23.64	4.80	80.0	± 9.6 %
		Y	100.00	111.44	24.84		80.0	
		Z	100.00	104.98	21.25		80.0	
10028-DAB	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	X	100.00	110.50	23.56	3.55	100.0	± 9.6 %
		Y	100.00	112.25	24.50		100.0	
		Z	100.00	105.68	20.90		100.0	
10029-DAB	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	X	7.41	85.77	28.75	7.80	80.0	± 9.6 %
		Y	6.96	83.45	27.67		80.0	
		Z	5.10	78.52	25.75		80.0	
10030-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	X	100.00	108.05	23.44	5.30	70.0	± 9.6 %
		Y	100.00	110.41	24.70		70.0	
		Z	6.05	78.47	14.65		70.0	
10031-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	X	100.00	112.81	23.28	1.88	100.0	± 9.6 %
		Y	100.00	112.67	23.36		100.0	
		Z	100.00	103.47	18.83		100.0	

10032-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	X	100.00	125.82	27.60	1.17	100.0	± 9.6 %
		Y	100.00	119.57	25.26		100.0	
		Z	100.00	110.66	20.91		100.0	
10033-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	X	10.55	92.07	24.78	5.30	70.0	± 9.6 %
		Y	8.39	88.28	23.78		70.0	
		Z	4.41	78.47	19.14		70.0	
10034-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	X	3.66	80.35	20.21	1.88	100.0	± 9.6 %
		Y	2.86	76.17	18.63		100.0	
		Z	1.96	71.49	15.59		100.0	
10035-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	X	2.62	76.94	18.91	1.17	100.0	± 9.6 %
		Y	2.07	72.85	17.18		100.0	
		Z	1.59	70.05	14.91		100.0	
10036-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	X	14.05	96.80	26.29	5.30	70.0	± 9.6 %
		Y	10.44	91.99	25.05		70.0	
		Z	5.12	80.83	20.06		70.0	
10037-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	X	3.49	79.77	19.96	1.88	100.0	± 9.6 %
		Y	2.76	75.73	18.41		100.0	
		Z	1.85	70.88	15.31		100.0	
10038-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	X	2.67	77.50	19.24	1.17	100.0	± 9.6 %
		Y	2.10	73.25	17.45		100.0	
		Z	1.60	70.33	15.14		100.0	
10039-CAB	CDMA2000 (1xRTT, RC1)	X	3.18	79.96	20.08	0.00	150.0	± 9.6 %
		Y	2.20	73.61	17.38		150.0	
		Z	2.23	75.04	17.00		150.0	
10042-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	X	31.74	95.47	21.12	7.78	50.0	± 9.6 %
		Y	64.91	105.35	24.27		50.0	
		Z	4.35	73.27	13.53		50.0	
10044-CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	X	0.00	107.22	2.22	0.00	150.0	± 9.6 %
		Y	0.00	97.51	0.45		150.0	
		Z	0.00	98.85	0.67		150.0	
10048-CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	X	8.20	77.29	18.29	13.80	25.0	± 9.6 %
		Y	10.21	80.82	20.20		25.0	
		Z	5.52	70.29	14.78		25.0	
10049-CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	X	9.24	80.87	18.39	10.79	40.0	± 9.6 %
		Y	11.91	84.97	20.43		40.0	
		Z	5.41	72.91	14.64		40.0	
10056-CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	X	13.33	89.97	24.07	9.03	50.0	± 9.6 %
		Y	12.04	88.43	23.91		50.0	
		Z	8.86	82.58	20.56		50.0	
10058-DAB	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	X	5.43	79.57	25.57	6.55	100.0	± 9.6 %
		Y	5.27	78.18	24.83		100.0	
		Z	3.94	73.72	22.98		100.0	
10059-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	X	1.29	66.09	16.86	0.61	110.0	± 9.6 %
		Y	1.25	65.03	16.00		110.0	
		Z	1.16	64.48	15.58		110.0	
10060-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	X	100.00	138.36	36.00	1.30	110.0	± 9.6 %
		Y	11.04	103.32	27.31		110.0	
		Z	3.68	89.06	23.11		110.0	

10061-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	X	3.68	83.91	23.47	2.04	110.0	± 9.6 %
		Y	2.95	79.27	21.54		110.0	
		Z	1.94	73.90	19.24		110.0	
10062-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	X	4.82	66.71	16.71	0.49	100.0	± 9.6 %
		Y	4.83	66.51	16.55		100.0	
		Z	4.64	66.59	16.44		100.0	
10063-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	X	4.84	66.78	16.78	0.72	100.0	± 9.6 %
		Y	4.85	66.59	16.63		100.0	
		Z	4.64	66.63	16.49		100.0	
10064-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	X	5.16	67.07	17.01	0.86	100.0	± 9.6 %
		Y	5.18	66.92	16.88		100.0	
		Z	4.92	66.88	16.70		100.0	
10065-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	X	5.01	66.95	17.07	1.21	100.0	± 9.6 %
		Y	5.03	66.80	16.95		100.0	
		Z	4.77	66.70	16.73		100.0	
10066-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	X	5.02	66.95	17.21	1.46	100.0	± 9.6 %
		Y	5.05	66.81	17.10		100.0	
		Z	4.78	66.67	16.85		100.0	
10067-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	X	5.29	66.96	17.55	2.04	100.0	± 9.6 %
		Y	5.33	66.84	17.46		100.0	
		Z	5.05	66.81	17.24		100.0	
10068-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	X	5.36	67.13	17.80	2.55	100.0	± 9.6 %
		Y	5.41	67.04	17.73		100.0	
		Z	5.09	66.80	17.41		100.0	
10069-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	X	5.43	67.04	17.96	2.67	100.0	± 9.6 %
		Y	5.48	66.94	17.88		100.0	
		Z	5.16	66.79	17.59		100.0	
10071-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	X	5.07	66.61	17.40	1.99	100.0	± 9.6 %
		Y	5.09	66.49	17.30		100.0	
		Z	4.88	66.47	17.10		100.0	
10072-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	X	5.06	66.97	17.60	2.30	100.0	± 9.6 %
		Y	5.09	66.86	17.51		100.0	
		Z	4.84	66.72	17.25		100.0	
10073-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	X	5.11	67.07	17.87	2.83	100.0	± 9.6 %
		Y	5.15	66.97	17.79		100.0	
		Z	4.88	66.81	17.51		100.0	
10074-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	X	5.07	66.94	18.01	3.30	100.0	± 9.6 %
		Y	5.11	66.85	17.94		100.0	
		Z	4.85	66.67	17.62		100.0	
10075-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	X	5.13	67.16	18.36	3.82	90.0	± 9.6 %
		Y	5.18	67.10	18.30		90.0	
		Z	4.88	66.76	17.89		90.0	
10076-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	X	5.10	66.84	18.39	4.15	90.0	± 9.6 %
		Y	5.15	66.77	18.34		90.0	
		Z	4.90	66.55	17.99		90.0	
10077-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	X	5.12	66.87	18.47	4.30	90.0	± 9.6 %
		Y	5.17	66.81	18.42		90.0	
		Z	4.92	66.61	18.08		90.0	

10081-CAB	CDMA2000 (1xRTT, RC3)	X	1.35	72.43	16.88	0.00	150.0	± 9.6 %
		Y	1.03	67.65	14.41		150.0	
		Z	0.93	67.60	13.46		150.0	
10082-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	X	0.83	60.00	4.84	4.77	80.0	± 9.6 %
		Y	0.88	60.00	5.10		80.0	
		Z	0.49	58.11	3.09		80.0	
10090-DAB	GPRS-FDD (TDMA, GMSK, TN 0-4)	X	100.00	109.34	24.48	6.56	60.0	± 9.6 %
		Y	100.00	111.83	25.84		60.0	
		Z	8.98	81.95	16.36		60.0	
10097-CAB	UMTS-FDD (HSDPA)	X	2.05	69.36	17.11	0.00	150.0	± 9.6 %
		Y	1.91	67.73	16.09		150.0	
		Z	1.90	68.45	16.16		150.0	
10098-CAB	UMTS-FDD (HSUPA, Subtest 2)	X	2.01	69.36	17.10	0.00	150.0	± 9.6 %
		Y	1.87	67.69	16.06		150.0	
		Z	1.86	68.42	16.14		150.0	
10099-DAB	EDGE-FDD (TDMA, 8PSK, TN 0-4)	X	12.98	98.52	34.50	9.56	60.0	± 9.6 %
		Y	11.10	93.61	32.56		60.0	
		Z	8.54	89.68	31.23		60.0	
10100-CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	3.60	72.41	17.88	0.00	150.0	± 9.6 %
		Y	3.37	70.94	17.04		150.0	
		Z	3.22	70.91	17.07		150.0	
10101-CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	3.49	68.46	16.64	0.00	150.0	± 9.6 %
		Y	3.42	67.83	16.19		150.0	
		Z	3.27	67.77	16.13		150.0	
10102-CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	3.58	68.32	16.68	0.00	150.0	± 9.6 %
		Y	3.52	67.75	16.27		150.0	
		Z	3.37	67.73	16.22		150.0	
10103-CAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	6.45	75.11	20.01	3.98	65.0	± 9.6 %
		Y	6.23	74.17	19.60		65.0	
		Z	5.42	73.09	19.06		65.0	
10104-CAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	6.65	74.01	20.45	3.98	65.0	± 9.6 %
		Y	6.63	73.58	20.23		65.0	
		Z	5.66	71.90	19.37		65.0	
10105-CAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	6.13	72.34	20.02	3.98	65.0	± 9.6 %
		Y	6.54	73.26	20.42		65.0	
		Z	5.41	70.86	19.20		65.0	
10108-CAC	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	3.16	71.55	17.71	0.00	150.0	± 9.6 %
		Y	2.97	70.11	16.86		150.0	
		Z	2.80	70.14	16.91		150.0	
10109-CAC	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	3.16	68.36	16.64	0.00	150.0	± 9.6 %
		Y	3.09	67.64	16.14		150.0	
		Z	2.93	67.68	16.07		150.0	
10110-CAC	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	2.60	70.68	17.48	0.00	150.0	± 9.6 %
		Y	2.44	69.13	16.54		150.0	
		Z	2.28	69.31	16.55		150.0	
10111-CAC	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	2.89	69.28	17.12	0.00	150.0	± 9.6 %
		Y	2.79	68.28	16.49		150.0	
		Z	2.67	68.73	16.46		150.0	

