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SAR TEST REPORT

Applicant Name: **Infomark Co.,Ltd.** 3rd Floor, Humaxvillage, 216, Hwangsaeul-ro Bundang-gu Seongnam-Si, Gyonggi-Do, 463-875 South Korea	**Date of Issue:** 03. 25, 2019 **Test Report No.:** HCT-SR-1903-FC005 **Test Site: HCT CO., LTD.**

FCC ID: YCOIFW522T

Equipment Type:	**Kids Watch**
Application Type	**Certification**
FCC Rule Part(s):	**CFR §2.1093**
Model Name:	**IF-W522T**
Date of Test:	**03/18/2019 ~ 03/21/2019**

This device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in FCC KDB procedures and had been tested in accordance with the measurement procedures specified in FCC KDB procedures.

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.

Tested By

Kyung-mo, Kim
Test Engineer
SAR Team
Certification Division

Reviewed By

Yun-jeang, Heo
Technical Manager
SAR Team
Certification Division

DOCUMENT HISTORY

Rev.	DATE	DESCRIPTION
HCT-SR-1903-FC005	03. 25, 2019	First Approval Report

Table of Contents

1. ATTESTATION OF TEST RESULT OF DEVICE UNDER TEST

Test Laboratory	
Company Name:	HCT Co., LTD
Address:	74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of Korea
Telephone:	+82 31 645 6300
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Attestation of SAR test result				
Applicant Name:	Infomark Co.,Ltd.			
FCC ID:	YCOIFW522T			
Model:	IF-W522T			
EUT Type:	Kids Watch			
Application Type:	Certification			
The Highest Reported SAR				
Band	**Tx. Frequency (MHz)**	**Equipment Class**	**Reported Body SAR(W/kg) 1g Next-to-Mouth**	**10g Extremity**
LTE Band 2 (PCS)	1 850.7 ~ 1 909.3	Licensed	0.50	1.01
LTE Band 4 (AWS)	1 710.7 ~ 1 754.3	Licensed	0.87	1.42
LTE Band 12	699.7 ~ 715.3	Licensed	0.37	0.74
802.11b	2 412 ~ 2 462	DTS	<0.10	<0.10
Bluetooth	2 402 ~ 2 480	DSS	<0.10	<0.10
Simultaneous SAR per KDB 690783 D01v01r03			0.93	1.47
Date(s) of Tests:	03/18/2019 ~ 03/21/2019			

2. DEVICE UNDER TEST DESCRIPTION

2.1 DUT specification

Device Wireless specification overview		
Band & Mode	**Operating Mode**	**Tx Frequency**