10112-CAC	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	3.27	68.22	16.63	0.00	150.0	± 9.6 %
		Y	3.21	67.56	16.17		150.0	
		Z	3.05	67.66	16.11		150.0	
10113-CAC	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	3.04	69.26	17.17	0.00	150.0	± 9.6 %
		Y	2.95	68.34	16.59		150.0	
		Z	2.82	68.85	16.57		150.0	
10114-CAB	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	X	5.27	67.35	16.68	0.00	150.0	± 9.6 %
		Y	5.26	67.13	16.50		150.0	
		Z	5.13	67.29	16.53		150.0	
10115-CAB	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	X	5.64	67.65	16.83	0.00	150.0	± 9.6 %
		Y	5.64	67.44	16.66		150.0	
		Z	5.41	67.39	16.58		150.0	
10116-CAB	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	X	5.40	67.63	16.74	0.00	150.0	± 9.6 %
		Y	5.40	67.41	16.56		150.0	
		Z	5.23	67.48	16.55		150.0	
10117-CAB	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	5.28	67.37	16.71	0.00	150.0	± 9.6 %
		Y	5.27	67.16	16.53		150.0	
		Z	5.10	67.15	16.47		150.0	
10118-CAB	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	X	5.72	67.82	16.92	0.00	150.0	± 9.6 %
		Y	5.71	67.59	16.74		150.0	
		Z	5.49	67.60	16.69		150.0	
10119-CAB	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	X	5.38	67.58	16.73	0.00	150.0	± 9.6 %
		Y	5.37	67.36	16.55		150.0	
		Z	5.20	67.43	16.53		150.0	
10140-CAB	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	3.63	68.32	16.60	0.00	150.0	± 9.6 %
		Y	3.57	67.75	16.19		150.0	
		Z	3.41	67.73	16.13		150.0	
10141-CAB	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	3.74	68.32	16.72	0.00	150.0	± 9.6 %
		Y	3.68	67.79	16.33		150.0	
		Z	3.53	67.83	16.30		150.0	
10142-CAC	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	2.40	70.97	17.46	0.00	150.0	± 9.6 %
		Y	2.22	69.12	16.40		150.0	
		Z	2.07	69.49	16.29		150.0	
10143-CAC	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	2.84	70.46	17.25	0.00	150.0	± 9.6 %
		Y	2.69	69.07	16.47		150.0	
		Z	2.57	69.75	16.27		150.0	
10144-CAC	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	2.59	68.09	15.66	0.00	150.0	± 9.6 %
		Y	2.49	67.04	15.03		150.0	
		Z	2.28	67.10	14.49		150.0	
10145-CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	1.87	70.46	15.76	0.00	150.0	± 9.6 %
		Y	1.62	67.78	14.40		150.0	
		Z	1.28	65.93	12.24		150.0	
10146-CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	2.49	69.41	14.37	0.00	150.0	± 9.6 %
		Y	2.53	69.01	14.31		150.0	
		Z	1.68	64.93	10.62		150.0	
10147-CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	3.06	72.33	15.83	0.00	150.0	± 9.6 %
		Y	3.03	71.56	15.63		150.0	
		Z	1.94	66.54	11.53		150.0	

10149-CAB	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	3.17	68.42	16.69	0.00	150.0	± 9.6 %
		Y	3.10	67.70	16.19		150.0	
		Z	2.94	67.75	16.11		150.0	
10150-CAB	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	3.28	68.28	16.67	0.00	150.0	± 9.6 %
		Y	3.21	67.61	16.21		150.0	
		Z	3.06	67.72	16.16		150.0	
10151-CAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	6.87	77.59	21.12	3.98	65.0	± 9.6 %
		Y	6.68	76.71	20.75		65.0	
		Z	5.57	75.10	19.96		65.0	
10152-CAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	6.19	73.97	20.22	3.98	65.0	± 9.6 %
		Y	6.16	73.47	19.98		65.0	
		Z	5.16	71.65	18.95		65.0	
10153-CAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	6.52	74.73	20.90	3.98	65.0	± 9.6 %
		Y	6.48	74.22	20.67		65.0	
		Z	5.49	72.56	19.72		65.0	
10154-CAC	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	2.68	71.25	17.81	0.00	150.0	± 9.6 %
		Y	2.51	69.65	16.86		150.0	
		Z	2.33	69.77	16.83		150.0	
10155-CAC	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	2.89	69.27	17.13	0.00	150.0	± 9.6 %
		Y	2.79	68.27	16.50		150.0	
		Z	2.67	68.74	16.47		150.0	
10156-CAC	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	2.31	71.63	17.64	0.00	150.0	± 9.6 %
		Y	2.10	69.44	16.42		150.0	
		Z	1.93	69.75	16.16		150.0	
10157-CAC	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	2.49	69.19	16.06	0.00	150.0	± 9.6 %
		Y	2.34	67.77	15.26		150.0	
		Z	2.15	67.87	14.61		150.0	
10158-CAC	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	3.05	69.32	17.22	0.00	150.0	± 9.6 %
		Y	2.95	68.39	16.63		150.0	
		Z	2.83	68.92	16.62		150.0	
10159-CAC	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	2.62	69.72	16.37	0.00	150.0	± 9.6 %
		Y	2.47	68.27	15.57		150.0	
		Z	2.26	68.38	14.92		150.0	
10160-CAB	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	3.05	69.96	17.25	0.00	150.0	± 9.6 %
		Y	2.93	68.87	16.57		150.0	
		Z	2.79	69.10	16.62		150.0	
10161-CAB	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	3.17	68.21	16.64	0.00	150.0	± 9.6 %
		Y	3.11	67.51	16.16		150.0	
		Z	2.96	67.69	16.10		150.0	
10162-CAB	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	3.28	68.24	16.69	0.00	150.0	± 9.6 %
		Y	3.21	67.56	16.23		150.0	
		Z	3.07	67.83	16.20		150.0	
10166-CAC	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	3.61	68.91	18.91	3.01	150.0	± 9.6 %
		Y	3.71	68.82	18.78		150.0	
		Z	3.44	69.35	19.00		150.0	
10167-CAC	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	4.35	71.40	19.28	3.01	150.0	± 9.6 %
		Y	4.53	71.34	19.15		150.0	
		Z	4.23	72.68	19.64		150.0	

10168-CAC	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	4.73	73.23	20.42	3.01	150.0	± 9.6 %
		Y	4.93	73.16	20.29		150.0	
		Z	4.78	75.32	21.15		150.0	
10169-CAB	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	3.00	68.99	19.00	3.01	150.0	± 9.6 %
		Y	3.19	69.30	18.97		150.0	
		Z	2.76	68.70	18.79		150.0	
10170-CAB	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	3.99	74.42	21.15	3.01	150.0	± 9.6 %
		Y	4.35	74.74	21.07		150.0	
		Z	3.93	76.10	21.80		150.0	
10171-AAB	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	3.33	70.61	18.53	3.01	150.0	± 9.6 %
		Y	3.61	70.81	18.44		150.0	
		Z	3.09	71.10	18.58		150.0	
10172-CAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	7.91	87.61	26.50	6.02	65.0	± 9.6 %
		Y	7.30	84.90	25.48		65.0	
		Z	5.11	82.28	24.60		65.0	
10173-CAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	11.97	91.19	25.81	6.02	65.0	± 9.6 %
		Y	11.64	89.69	25.41		65.0	
		Z	9.00	89.10	24.85		65.0	
10174-CAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	8.52	84.47	23.07	6.02	65.0	± 9.6 %
		Y	8.34	83.17	22.74		65.0	
		Z	6.44	82.64	22.10		65.0	
10175-CAC	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	2.97	68.69	18.76	3.01	150.0	± 9.6 %
		Y	3.15	68.97	18.71		150.0	
		Z	2.72	68.39	18.53		150.0	
10176-CAC	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	4.00	74.44	21.16	3.01	150.0	± 9.6 %
		Y	4.35	74.76	21.08		150.0	
		Z	3.93	76.13	21.81		150.0	
10177-CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	2.99	68.85	18.86	3.01	150.0	± 9.6 %
		Y	3.18	69.14	18.82		150.0	
		Z	2.75	68.54	18.63		150.0	
10178-CAC	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	3.95	74.18	21.02	3.01	150.0	± 9.6 %
		Y	4.29	74.47	20.93		150.0	
		Z	3.88	75.86	21.67		150.0	
10179-CAC	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	3.63	72.40	19.71	3.01	150.0	± 9.6 %
		Y	3.93	72.61	19.60		150.0	
		Z	3.47	73.44	20.04		150.0	
10180-CAC	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	3.32	70.53	18.48	3.01	150.0	± 9.6 %
		Y	3.59	70.72	18.38		150.0	
		Z	3.08	71.02	18.53		150.0	
10181-CAB	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	2.99	68.83	18.85	3.01	150.0	± 9.6 %
		Y	3.17	69.12	18.81		150.0	
		Z	2.74	68.52	18.62		150.0	
10182-CAB	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	3.94	74.15	21.01	3.01	150.0	± 9.6 %
		Y	4.29	74.45	20.92		150.0	
		Z	3.88	75.83	21.66		150.0	
10183-AAA	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	3.31	70.50	18.46	3.01	150.0	± 9.6 %
		Y	3.59	70.70	18.37		150.0	
		Z	3.08	71.00	18.52		150.0	

10184-CAC	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	3.00	68.87	18.87	3.01	150.0	± 9.6 %
		Y	3.19	69.17	18.84		150.0	
		Z	2.75	68.57	18.65		150.0	
10185-CAC	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	3.96	74.22	21.04	3.01	150.0	± 9.6 %
		Y	4.31	74.52	20.96		150.0	
		Z	3.90	75.92	21.71		150.0	
10186-AAC	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	3.33	70.57	18.50	3.01	150.0	± 9.6 %
		Y	3.60	70.76	18.40		150.0	
		Z	3.09	71.07	18.56		150.0	
10187-CAC	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	3.00	68.91	18.92	3.01	150.0	± 9.6 %
		Y	3.19	69.19	18.88		150.0	
		Z	2.76	68.63	18.71		150.0	
10188-CAC	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	4.09	74.89	21.43	3.01	150.0	± 9.6 %
		Y	4.45	75.22	21.35		150.0	
		Z	4.06	76.74	22.15		150.0	
10189-AAC	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	3.41	70.99	18.78	3.01	150.0	± 9.6 %
		Y	3.68	71.19	18.68		150.0	
		Z	3.17	71.57	18.87		150.0	
10193-CAB	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	X	4.70	66.80	16.49	0.00	150.0	± 9.6 %
		Y	4.69	66.56	16.29		150.0	
		Z	4.53	66.73	16.24		150.0	
10194-CAB	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	X	4.90	67.17	16.60	0.00	150.0	± 9.6 %
		Y	4.89	66.93	16.40		150.0	
		Z	4.70	67.04	16.36		150.0	
10195-CAB	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	X	4.94	67.18	16.61	0.00	150.0	± 9.6 %
		Y	4.93	66.94	16.41		150.0	
		Z	4.74	67.07	16.38		150.0	
10196-CAB	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	4.72	66.91	16.53	0.00	150.0	± 9.6 %
		Y	4.71	66.66	16.33		150.0	
		Z	4.53	66.79	16.26		150.0	
10197-CAB	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	X	4.91	67.19	16.61	0.00	150.0	± 9.6 %
		Y	4.91	66.95	16.41		150.0	
		Z	4.71	67.06	16.38		150.0	
10198-CAB	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	X	4.94	67.20	16.62	0.00	150.0	± 9.6 %
		Y	4.94	66.95	16.42		150.0	
		Z	4.74	67.09	16.39		150.0	
10219-CAB	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	X	4.67	66.93	16.50	0.00	150.0	± 9.6 %
		Y	4.66	66.67	16.29		150.0	
		Z	4.48	66.81	16.22		150.0	
10220-CAB	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	X	4.91	67.18	16.61	0.00	150.0	± 9.6 %
		Y	4.91	66.94	16.41		150.0	
		Z	4.70	67.03	16.36		150.0	
10221-CAB	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	X	4.95	67.12	16.60	0.00	150.0	± 9.6 %
		Y	4.95	66.89	16.41		150.0	
		Z	4.75	67.01	16.38		150.0	
10222-CAB	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	X	5.26	67.39	16.71	0.00	150.0	± 9.6 %
		Y	5.25	67.18	16.54		150.0	
		Z	5.07	67.16	16.47		150.0	

10223-CAB	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	X	5.62	67.69	16.88	0.00	150.0	± 9.6 %
		Y	5.63	67.53	16.73		150.0	
		Z	5.37	67.35	16.59		150.0	
10224-CAB	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	X	5.31	67.49	16.69	0.00	150.0	± 9.6 %
		Y	5.30	67.29	16.51		150.0	
		Z	5.12	67.27	16.46		150.0	
10225-CAB	UMTS-FDD (HSPA+)	X	3.00	66.68	16.08	0.00	150.0	± 9.6 %
		Y	2.96	66.13	15.70		150.0	
		Z	2.82	66.40	15.50		150.0	
10226-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	12.69	92.31	26.26	6.02	65.0	± 9.6 %
		Y	12.26	90.69	25.83		65.0	
		Z	9.67	90.43	25.39		65.0	
10227-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	10.90	88.38	24.41	6.02	65.0	± 9.6 %
		Y	10.80	87.33	24.19		65.0	
		Z	8.79	87.36	23.69		65.0	
10228-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	10.21	92.65	28.25	6.02	65.0	± 9.6 %
		Y	9.82	90.78	27.59		65.0	
		Z	6.11	85.69	25.88		65.0	
10229-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	12.05	91.28	25.85	6.02	65.0	± 9.6 %
		Y	11.71	89.77	25.44		65.0	
		Z	9.08	89.22	24.90		65.0	
10230-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	10.38	87.50	24.04	6.02	65.0	± 9.6 %
		Y	10.34	86.53	23.85		65.0	
		Z	8.23	86.25	23.24		65.0	
10231-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	9.79	91.76	27.87	6.02	65.0	± 9.6 %
		Y	9.44	89.96	27.24		65.0	
		Z	5.87	84.87	25.51		65.0	
10232-CAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	12.03	91.27	25.84	6.02	65.0	± 9.6 %
		Y	11.69	89.75	25.44		65.0	
		Z	9.06	89.20	24.90		65.0	
10233-CAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	10.37	87.49	24.04	6.02	65.0	± 9.6 %
		Y	10.32	86.52	23.85		65.0	
		Z	8.21	86.23	23.23		65.0	
10234-CAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	9.39	90.84	27.46	6.02	65.0	± 9.6 %
		Y	9.09	89.12	26.85		65.0	
		Z	5.67	84.10	25.11		65.0	
10235-CAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	12.04	91.30	25.85	6.02	65.0	± 9.6 %
		Y	11.69	89.78	25.44		65.0	
		Z	9.06	89.23	24.91		65.0	
10236-CAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	10.47	87.62	24.08	6.02	65.0	± 9.6 %
		Y	10.41	86.63	23.88		65.0	
		Z	8.31	86.37	23.28		65.0	
10237-CAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	9.82	91.85	27.91	6.02	65.0	± 9.6 %
		Y	9.46	90.03	27.26		65.0	
		Z	5.87	84.92	25.53		65.0	
10238-CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	12.01	91.25	25.83	6.02	65.0	± 9.6 %
		Y	11.67	89.74	25.43		65.0	
		Z	9.03	89.17	24.88		65.0	

10239-CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	10.34	87.48	24.04	6.02	65.0	± 9.6 %
		Y	10.30	86.51	23.84		65.0	
		Z	8.18	86.19	23.22		65.0	
10240-CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	9.78	91.79	27.89	6.02	65.0	± 9.6 %
		Y	9.43	89.98	27.24		65.0	
		Z	5.85	84.87	25.51		65.0	
10241-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	7.79	78.91	24.31	6.98	65.0	± 9.6 %
		Y	8.04	78.76	24.24		65.0	
		Z	6.87	78.46	23.88		65.0	
10242-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	6.95	76.46	23.17	6.98	65.0	± 9.6 %
		Y	7.85	78.23	23.94		65.0	
		Z	6.30	76.69	23.05		65.0	
10243-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	5.78	73.78	22.84	6.98	65.0	± 9.6 %
		Y	6.51	75.72	23.72		65.0	
		Z	5.21	73.41	22.50		65.0	
10244-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	5.73	74.52	18.36	3.98	65.0	± 9.6 %
		Y	6.00	74.92	18.76		65.0	
		Z	4.17	70.46	15.50		65.0	
10245-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	5.70	74.16	18.16	3.98	65.0	± 9.6 %
		Y	5.98	74.60	18.58		65.0	
		Z	4.12	70.05	15.27		65.0	
10246-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	6.07	78.90	20.35	3.98	65.0	± 9.6 %
		Y	5.79	77.80	20.04		65.0	
		Z	3.87	72.73	16.96		65.0	
10247-CAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	5.42	74.27	19.15	3.98	65.0	± 9.6 %
		Y	5.39	73.79	19.04		65.0	
		Z	4.12	70.68	16.77		65.0	
10248-CAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	5.47	73.87	18.97	3.98	65.0	± 9.6 %
		Y	5.45	73.44	18.87		65.0	
		Z	4.17	70.35	16.61		65.0	
10249-CAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	6.95	81.03	21.84	3.98	65.0	± 9.6 %
		Y	6.51	79.54	21.33		65.0	
		Z	4.82	76.06	19.29		65.0	
10250-CAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	6.19	76.05	21.19	3.98	65.0	± 9.6 %
		Y	6.11	75.40	20.92		65.0	
		Z	5.02	73.34	19.63		65.0	
10251-CAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	5.97	74.17	20.08	3.98	65.0	± 9.6 %
		Y	5.92	73.60	19.85		65.0	
		Z	4.90	71.72	18.57		65.0	
10252-CAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	7.05	80.22	22.22	3.98	65.0	± 9.6 %
		Y	6.71	78.91	21.71		65.0	
		Z	5.38	76.79	20.59		65.0	
10253-CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	6.02	73.31	19.98	3.98	65.0	± 9.6 %
		Y	5.99	72.84	19.76		65.0	
		Z	5.07	71.20	18.73		65.0	
10254-CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	6.34	74.08	20.62	3.98	65.0	± 9.6 %
		Y	6.32	73.60	20.40		65.0	
		Z	5.38	72.04	19.42		65.0	

10255-CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	6.54	76.96	21.13	3.98	65.0	± 9.6 %
		Y	6.39	76.11	20.77		65.0	
		Z	5.35	74.55	19.95		65.0	
10256-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	4.78	71.78	16.29	3.98	65.0	± 9.6 %
		Y	5.15	72.61	16.95		65.0	
		Z	3.17	66.79	12.69		65.0	
10257-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	4.75	71.31	16.01	3.98	65.0	± 9.6 %
		Y	5.13	72.17	16.68		65.0	
		Z	3.15	66.37	12.40		65.0	
10258-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	4.97	75.61	18.39	3.98	65.0	± 9.6 %
		Y	4.91	75.17	18.40		65.0	
		Z	2.94	68.65	14.25		65.0	
10259-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	5.73	74.90	19.87	3.98	65.0	± 9.6 %
		Y	5.67	74.34	19.69		65.0	
		Z	4.48	71.72	17.84		65.0	
10260-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	5.78	74.70	19.80	3.98	65.0	± 9.6 %
		Y	5.74	74.19	19.64		65.0	
		Z	4.53	71.55	17.77		65.0	
10261-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	6.66	79.93	21.76	3.98	65.0	± 9.6 %
		Y	6.33	78.60	21.27		65.0	
		Z	4.85	75.73	19.59		65.0	
10262-CAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	6.18	76.01	21.15	3.98	65.0	± 9.6 %
		Y	6.10	75.36	20.89		65.0	
		Z	5.01	73.29	19.59		65.0	
10263-CAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	5.97	74.15	20.08	3.98	65.0	± 9.6 %
		Y	5.92	73.60	19.85		65.0	
		Z	4.89	71.70	18.57		65.0	
10264-CAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	7.00	80.07	22.14	3.98	65.0	± 9.6 %
		Y	6.67	78.77	21.63		65.0	
		Z	5.34	76.63	20.50		65.0	
10265-CAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	6.19	73.97	20.22	3.98	65.0	± 9.6 %
		Y	6.16	73.47	19.98		65.0	
		Z	5.16	71.65	18.95		65.0	
10266-CAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	6.52	74.71	20.90	3.98	65.0	± 9.6 %
		Y	6.48	74.21	20.66		65.0	
		Z	5.49	72.55	19.71		65.0	
10267-CAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	6.86	77.55	21.10	3.98	65.0	± 9.6 %
		Y	6.67	76.67	20.74		65.0	
		Z	5.56	75.06	19.94		65.0	
10268-CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	6.77	73.75	20.47	3.98	65.0	± 9.6 %
		Y	6.76	73.36	20.27		65.0	
		Z	5.82	71.83	19.46		65.0	
10269-CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	6.72	73.31	20.36	3.98	65.0	± 9.6 %
		Y	6.71	72.94	20.17		65.0	
		Z	5.82	71.50	19.37		65.0	
10270-CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	6.72	75.15	20.27	3.98	65.0	± 9.6 %
		Y	6.64	74.60	20.03		65.0	
		Z	5.70	73.24	19.35		65.0	

10274-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	X	2.75	67.09	16.03	0.00	150.0	± 9.6 %
		Y	2.69	66.35	15.53		150.0	
		Z	2.62	66.86	15.47		150.0	
10275-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	X	1.92	70.57	17.38	0.00	150.0	± 9.6 %
		Y	1.74	68.38	16.07		150.0	
		Z	1.68	68.78	16.11		150.0	
10277-CAA	PHS (QPSK)	X	2.69	62.91	8.63	9.03	50.0	± 9.6 %
		Y	2.96	63.71	9.45		50.0	
		Z	2.20	61.27	6.87		50.0	
10278-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	X	5.78	74.86	17.12	9.03	50.0	± 9.6 %
		Y	6.34	76.24	18.11		50.0	
		Z	3.69	68.00	12.92		50.0	
10279-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	X	5.98	75.20	17.31	9.03	50.0	± 9.6 %
		Y	6.53	76.54	18.27		50.0	
		Z	3.80	68.27	13.10		50.0	
10290-AAB	CDMA2000, RC1, SO55, Full Rate	X	2.30	74.88	17.83	0.00	150.0	± 9.6 %
		Y	1.78	70.39	15.73		150.0	
		Z	1.61	70.42	14.78		150.0	
10291-AAB	CDMA2000, RC3, SO55, Full Rate	X	1.30	71.95	16.66	0.00	150.0	± 9.6 %
		Y	1.01	67.36	14.25		150.0	
		Z	0.90	67.30	13.30		150.0	
10292-AAB	CDMA2000, RC3, SO32, Full Rate	X	2.22	81.32	20.90	0.00	150.0	± 9.6 %
		Y	1.29	71.97	16.82		150.0	
		Z	1.39	74.12	16.76		150.0	
10293-AAB	CDMA2000, RC3, SO3, Full Rate	X	4.76	93.97	25.71	0.00	150.0	± 9.6 %
		Y	1.89	78.06	19.82		150.0	
		Z	3.15	86.13	21.66		150.0	
10295-AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	X	7.57	80.84	22.54	9.03	50.0	± 9.6 %
		Y	7.32	79.92	22.39		50.0	
		Z	7.16	79.00	20.62		50.0	
10297-AAA	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	3.18	71.66	17.79	0.00	150.0	± 9.6 %
		Y	2.99	70.22	16.93		150.0	
		Z	2.82	70.25	16.98		150.0	
10298-AAB	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	2.15	71.80	17.05	0.00	150.0	± 9.6 %
		Y	1.88	69.12	15.66		150.0	
		Z	1.65	68.73	14.65		150.0	
10299-AAB	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	2.93	71.02	15.86	0.00	150.0	± 9.6 %
		Y	2.93	70.34	15.61		150.0	
		Z	2.42	68.83	13.56		150.0	
10300-AAB	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	2.26	66.49	13.02	0.00	150.0	± 9.6 %
		Y	2.35	66.38	13.04		150.0	
		Z	1.78	64.38	10.69		150.0	
10301-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	X	4.86	65.22	17.67	4.17	50.0	± 9.6 %
		Y	4.88	64.94	17.44		50.0	
		Z	4.60	65.15	17.37		50.0	
10302-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)	X	5.36	65.98	18.46	4.96	50.0	± 9.6 %
		Y	5.43	65.89	18.33		50.0	
		Z	5.04	65.63	18.01		50.0	

10303-AAA	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	X	5.12	65.68	18.36	4.96	50.0	± 9.6 %
		Y	5.20	65.63	18.25		50.0	
		Z	4.79	65.22	17.82		50.0	
10304-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	X	4.91	65.48	17.80	4.17	50.0	± 9.6 %
		Y	4.97	65.39	17.67		50.0	
		Z	4.60	65.13	17.33		50.0	
10305-AAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	X	4.54	67.31	20.13	6.02	35.0	± 9.6 %
		Y	4.68	67.57	20.17		35.0	
		Z	4.18	66.58	19.14		35.0	
10306-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)	X	4.85	66.25	19.53	6.02	35.0	± 9.6 %
		Y	4.97	66.42	19.54		35.0	
		Z	4.53	65.75	18.78		35.0	
10307-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)	X	4.78	66.57	19.58	6.02	35.0	± 9.6 %
		Y	4.90	66.76	19.60		35.0	
		Z	4.42	65.89	18.75		35.0	
10308-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	X	4.73	66.70	19.69	6.02	35.0	± 9.6 %
		Y	4.86	66.89	19.70		35.0	
		Z	4.39	66.07	18.88		35.0	
10309-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)	X	4.94	66.57	19.71	6.02	35.0	± 9.6 %
		Y	5.06	66.72	19.71		35.0	
		Z	4.58	65.95	18.92		35.0	
10310-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)	X	4.80	66.33	19.50	6.02	35.0	± 9.6 %
		Y	4.92	66.50	19.51		35.0	
		Z	4.47	65.81	18.76		35.0	
10311-AAA	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	3.56	70.85	17.35	0.00	150.0	± 9.6 %
		Y	3.35	69.53	16.58		150.0	
		Z	3.18	69.50	16.60		150.0	
10313-AAA	iDEN 1:3	X	3.61	72.32	15.68	6.99	70.0	± 9.6 %
		Y	3.53	71.79	15.62		70.0	
		Z	2.40	68.35	13.79		70.0	
10314-AAA	iDEN 1:6	X	4.88	78.34	20.75	10.00	30.0	± 9.6 %
		Y	4.58	76.90	20.34		30.0	
		Z	3.37	73.24	18.49		30.0	
10315-AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	X	1.15	64.85	16.31	0.17	150.0	± 9.6 %
		Y	1.11	63.83	15.42		150.0	
		Z	1.08	63.84	15.32		150.0	
10316-AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	X	4.74	66.77	16.53	0.17	150.0	± 9.6 %
		Y	4.74	66.55	16.35		150.0	
		Z	4.55	66.64	16.26		150.0	
10317-AAB	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	X	4.74	66.77	16.53	0.17	150.0	± 9.6 %
		Y	4.74	66.55	16.35		150.0	
		Z	4.55	66.64	16.26		150.0	
10400-AAC	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)	X	4.91	67.24	16.60	0.00	150.0	± 9.6 %
		Y	4.90	66.98	16.39		150.0	
		Z	4.68	67.09	16.36		150.0	
10401-AAC	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)	X	5.53	67.26	16.65	0.00	150.0	± 9.6 %
		Y	5.53	67.04	16.47		150.0	
		Z	5.39	67.25	16.51		150.0	

10402-AAC	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)	X	5.84	67.79	16.75	0.00	150.0	± 9.6 %
		Y	5.83	67.60	16.59		150.0	
		Z	5.64	67.53	16.51		150.0	
10403-AAB	CDMA2000 (1xEV-DO, Rev. 0)	X	2.30	74.88	17.83	0.00	115.0	± 9.6 %
		Y	1.78	70.39	15.73		115.0	
		Z	1.61	70.42	14.78		115.0	
10404-AAB	CDMA2000 (1xEV-DO, Rev. A)	X	2.30	74.88	17.83	0.00	115.0	± 9.6 %
		Y	1.78	70.39	15.73		115.0	
		Z	1.61	70.42	14.78		115.0	
10406-AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	X	20.87	104.72	27.71	0.00	100.0	± 9.6 %
		Y	10.70	92.86	24.21		100.0	
		Z	100.00	118.79	28.45		100.0	
10410-AAA	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	0.76	60.00	4.21	2.23	80.0	± 9.6 %
		Y	0.85	60.00	4.73		80.0	
		Z	276.16	59.75	0.95		80.0	
10415-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	X	1.07	64.09	15.86	0.00	150.0	± 9.6 %
		Y	1.03	63.09	14.95		150.0	
		Z	1.03	63.38	15.01		150.0	
10416-AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	X	4.70	66.84	16.53	0.00	150.0	± 9.6 %
		Y	4.70	66.59	16.33		150.0	
		Z	4.53	66.77	16.31		150.0	
10417-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	X	4.70	66.84	16.53	0.00	150.0	± 9.6 %
		Y	4.70	66.59	16.33		150.0	
		Z	4.53	66.77	16.31		150.0	
10418-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preambule)	X	4.69	66.99	16.55	0.00	150.0	± 9.6 %
		Y	4.68	66.72	16.33		150.0	
		Z	4.52	66.94	16.34		150.0	
10419-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preambule)	X	4.72	66.94	16.55	0.00	150.0	± 9.6 %
		Y	4.71	66.68	16.34		150.0	
		Z	4.54	66.88	16.33		150.0	
10422-AAA	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	X	4.84	66.94	16.56	0.00	150.0	± 9.6 %
		Y	4.83	66.69	16.36		150.0	
		Z	4.66	66.87	16.34		150.0	
10423-AAA	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	X	5.04	67.32	16.69	0.00	150.0	± 9.6 %
		Y	5.04	67.08	16.50		150.0	
		Z	4.82	67.18	16.45		150.0	
10424-AAA	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	X	4.95	67.26	16.66	0.00	150.0	± 9.6 %
		Y	4.95	67.01	16.46		150.0	
		Z	4.74	67.14	16.43		150.0	
10425-AAA	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	X	5.52	67.53	16.78	0.00	150.0	± 9.6 %
		Y	5.52	67.34	16.61		150.0	
		Z	5.34	67.39	16.58		150.0	
10426-AAA	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	X	5.53	67.57	16.79	0.00	150.0	± 9.6 %
		Y	5.53	67.38	16.62		150.0	
		Z	5.35	67.44	16.60		150.0	

10427-AAA	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	X	5.55	67.58	16.79	0.00	150.0	± 9.6 %
		Y	5.55	67.39	16.63		150.0	
		Z	5.36	67.40	16.58		150.0	
10430-AAA	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	X	4.49	70.88	18.66	0.00	150.0	± 9.6 %
		Y	4.44	70.33	18.34		150.0	
		Z	4.33	71.40	18.47		150.0	
10431-AAA	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	X	4.45	67.48	16.65	0.00	150.0	± 9.6 %
		Y	4.44	67.15	16.41		150.0	
		Z	4.21	67.37	16.32		150.0	
10432-AAA	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	X	4.73	67.33	16.65	0.00	150.0	± 9.6 %
		Y	4.72	67.05	16.43		150.0	
		Z	4.51	67.21	16.38		150.0	
10433-AAA	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	X	4.97	67.31	16.69	0.00	150.0	± 9.6 %
		Y	4.96	67.06	16.49		150.0	
		Z	4.75	67.17	16.45		150.0	
10434-AAA	W-CDMA (BS Test Model 1, 64 DPCH)	X	4.62	71.79	18.74	0.00	150.0	± 9.6 %
		Y	4.54	71.10	18.37		150.0	
		Z	4.47	72.43	18.49		150.0	
10435-AAA	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	0.76	60.00	4.20	2.23	80.0	± 9.6 %
		Y	0.85	60.00	4.72		80.0	
		Z	66.45	60.78	1.49		80.0	
10447-AAA	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.79	67.71	16.28	0.00	150.0	± 9.6 %
		Y	3.75	67.22	15.96		150.0	
		Z	3.51	67.46	15.65		150.0	
10448-AAA	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%)	X	4.27	67.27	16.52	0.00	150.0	± 9.6 %
		Y	4.25	66.92	16.26		150.0	
		Z	4.05	67.16	16.19		150.0	
10449-AAA	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%)	X	4.52	67.17	16.56	0.00	150.0	± 9.6 %
		Y	4.51	66.87	16.33		150.0	
		Z	4.32	67.04	16.29		150.0	
10450-AAA	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.70	67.08	16.56	0.00	150.0	± 9.6 %
		Y	4.69	66.81	16.34		150.0	
		Z	4.52	66.95	16.31		150.0	
10451-AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	X	3.73	68.10	16.08	0.00	150.0	± 9.6 %
		Y	3.69	67.52	15.74		150.0	
		Z	3.40	67.64	15.25		150.0	
10456-AAA	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)	X	6.38	68.13	16.93	0.00	150.0	± 9.6 %
		Y	6.38	67.98	16.79		150.0	
		Z	6.21	67.93	16.72		150.0	
10457-AAA	UMTS-FDD (DC-HSDPA)	X	3.89	65.47	16.27	0.00	150.0	± 9.6 %
		Y	3.87	65.22	16.06		150.0	
		Z	3.80	65.41	16.02		150.0	
10458-AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	X	3.54	67.33	15.57	0.00	150.0	± 9.6 %
		Y	3.50	66.74	15.23		150.0	
		Z	3.21	66.91	14.60		150.0	
10459-AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	X	4.73	65.72	16.35	0.00	150.0	± 9.6 %
		Y	4.68	65.20	16.05		150.0	
		Z	4.29	65.19	15.57		150.0	

10460-AAA	UMTS-FDD (WCDMA, AMR)	X	1.21	73.65	19.54	0.00	150.0	± 9.6 %
		Y	0.97	68.97	16.85		150.0	
		Z	0.97	69.70	17.11		150.0	
10461-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	11.72	93.10	23.40	3.29	80.0	± 9.6 %
		Y	9.76	90.03	22.73		80.0	
		Z	2.37	74.43	16.84		80.0	
10462-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.54	63.80	10.33	3.23	80.0	± 9.6 %
		Y	2.10	66.18	11.79		80.0	
		Z	0.80	60.00	7.11		80.0	
10463-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.22	61.20	8.65	3.23	80.0	± 9.6 %
		Y	1.64	63.16	10.02		80.0	
		Z	0.83	60.00	6.56		80.0	
10464-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	8.54	87.88	21.27	3.23	80.0	± 9.6 %
		Y	7.63	85.91	20.94		80.0	
		Z	1.78	70.62	14.76		80.0	
10465-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.43	63.04	9.91	3.23	80.0	± 9.6 %
		Y	1.91	65.20	11.30		80.0	
		Z	0.80	60.00	7.03		80.0	
10466-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.18	60.81	8.40	3.23	80.0	± 9.6 %
		Y	1.55	62.61	9.71		80.0	
		Z	0.84	60.00	6.51		80.0	
10467-AAA	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	9.44	89.25	21.70	3.23	80.0	± 9.6 %
		Y	8.24	87.00	21.30		80.0	
		Z	1.86	71.22	15.03		80.0	
10468-AAA	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.45	63.20	10.00	3.23	80.0	± 9.6 %
		Y	1.95	65.41	11.41		80.0	
		Z	0.80	60.00	7.05		80.0	
10469-AAA	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.17	60.81	8.40	3.23	80.0	± 9.6 %
		Y	1.55	62.62	9.71		80.0	
		Z	0.84	60.00	6.51		80.0	
10470-AAA	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	9.43	89.27	21.70	3.23	80.0	± 9.6 %
		Y	8.23	87.00	21.30		80.0	
		Z	1.85	71.19	15.01		80.0	
10471-AAA	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.44	63.15	9.97	3.23	80.0	± 9.6 %
		Y	1.94	65.36	11.38		80.0	
		Z	0.80	60.00	7.03		80.0	
10472-AAA	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.17	60.78	8.37	3.23	80.0	± 9.6 %
		Y	1.54	62.59	9.68		80.0	
		Z	0.84	60.00	6.49		80.0	
10473-AAA	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	9.41	89.22	21.68	3.23	80.0	± 9.6 %
		Y	8.21	86.96	21.28		80.0	
		Z	1.85	71.16	14.99		80.0	
10474-AAA	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.43	63.13	9.95	3.23	80.0	± 9.6 %
		Y	1.93	65.33	11.36		80.0	
		Z	0.80	60.00	7.03		80.0	
10475-AAA	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.17	60.76	8.36	3.23	80.0	± 9.6 %
		Y	1.54	62.57	9.67		80.0	
		Z	0.83	60.00	6.49		80.0	

10477-AAA	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.41	62.97	9.86	3.23	80.0	± 9.6 %
		Y	1.90	65.14	11.26		80.0	
		Z	0.80	60.00	7.01		80.0	
10478-AAA	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.16	60.73	8.34	3.23	80.0	± 9.6 %
		Y	1.54	62.53	9.65		80.0	
		Z	0.84	60.00	6.48		80.0	
10479-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	0.98	60.00	7.39	1.99	80.0	± 9.6 %
		Y	1.06	60.16	7.95		80.0	
		Z	0.94	60.00	5.23		80.0	
10480-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.27	60.00	6.63	1.99	80.0	± 9.6 %
		Y	1.35	60.00	7.13		80.0	
		Z	1.53	60.00	4.29		80.0	
10481-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.30	60.00	6.40	1.99	80.0	± 9.6 %
		Y	1.38	60.00	6.90		80.0	
		Z	0.43	54.19	1.30		80.0	
10482-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.28	73.00	16.98	1.99	80.0	± 9.6 %
		Y	2.86	70.68	16.10		80.0	
		Z	1.62	64.74	12.32		80.0	
10483-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.40	69.73	15.23	1.99	80.0	± 9.6 %
		Y	3.59	70.08	15.60		80.0	
		Z	1.86	63.18	10.97		80.0	
10484-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.34	69.24	15.06	1.99	80.0	± 9.6 %
		Y	3.54	69.64	15.45		80.0	
		Z	1.86	62.93	10.88		80.0	
10485-AAA	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.77	75.01	18.62	1.99	80.0	± 9.6 %
		Y	3.28	72.46	17.59		80.0	
		Z	2.22	68.46	15.19		80.0	
10486-AAA	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.26	69.56	16.20	1.99	80.0	± 9.6 %
		Y	3.11	68.44	15.75		80.0	
		Z	2.24	65.29	13.35		80.0	
10487-AAA	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.26	69.18	16.06	1.99	80.0	± 9.6 %
		Y	3.13	68.18	15.65		80.0	
		Z	2.27	65.07	13.25		80.0	
10488-AAA	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.02	74.12	18.89	1.99	80.0	± 9.6 %
		Y	3.68	72.24	18.05		80.0	
		Z	2.79	69.65	16.71		80.0	
10489-AAA	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.55	69.37	17.23	1.99	80.0	± 9.6 %
		Y	3.45	68.50	16.80		80.0	
		Z	2.85	66.93	15.67		80.0	
10490-AAA	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.64	69.12	17.17	1.99	80.0	± 9.6 %
		Y	3.55	68.33	16.77		80.0	
		Z	2.95	66.87	15.67		80.0	
10491-AAA	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.06	71.97	18.21	1.99	80.0	± 9.6 %
		Y	3.86	70.73	17.60		80.0	
		Z	3.12	68.84	16.64		80.0	
10492-AAA	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.87	68.55	17.18	1.99	80.0	± 9.6 %
		Y	3.81	67.93	16.84		80.0	
		Z	3.27	66.72	16.02		80.0	

10493-AAA	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.94	68.39	17.14	1.99	80.0	± 9.6 %
		Y	3.89	67.81	16.82		80.0	
		Z	3.34	66.64	16.00		80.0	
10494-AAA	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.55	73.88	18.73	1.99	80.0	± 9.6 %
		Y	4.24	72.33	18.02		80.0	
		Z	3.33	70.03	16.95		80.0	
10495-AAA	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.93	69.10	17.40	1.99	80.0	± 9.6 %
		Y	3.86	68.43	17.03		80.0	
		Z	3.29	67.05	16.20		80.0	
10496-AAA	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.00	68.74	17.30	1.99	80.0	± 9.6 %
		Y	3.94	68.14	16.97		80.0	
		Z	3.38	66.88	16.17		80.0	
10497-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.20	67.90	14.03	1.99	80.0	± 9.6 %
		Y	2.06	66.72	13.63		80.0	
		Z	1.04	60.25	8.90		80.0	
10498-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.78	62.65	10.75	1.99	80.0	± 9.6 %
		Y	1.84	62.68	10.94		80.0	
		Z	1.23	60.00	7.86		80.0	
10499-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.75	62.21	10.41	1.99	80.0	± 9.6 %
		Y	1.82	62.33	10.65		80.0	
		Z	1.25	60.00	7.73		80.0	
10500-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.75	74.13	18.58	1.99	80.0	± 9.6 %
		Y	3.37	71.97	17.66		80.0	
		Z	2.44	68.90	15.82		80.0	
10501-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.39	69.48	16.61	1.99	80.0	± 9.6 %
		Y	3.26	68.46	16.16		80.0	
		Z	2.53	66.17	14.37		80.0	
10502-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.45	69.28	16.49	1.99	80.0	± 9.6 %
		Y	3.32	68.32	16.07		80.0	
		Z	2.58	66.07	14.27		80.0	
10503-AAA	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.96	73.88	18.78	1.99	80.0	± 9.6 %
		Y	3.63	72.03	17.95		80.0	
		Z	2.75	69.46	16.61		80.0	
10504-AAA	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.53	69.28	17.18	1.99	80.0	± 9.6 %
		Y	3.44	68.42	16.75		80.0	
		Z	2.83	66.84	15.61		80.0	
10505-AAA	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.62	69.03	17.11	1.99	80.0	± 9.6 %
		Y	3.53	68.24	16.71		80.0	
		Z	2.93	66.78	15.61		80.0	
10506-AAA	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.51	73.71	18.65	1.99	80.0	± 9.6 %
		Y	4.20	72.18	17.95		80.0	
		Z	3.30	69.89	16.88		80.0	
10507-AAA	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.92	69.03	17.36	1.99	80.0	± 9.6 %
		Y	3.85	68.37	17.00		80.0	
		Z	3.27	66.99	16.16		80.0	

10508-AAA	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.98	68.67	17.26	1.99	80.0	± 9.6 %
		Y	3.93	68.08	16.93		80.0	
		Z	3.37	66.81	16.13		80.0	
10509-AAA	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.65	71.85	17.97	1.99	80.0	± 9.6 %
		Y	4.46	70.83	17.47		80.0	
		Z	3.71	69.11	16.66		80.0	
10510-AAA	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.39	68.71	17.31	1.99	80.0	± 9.6 %
		Y	4.35	68.21	17.02		80.0	
		Z	3.78	66.98	16.33		80.0	
10511-AAA	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.43	68.38	17.23	1.99	80.0	± 9.6 %
		Y	4.39	67.92	16.97		80.0	
		Z	3.85	66.80	16.31		80.0	
10512-AAA	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.04	73.84	18.55	1.99	80.0	± 9.6 %
		Y	4.71	72.47	17.92		80.0	
		Z	3.79	70.27	16.94		80.0	
10513-AAA	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.30	69.13	17.46	1.99	80.0	± 9.6 %
		Y	4.24	68.57	17.14		80.0	
		Z	3.66	67.17	16.38		80.0	
10514-AAA	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.29	68.60	17.32	1.99	80.0	± 9.6 %
		Y	4.24	68.10	17.03		80.0	
		Z	3.70	66.84	16.32		80.0	
10515-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	X	1.04	64.40	16.01	0.00	150.0	± 9.6 %
		Y	1.00	63.29	15.02		150.0	
		Z	0.99	63.60	15.10		150.0	
10516-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	X	1.24	84.64	24.55	0.00	150.0	± 9.6 %
		Y	0.67	71.96	18.39		150.0	
		Z	0.70	73.24	19.02		150.0	
10517-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	X	0.95	67.81	17.51	0.00	150.0	± 9.6 %
		Y	0.86	65.51	15.82		150.0	
		Z	0.85	65.84	15.95		150.0	
10518-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	X	4.70	66.93	16.52	0.00	150.0	± 9.6 %
		Y	4.69	66.67	16.31		150.0	
		Z	4.52	66.85	16.29		150.0	
10519-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	X	4.92	67.20	16.65	0.00	150.0	± 9.6 %
		Y	4.92	66.96	16.45		150.0	
		Z	4.70	67.07	16.40		150.0	
10520-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	X	4.77	67.20	16.59	0.00	150.0	± 9.6 %
		Y	4.76	66.95	16.38		150.0	
		Z	4.55	67.03	16.33		150.0	
10521-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	X	4.70	67.22	16.59	0.00	150.0	± 9.6 %
		Y	4.70	66.95	16.37		150.0	
		Z	4.49	67.03	16.32		150.0	
10522-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	X	4.75	67.20	16.62	0.00	150.0	± 9.6 %
		Y	4.74	66.92	16.40		150.0	
		Z	4.55	67.13	16.41		150.0	

10523-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	X	4.62	67.11	16.49	0.00	150.0	± 9.6 %
		Y	4.61	66.83	16.26		150.0	
		Z	4.44	67.02	16.27		150.0	
10524-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	X	4.70	67.15	16.61	0.00	150.0	± 9.6 %
		Y	4.69	66.88	16.39		150.0	
		Z	4.49	67.05	16.37		150.0	
10525-AAA	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	X	4.66	66.19	16.19	0.00	150.0	± 9.6 %
		Y	4.65	65.91	15.98		150.0	
		Z	4.49	66.11	15.97		150.0	
10526-AAA	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)	X	4.86	66.60	16.34	0.00	150.0	± 9.6 %
		Y	4.85	66.32	16.12		150.0	
		Z	4.65	66.47	16.11		150.0	
10527-AAA	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)	X	4.78	66.58	16.30	0.00	150.0	± 9.6 %
		Y	4.77	66.30	16.08		150.0	
		Z	4.57	66.43	16.06		150.0	
10528-AAA	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)	X	4.80	66.60	16.33	0.00	150.0	± 9.6 %
		Y	4.79	66.32	16.11		150.0	
		Z	4.59	66.45	16.09		150.0	
10529-AAA	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)	X	4.80	66.60	16.33	0.00	150.0	± 9.6 %
		Y	4.79	66.32	16.11		150.0	
		Z	4.59	66.45	16.09		150.0	
10531-AAA	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)	X	4.81	66.75	16.36	0.00	150.0	± 9.6 %
		Y	4.80	66.47	16.14		150.0	
		Z	4.57	66.54	16.10		150.0	
10532-AAA	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)	X	4.66	66.63	16.31	0.00	150.0	± 9.6 %
		Y	4.65	66.33	16.09		150.0	
		Z	4.44	66.40	16.03		150.0	
10533-AAA	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)	X	4.81	66.62	16.31	0.00	150.0	± 9.6 %
		Y	4.80	66.34	16.09		150.0	
		Z	4.60	66.50	16.08		150.0	
10534-AAA	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	X	5.31	66.70	16.35	0.00	150.0	± 9.6 %
		Y	5.30	66.47	16.16		150.0	
		Z	5.12	66.50	16.12		150.0	
10535-AAA	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)	X	5.38	66.84	16.40	0.00	150.0	± 9.6 %
		Y	5.37	66.61	16.21		150.0	
		Z	5.19	66.68	16.21		150.0	
10536-AAA	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)	X	5.25	66.84	16.39	0.00	150.0	± 9.6 %
		Y	5.24	66.60	16.20		150.0	
		Z	5.06	66.64	16.17		150.0	
10537-AAA	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)	X	5.31	66.81	16.37	0.00	150.0	± 9.6 %
		Y	5.30	66.58	16.19		150.0	
		Z	5.11	66.60	16.15		150.0	
10538-AAA	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)	X	5.42	66.86	16.44	0.00	150.0	± 9.6 %
		Y	5.42	66.65	16.26		150.0	
		Z	5.20	66.61	16.19		150.0	
10540-AAA	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)	X	5.32	66.82	16.43	0.00	150.0	± 9.6 %
		Y	5.31	66.59	16.25		150.0	
		Z	5.13	66.62	16.21		150.0	

10541-AAA	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)	X	5.31	66.72	16.38	0.00	150.0	± 9.6 %
		Y	5.30	66.51	16.20		150.0	
		Z	5.11	66.50	16.14		150.0	
10542-AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)	X	5.46	66.75	16.41	0.00	150.0	± 9.6 %
		Y	5.45	66.54	16.23		150.0	
		Z	5.26	66.57	16.19		150.0	
10543-AAA	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)	X	5.54	66.76	16.42	0.00	150.0	± 9.6 %
		Y	5.53	66.55	16.25		150.0	
		Z	5.33	66.59	16.22		150.0	
10544-AAA	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)	X	5.59	66.79	16.32	0.00	150.0	± 9.6 %
		Y	5.58	66.58	16.15		150.0	
		Z	5.44	66.61	16.12		150.0	
10545-AAA	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)	X	5.80	67.20	16.46	0.00	150.0	± 9.6 %
		Y	5.79	66.99	16.29		150.0	
		Z	5.62	67.01	16.27		150.0	
10546-AAA	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)	X	5.69	67.08	16.42	0.00	150.0	± 9.6 %
		Y	5.68	66.87	16.25		150.0	
		Z	5.49	66.80	16.18		150.0	
10547-AAA	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)	X	5.78	67.15	16.45	0.00	150.0	± 9.6 %
		Y	5.76	66.94	16.27		150.0	
		Z	5.56	66.84	16.19		150.0	
10548-AAA	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)	X	6.08	68.21	16.94	0.00	150.0	± 9.6 %
		Y	6.07	68.02	16.78		150.0	
		Z	5.78	67.67	16.58		150.0	
10550-AAA	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)	X	5.70	67.03	16.40	0.00	150.0	± 9.6 %
		Y	5.69	66.82	16.23		150.0	
		Z	5.52	66.83	16.20		150.0	
10551-AAA	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)	X	5.72	67.11	16.41	0.00	150.0	± 9.6 %
		Y	5.71	66.92	16.24		150.0	
		Z	5.53	66.87	16.18		150.0	
10552-AAA	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)	X	5.62	66.88	16.31	0.00	150.0	± 9.6 %
		Y	5.61	66.68	16.14		150.0	
		Z	5.45	66.69	16.10		150.0	
10553-AAA	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)	X	5.71	66.92	16.35	0.00	150.0	± 9.6 %
		Y	5.70	66.73	16.19		150.0	
		Z	5.53	66.71	16.14		150.0	
10554-AAA	IEEE 1602.11ac WiFi (160MHz, MCS0, 99pc duty cycle)	X	5.99	67.16	16.40	0.00	150.0	± 9.6 %
		Y	5.98	66.97	16.24		150.0	
		Z	5.85	66.96	16.20		150.0	
10555-AAA	IEEE 1602.11ac WiFi (160MHz, MCS1, 99pc duty cycle)	X	6.14	67.49	16.54	0.00	150.0	± 9.6 %
		Y	6.13	67.31	16.38		150.0	
		Z	5.97	67.25	16.32		150.0	
10556-AAA	IEEE 1602.11ac WiFi (160MHz, MCS2, 99pc duty cycle)	X	6.15	67.51	16.54	0.00	150.0	± 9.6 %
		Y	6.14	67.31	16.38		150.0	
		Z	5.99	67.30	16.34		150.0	
10557-AAA	IEEE 1602.11ac WiFi (160MHz, MCS3, 99pc duty cycle)	X	6.14	67.46	16.54	0.00	150.0	± 9.6 %
		Y	6.13	67.28	16.39		150.0	
		Z	5.95	67.20	16.30		150.0	

10558-AAA	IEEE 1602.11ac WiFi (160MHz, MCS4, 99pc duty cycle)	X	6.20	67.65	16.65	0.00	150.0	± 9.6 %
		Y	6.19	67.47	16.50		150.0	
		Z	6.00	67.35	16.40		150.0	
10560-AAA	IEEE 1602.11ac WiFi (160MHz, MCS6, 99pc duty cycle)	X	6.19	67.48	16.60	0.00	150.0	± 9.6 %
		Y	6.18	67.30	16.45		150.0	
		Z	5.99	67.21	16.36		150.0	
10561-AAA	IEEE 1602.11ac WiFi (160MHz, MCS7, 99pc duty cycle)	X	6.10	67.44	16.62	0.00	150.0	± 9.6 %
		Y	6.09	67.25	16.46		150.0	
		Z	5.92	67.18	16.38		150.0	
10562-AAA	IEEE 1602.11ac WiFi (160MHz, MCS8, 99pc duty cycle)	X	6.26	67.92	16.86	0.00	150.0	± 9.6 %
		Y	6.25	67.74	16.71		150.0	
		Z	6.02	67.51	16.55		150.0	
10563-AAA	IEEE 1602.11ac WiFi (160MHz, MCS9, 99pc duty cycle)	X	6.59	68.43	17.06	0.00	150.0	± 9.6 %
		Y	6.56	68.19	16.88		150.0	
		Z	6.17	67.57	16.54		150.0	
10564-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	X	5.02	66.98	16.64	0.46	150.0	± 9.6 %
		Y	5.02	66.75	16.46		150.0	
		Z	4.84	66.87	16.40		150.0	
10565-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	X	5.28	67.46	16.97	0.46	150.0	± 9.6 %
		Y	5.29	67.25	16.80		150.0	
		Z	5.06	67.31	16.73		150.0	
10566-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	X	5.11	67.33	16.80	0.46	150.0	± 9.6 %
		Y	5.11	67.11	16.62		150.0	
		Z	4.89	67.16	16.54		150.0	
10567-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	X	5.14	67.71	17.14	0.46	150.0	± 9.6 %
		Y	5.14	67.49	16.96		150.0	
		Z	4.92	67.55	16.90		150.0	
10568-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	X	5.02	67.04	16.54	0.46	150.0	± 9.6 %
		Y	5.01	66.80	16.34		150.0	
		Z	4.80	66.91	16.29		150.0	
10569-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	X	5.07	67.72	17.15	0.46	150.0	± 9.6 %
		Y	5.07	67.49	16.97		150.0	
		Z	4.88	67.65	16.96		150.0	
10570-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	X	5.13	67.59	17.11	0.46	150.0	± 9.6 %
		Y	5.13	67.36	16.92		150.0	
		Z	4.92	67.50	16.90		150.0	
10571-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	X	1.22	65.32	16.47	0.46	130.0	± 9.6 %
		Y	1.19	64.33	15.63		130.0	
		Z	1.12	63.99	15.32		130.0	
10572-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	X	1.24	65.99	16.87	0.46	130.0	± 9.6 %
		Y	1.20	64.88	15.97		130.0	
		Z	1.13	64.51	15.65		130.0	
10573-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	X	8.40	111.27	31.87	0.46	130.0	± 9.6 %
		Y	1.93	84.16	22.83		130.0	
		Z	1.44	80.98	21.76		130.0	
10574-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	X	1.48	73.54	20.63	0.46	130.0	± 9.6 %
		Y	1.32	70.59	18.86		130.0	
		Z	1.20	69.76	18.43		130.0	

10575-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	X	4.78	66.67	16.61	0.46	130.0	± 9.6 %
		Y	4.79	66.46	16.45		130.0	
		Z	4.59	66.54	16.35		130.0	
10576-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	X	4.81	66.83	16.68	0.46	130.0	± 9.6 %
		Y	4.81	66.62	16.51		130.0	
		Z	4.62	66.72	16.42		130.0	
10577-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	X	5.04	67.16	16.86	0.46	130.0	± 9.6 %
		Y	5.05	66.97	16.70		130.0	
		Z	4.82	67.00	16.58		130.0	
10578-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	X	4.94	67.34	16.97	0.46	130.0	± 9.6 %
		Y	4.95	67.13	16.80		130.0	
		Z	4.72	67.16	16.69		130.0	
10579-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle)	X	4.71	66.68	16.31	0.46	130.0	± 9.6 %
		Y	4.71	66.46	16.14		130.0	
		Z	4.47	66.40	15.97		130.0	
10580-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	X	4.75	66.65	16.31	0.46	130.0	± 9.6 %
		Y	4.76	66.43	16.13		130.0	
		Z	4.52	66.45	16.00		130.0	
10581-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	X	4.84	67.39	16.91	0.46	130.0	± 9.6 %
		Y	4.84	67.17	16.73		130.0	
		Z	4.61	67.19	16.63		130.0	
10582-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	X	4.66	66.43	16.11	0.46	130.0	± 9.6 %
		Y	4.67	66.22	15.93		130.0	
		Z	4.41	66.17	15.76		130.0	
10583-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	X	4.78	66.67	16.61	0.46	130.0	± 9.6 %
		Y	4.79	66.46	16.45		130.0	
		Z	4.59	66.54	16.35		130.0	
10584-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	X	4.81	66.83	16.68	0.46	130.0	± 9.6 %
		Y	4.81	66.62	16.51		130.0	
		Z	4.62	66.72	16.42		130.0	
10585-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	X	5.04	67.16	16.86	0.46	130.0	± 9.6 %
		Y	5.05	66.97	16.70		130.0	
		Z	4.82	67.00	16.58		130.0	
10586-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	X	4.94	67.34	16.97	0.46	130.0	± 9.6 %
		Y	4.95	67.13	16.80		130.0	
		Z	4.72	67.16	16.69		130.0	
10587-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	X	4.71	66.68	16.31	0.46	130.0	± 9.6 %
		Y	4.71	66.46	16.14		130.0	
		Z	4.47	66.40	15.97		130.0	
10588-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	X	4.75	66.65	16.31	0.46	130.0	± 9.6 %
		Y	4.76	66.43	16.13		130.0	
		Z	4.52	66.45	16.00		130.0	
10589-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	X	4.84	67.39	16.91	0.46	130.0	± 9.6 %
		Y	4.84	67.17	16.73		130.0	
		Z	4.61	67.19	16.63		130.0	
10590-AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	X	4.66	66.43	16.11	0.46	130.0	± 9.6 %
		Y	4.67	66.22	15.93		130.0	
		Z	4.41	66.17	15.76		130.0	

10591-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	X	4.94	66.72	16.71	0.46	130.0	± 9.6 %
		Y	4.94	66.53	16.55		130.0	
		Z	4.75	66.62	16.45		130.0	
10592-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)	X	5.11	67.08	16.83	0.46	130.0	± 9.6 %
		Y	5.12	66.88	16.67		130.0	
		Z	4.89	66.95	16.59		130.0	
10593-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)	X	5.04	67.02	16.74	0.46	130.0	± 9.6 %
		Y	5.05	66.83	16.58		130.0	
		Z	4.81	66.84	16.46		130.0	
10594-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)	X	5.09	67.17	16.88	0.46	130.0	± 9.6 %
		Y	5.10	66.97	16.72		130.0	
		Z	4.87	67.01	16.62		130.0	
10595-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)	X	5.06	67.13	16.78	0.46	130.0	± 9.6 %
		Y	5.07	66.94	16.62		130.0	
		Z	4.83	66.96	16.51		130.0	
10596-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)	X	5.00	67.13	16.78	0.46	130.0	± 9.6 %
		Y	5.01	66.93	16.61		130.0	
		Z	4.77	66.95	16.51		130.0	
10597-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)	X	4.95	67.07	16.69	0.46	130.0	± 9.6 %
		Y	4.96	66.86	16.52		130.0	
		Z	4.72	66.85	16.39		130.0	
10598-AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)	X	4.93	67.32	16.96	0.46	130.0	± 9.6 %
		Y	4.94	67.12	16.79		130.0	
		Z	4.70	67.08	16.65		130.0	
10599-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	5.61	67.34	16.90	0.46	130.0	± 9.6 %
		Y	5.62	67.17	16.76		130.0	
		Z	5.41	67.12	16.66		130.0	
10600-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)	X	5.80	67.88	17.15	0.46	130.0	± 9.6 %
		Y	5.82	67.78	17.04		130.0	
		Z	5.54	67.52	16.83		130.0	
10601-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	X	5.66	67.55	16.99	0.46	130.0	± 9.6 %
		Y	5.67	67.41	16.87		130.0	
		Z	5.43	67.28	16.73		130.0	
10602-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)	X	5.74	67.54	16.91	0.46	130.0	± 9.6 %
		Y	5.76	67.41	16.79		130.0	
		Z	5.54	67.35	16.68		130.0	
10603-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	X	5.84	67.86	17.20	0.46	130.0	± 9.6 %
		Y	5.87	67.78	17.09		130.0	
		Z	5.60	67.62	16.94		130.0	
10604-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	X	5.61	67.29	16.90	0.46	130.0	± 9.6 %
		Y	5.62	67.14	16.77		130.0	
		Z	5.45	67.20	16.72		130.0	
10605-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)	X	5.72	67.59	17.05	0.46	130.0	± 9.6 %
		Y	5.73	67.43	16.91		130.0	
		Z	5.53	67.43	16.83		130.0	
10606-AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)	X	5.49	67.07	16.66	0.46	130.0	± 9.6 %
		Y	5.51	66.91	16.52		130.0	
		Z	5.27	66.75	16.35		130.0	

10607-AAA	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	4.77	66.05	16.33	0.46	130.0	± 9.6 %
		Y	4.77	65.82	16.16		130.0	
		Z	4.59	65.94	16.09		130.0	
10608-AAA	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	X	4.99	66.48	16.50	0.46	130.0	± 9.6 %
		Y	4.99	66.26	16.32		130.0	
		Z	4.77	66.33	16.25		130.0	
10609-AAA	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)	X	4.87	66.36	16.36	0.46	130.0	± 9.6 %
		Y	4.87	66.13	16.18		130.0	
		Z	4.65	66.17	16.08		130.0	
10610-AAA	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)	X	4.93	66.51	16.51	0.46	130.0	± 9.6 %
		Y	4.93	66.29	16.34		130.0	
		Z	4.70	66.33	16.24		130.0	
10611-AAA	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)	X	4.85	66.34	16.37	0.46	130.0	± 9.6 %
		Y	4.85	66.12	16.20		130.0	
		Z	4.62	66.13	16.08		130.0	
10612-AAA	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)	X	4.86	66.49	16.41	0.46	130.0	± 9.6 %
		Y	4.86	66.25	16.22		130.0	
		Z	4.62	66.27	16.12		130.0	
10613-AAA	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)	X	4.88	66.41	16.32	0.46	130.0	± 9.6 %
		Y	4.88	66.18	16.13		130.0	
		Z	4.63	66.15	16.00		130.0	
10614-AAA	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)	X	4.81	66.59	16.55	0.46	130.0	± 9.6 %
		Y	4.81	66.37	16.37		130.0	
		Z	4.58	66.35	16.24		130.0	
10615-AAA	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)	X	4.85	66.15	16.15	0.46	130.0	± 9.6 %
		Y	4.85	65.92	15.97		130.0	
		Z	4.62	65.96	15.86		130.0	
10616-AAA	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	X	5.43	66.61	16.52	0.46	130.0	± 9.6 %
		Y	5.43	66.43	16.37		130.0	
		Z	5.24	66.40	16.28		130.0	
10617-AAA	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)	X	5.49	66.70	16.53	0.46	130.0	± 9.6 %
		Y	5.49	66.53	16.39		130.0	
		Z	5.30	66.57	16.34		130.0	
10618-AAA	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)	X	5.38	66.79	16.60	0.46	130.0	± 9.6 %
		Y	5.39	66.60	16.44		130.0	
		Z	5.19	66.58	16.36		130.0	
10619-AAA	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)	X	5.41	66.61	16.45	0.46	130.0	± 9.6 %
		Y	5.41	66.42	16.29		130.0	
		Z	5.20	66.37	16.19		130.0	
10620-AAA	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)	X	5.52	66.71	16.54	0.46	130.0	± 9.6 %
		Y	5.53	66.54	16.40		130.0	
		Z	5.29	66.41	16.26		130.0	
10621-AAA	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)	X	5.50	66.77	16.69	0.46	130.0	± 9.6 %
		Y	5.50	66.60	16.54		130.0	
		Z	5.30	66.56	16.45		130.0	
10622-AAA	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)	X	5.50	66.89	16.74	0.46	130.0	± 9.6 %
		Y	5.50	66.71	16.59		130.0	
		Z	5.31	66.71	16.52		130.0	

10623-AAA	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	X	5.39	66.47	16.42	0.46	130.0	± 9.6 %
		Y	5.39	66.31	16.27		130.0	
		Z	5.18	66.24	16.16		130.0	
10624-AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)	X	5.58	66.64	16.56	0.46	130.0	± 9.6 %
		Y	5.58	66.47	16.42		130.0	
		Z	5.37	66.44	16.32		130.0	
10625-AAA	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	X	5.98	67.70	17.14	0.46	130.0	± 9.6 %
		Y	5.98	67.50	16.97		130.0	
		Z	5.69	67.27	16.79		130.0	
10626-AAA	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	5.69	66.64	16.45	0.46	130.0	± 9.6 %
		Y	5.69	66.47	16.31		130.0	
		Z	5.54	66.46	16.24		130.0	
10627-AAA	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)	X	5.95	67.19	16.68	0.46	130.0	± 9.6 %
		Y	5.95	67.02	16.54		130.0	
		Z	5.77	67.00	16.47		130.0	
10628-AAA	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)	X	5.76	66.81	16.43	0.46	130.0	± 9.6 %
		Y	5.76	66.65	16.29		130.0	
		Z	5.56	66.52	16.17		130.0	
10629-AAA	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)	X	5.84	66.87	16.45	0.46	130.0	± 9.6 %
		Y	5.85	66.72	16.32		130.0	
		Z	5.63	66.57	16.18		130.0	
10630-AAA	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)	X	6.40	68.68	17.36	0.46	130.0	± 9.6 %
		Y	6.41	68.54	17.22		130.0	
		Z	6.00	67.89	16.85		130.0	
10631-AAA	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)	X	6.26	68.38	17.39	0.46	130.0	± 9.6 %
		Y	6.27	68.24	17.27		130.0	
		Z	5.94	67.80	16.99		130.0	
10632-AAA	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)	X	5.92	67.27	16.85	0.46	130.0	± 9.6 %
		Y	5.93	67.11	16.72		130.0	
		Z	5.74	67.08	16.65		130.0	
10633-AAA	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	X	5.85	67.05	16.58	0.46	130.0	± 9.6 %
		Y	5.87	66.93	16.46		130.0	
		Z	5.63	66.71	16.29		130.0	
10634-AAA	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	X	5.82	67.03	16.63	0.46	130.0	± 9.6 %
		Y	5.84	66.90	16.51		130.0	
		Z	5.61	66.74	16.36		130.0	
10635-AAA	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	X	5.71	66.39	16.05	0.46	130.0	± 9.6 %
		Y	5.72	66.23	15.91		130.0	
		Z	5.49	66.05	15.75		130.0	
10636-AAA	IEEE 1602.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	X	6.11	67.03	16.55	0.46	130.0	± 9.6 %
		Y	6.10	66.88	16.42		130.0	
		Z	5.95	66.82	16.32		130.0	
10637-AAA	IEEE 1602.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	X	6.27	67.42	16.72	0.46	130.0	± 9.6 %
		Y	6.28	67.28	16.59		130.0	
		Z	6.10	67.19	16.49		130.0	
10638-AAA	IEEE 1602.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	X	6.27	67.39	16.68	0.46	130.0	± 9.6 %
		Y	6.27	67.24	16.55		130.0	
		Z	6.10	67.17	16.46		130.0	

10639-AAA	IEEE 1602.11ac WiFi (160MHz, MCS3, 90pc duty cycle)	X	6.27	67.41	16.74	0.46	130.0	± 9.6 %
		Y	6.28	67.27	16.61		130.0	
		Z	6.08	67.11	16.47		130.0	
10640-AAA	IEEE 1602.11ac WiFi (160MHz, MCS4, 90pc duty cycle)	X	6.30	67.48	16.72	0.46	130.0	± 9.6 %
		Y	6.31	67.34	16.59		130.0	
		Z	6.08	67.11	16.42		130.0	
10641-AAA	IEEE 1602.11ac WiFi (160MHz, MCS5, 90pc duty cycle)	X	6.29	67.22	16.60	0.46	130.0	± 9.6 %
		Y	6.29	67.07	16.47		130.0	
		Z	6.13	67.04	16.40		130.0	
10642-AAA	IEEE 1602.11ac WiFi (160MHz, MCS6, 90pc duty cycle)	X	6.36	67.55	16.93	0.46	130.0	± 9.6 %
		Y	6.37	67.42	16.82		130.0	
		Z	6.17	67.29	16.69		130.0	
10643-AAA	IEEE 1602.11ac WiFi (160MHz, MCS7, 90pc duty cycle)	X	6.19	67.23	16.68	0.46	130.0	± 9.6 %
		Y	6.19	67.09	16.55		130.0	
		Z	6.01	66.97	16.43		130.0	
10644-AAA	IEEE 1602.11ac WiFi (160MHz, MCS8, 90pc duty cycle)	X	6.42	67.92	17.04	0.46	130.0	± 9.6 %
		Y	6.43	67.79	16.93		130.0	
		Z	6.14	67.40	16.66		130.0	
10645-AAA	IEEE 1602.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	X	6.79	68.54	17.29	0.46	130.0	± 9.6 %
		Y	6.75	68.28	17.11		130.0	
		Z	6.35	67.63	16.74		130.0	

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

APPENDIX D: SAR TISSUE SPECIFICATIONS

Measurement Procedure for Tissue verification:

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

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

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

Table D-I
Composition of the Tissue Equivalent Matter

Frequency (MHz)	2450	2450	5200-5800	5200-5800
Tissue	Head	Body	Head	Body
Ingredients (% by weight)				
DGBE	See page 2	26.7	See page 3	
NaCl		0.1		
Polysorbate (Tween) 80				20
Water		73.2		80

3 Composition / Information on ingredients

The Item is composed of the following ingredients:

Water	50 – 73 %	
Non-ionic detergents	25 – 50 %	polyoxyethylenesorbitan monolaurate
NaCl	0 – 2 %	
Preservative	0.05 – 0.1%	Preventol-D7

Safety relevant ingredients:

CAS-No. 55965-84-9	< 0.1 %	aqueous preparation, containing 5-chloro-2-methyl-3(2H)-isothiazolone and 2-methyyl-3(2H)-isothiazolone
CAS-No. 9005-64-5	<50 %	polyoxyethylenesorbitan monolaurate

According to international guidelines, the product is not a dangerous mixture and therefore not required to be marked by symbols.

Figure D-1
Composition of 2.4 GHz Head Tissue Equivalent Matter

Note: 2.4 GHz head liquid recipes are proprietary SPEAG. Since the composition is approximate to the actual liquids utilized, the manufacturer tissue-equivalent liquid data sheets are provided below.

Measurement Certificate / Material Test

Item Name	**Head Tissue Simulating Liquid (HBBL1900-3800V3)**
Product No.	SL AAH 196 AB (Batch: 160330-1)
Manufacturer	SPEAG

Measurement Method
TSL dielectric parameters measured using calibrated DAK probe.

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

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

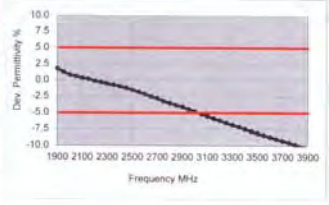
Test Condition

Ambient	Environment temperatur (22 ± 3)°C and humidity < 70%.
TSL Temperature	22°C
Test Date	30-Mar-16
Operator	WM

Additional Information

TSL Density	1.054 g/cm³
TSL Heat-capacity	3.389 kJ/(kg*K)

	Measured			Target		Diff to Target [%]	
f [MHz]	ε'	ε''	sigma	eps	sigma	Δ-eps	Δ-sigma
1900	40.7	12.3	1.3	40.0	1.4	1.7	-6.9
1950	40.5	12.5	1.4	40.0	1.4	1.2	-3.3
2000	40.3	12.6	1.4	40.0	1.4	0.8	0.1
2050	40.1	12.7	1.5	39.9	1.4	0.6	0.5
2100	39.9	12.9	1.5	39.8	1.5	0.3	0.9
2150	39.8	13.0	1.6	39.7	1.5	0.1	1.2
2200	39.6	13.1	1.6	39.6	1.6	-0.2	1.7
2250	39.4	13.2	1.7	39.6	1.6	-0.3	2.0
2300	39.2	13.3	1.7	39.5	1.7	-0.6	2.4
2350	39.1	13.5	1.8	39.4	1.7	-0.8	2.9
2400	38.9	13.6	1.8	39.3	1.8	-1.0	3.4
2450	38.7	13.7	1.9	39.2	1.8	-1.2	4.0
2500	38.5	13.8	1.9	39.1	1.9	-1.5	3.9
2550	38.3	13.9	2.0	39.1	1.9	-1.9	3.5
2600	38.2	14.1	2.0	39.0	2.0	-2.2	3.9
2650	37.9	14.2	2.1	38.9	2.0	-2.6	3.8
2700	37.8	14.3	2.2	38.9	2.1	-2.8	3.9
2750	37.5	14.4	2.2	38.8	2.1	-3.3	3.6
2800	37.4	14.5	2.3	38.8	2.2	-3.6	3.6
2850	37.2	14.6	2.3	38.7	2.2	-3.9	3.7
2900	37.0	14.7	2.4	38.6	2.3	-4.1	3.8
2950	36.8	14.8	2.4	38.6	2.3	-4.5	3.7
3000	36.6	14.9	2.5	38.5	2.4	-4.8	3.6
3050	36.4	15.0	2.5	38.4	2.5	-5.2	3.8
3100	36.2	15.1	2.6	38.4	2.5	-5.6	3.8
3150	36.1	15.2	2.7	38.3	2.6	-5.9	4.0
3200	35.9	15.2	2.7	38.3	2.6	-6.2	3.9
3250	35.7	15.3	2.8	38.2	2.7	-6.6	4.1
3300	35.5	15.3	2.8	38.2	2.7	-6.9	4.0
3350	35.4	15.4	2.9	38.1	2.8	-7.2	4.2
3400	35.2	15.5	2.9	38.0	2.8	-7.5	4.1
3450	35.0	15.5	3.0	38.0	2.9	-7.8	4.2
3500	34.9	15.6	3.0	37.9	2.9	-8.1	4.2
3550	34.7	15.6	3.1	37.9	3.0	-8.4	4.2
3600	34.5	15.7	3.1	37.8	3.0	-8.7	4.4
3650	34.4	15.8	3.2	37.8	3.1	-9.0	4.3
3700	34.2	15.8	3.3	37.7	3.1	-9.3	4.5
3750	34.1	15.9	3.3	37.6	3.2	-9.5	4.4
3800	33.9	15.9	3.4	37.6	3.2	-9.9	4.7
3850	33.7	16.0	3.4	37.5	3.3	-10.1	4.7



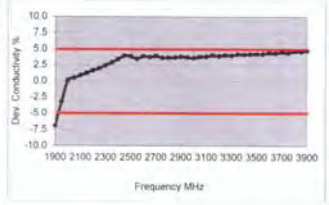


Figure D-2
2.4 GHz Head Tissue Equivalent Matter

2 Composition / Information on ingredients

The Item is composed of the following ingredients:

Water	50 – 65%
Mineral oil	10 – 30%
Emulsifiers	8 – 25%
Sodium salt	0 – 1.5%

Figure D-3
Composition of 5 GHz Head Tissue Equivalent Matter

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

Measurement Certificate / Material Test

Item Name	**Head Tissue Simulating Liquid (HBBL3500-5800V5)**
Product No.	SL AAH 502 AG (Batch: 160331-2)
Manufacturer	SPEAG

Measurement Method
TSL dielectric parameters measured using calibrated DAK probe.

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

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

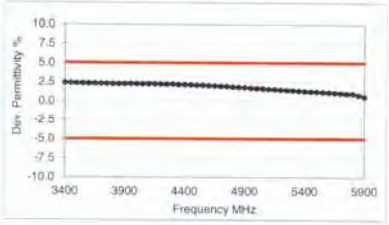
Test Condition

Ambient	Environment temperatur (22 ± 3)°C and humidity < 70%.
TSL Temperature	22°C
Test Date	4-Apr-16
Operator	WM

Additional Information

TSL Density	0.985 g/cm³
TSL Heat-capacity	3.383 kJ/(kg*K)

	Measured			Target		Diff.to Target [%]	
f [MHz]	e'	e''	sigma	eps	sigma	Δ-eps	Δ-sigma
3400	39.0	15.12	2.86	38.0	2.81	2.5	1.8
3500	**38.8**	**15.09**	**2.94**	**37.9**	**2.91**	**2.3**	**0.9**
3600	38.7	15.08	3.02	37.8	3.02	2.3	0.2
3700	**38.6**	**15.08**	**3.10**	**37.7**	**3.12**	**2.4**	**-0.6**
3800	38.4	15.07	3.19	37.6	3.22	2.2	-0.9
3900	38.3	15.09	3.27	37.5	3.32	2.2	-1.6
4000	38.2	15.10	3.36	37.4	3.43	2.3	-1.9
4100	38.1	15.13	3.45	37.2	3.53	2.3	-2.2
4200	38.0	15.18	3.55	37.1	3.63	2.3	-2.2
4300	37.8	15.22	3.64	37.0	3.73	2.1	-2.5
4400	37.7	15.29	3.74	36.9	3.84	2.2	-2.5
4500	37.6	15.34	3.84	36.8	3.94	2.2	-2.5
4600	37.4	15.41	3.94	36.7	4.04	2.0	-2.5
4700	37.3	15.47	4.05	36.6	4.14	2.0	-2.2
4800	37.1	15.53	4.15	36.4	4.25	1.8	-2.2
4850	37.1	15.57	4.20	36.4	4.30	2.0	-2.2
4900	37.0	15.60	4.25	36.3	4.35	1.8	-2.2
4950	36.9	15.62	4.30	36.3	4.40	1.7	-2.2
5000	36.8	15.66	4.35	36.2	4.45	1.6	-2.2
5050	36.8	15.68	4.40	36.2	4.50	1.8	-2.2
5100	36.7	15.73	4.46	36.1	4.55	1.7	-2.0
5150	36.6	15.75	4.51	36.0	4.60	1.5	-2.0
5200	**36.5**	**15.78**	**4.57**	**36.0**	**4.66**	**1.4**	**-1.8**
5250	36.4	15.80	4.62	35.9	4.71	1.3	-1.8
5300	36.4	15.84	4.67	35.9	4.76	1.5	-1.8
5350	36.3	15.85	4.72	35.8	4.81	1.4	-1.8
5400	36.2	15.88	4.77	35.9	4.86	1.2	-1.9
5450	36.2	15.90	4.82	35.7	4.91	1.4	-1.9
5500	**36.1**	**15.91**	**4.87**	**35.6**	**4.96**	**1.3**	**-1.9**
5550	36.0	15.95	4.93	35.6	5.01	1.2	-1.7
5600	35.9	15.99	4.98	35.5	5.07	1.0	-1.7
5650	35.9	16.02	5.04	35.5	5.12	1.2	-1.5
5700	35.8	16.05	5.09	35.4	5.17	1.1	-1.5
5750	35.7	16.09	5.15	35.4	5.22	1.0	-1.3
5800	**35.7**	**16.10**	**5.20**	**35.3**	**5.27**	**1.1**	**-1.3**
5850	35.6	16.14	5.25	35.3	5.34	0.8	-1.6
5900	35.5	16.15	5.30	35.3	5.40	0.6	-1.9



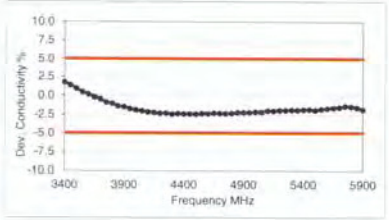


Figure D-4
5GHz Head Tissue Equivalent Matter

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-I
SAR System Validation Summary (1g)

SAR SYSTEM #	FREQ. [MHz]	DATE	PROBE SN	PROBE TYPE	PROBE CAL. POINT		COND. (σ)	PERM. (εr)	CW VALIDATION			MOD. VALIDATION		
									SENSITIVITY	PROBE LINEARITY	PROBE ISOTROPY	MOD. TYPE	DUTY FACTOR	PAR
G	2450	9/28/2016	3287	ES3DV3	2450	Head	1.875	37.737	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
J	5250	2/27/2017	3914	EX3DV4	5250	Head	4.642	35.250	PASS	PASS	PASS	OFDM	N/A	PASS
J	5600	2/27/2017	3914	EX3DV4	5600	Head	4.985	34.710	PASS	PASS	PASS	OFDM	N/A	PASS
J	5750	2/27/2017	3914	EX3DV4	5750	Head	5.143	34.510	PASS	PASS	PASS	OFDM	N/A	PASS
E	2450	4/27/2016	7406	EX3DV4	2450	Body	2.016	51.629	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
K	5250	9/14/2016	7308	EX3DV4	5250	Body	5.485	47.175	PASS	PASS	PASS	OFDM	N/A	PASS
K	5600	9/14/2016	7308	EX3DV4	5600	Body	5.975	46.637	PASS	PASS	PASS	OFDM	N/A	PASS
K	5750	9/14/2016	7308	EX3DV4	5750	Body	6.161	46.436	PASS	PASS	PASS	OFDM	N/A	PASS

Table E-II
SAR System Validation Summary (10g)

SAR SYSTEM #	FREQ. [MHz]	DATE	PROBE SN	PROBE TYPE	PROBE CAL. POINT		COND. (σ)	PERM. (εr)	CW VALIDATION			MOD. VALIDATION		
									SENSITIVITY	PROBE LINEARITY	PROBE ISOTROPY	MOD. TYPE	DUTY FACTOR	PAR
E	2450	4/27/2016	7406	EX3DV4	2450	Body	2.016	51.629	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
K	5250	9/14/2016	7308	EX3DV4	5250	Body	5.485	47.175	PASS	PASS	PASS	OFDM	N/A	PASS
K	5600	9/14/2016	7308	EX3DV4	5600	Body	5.975	46.637	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.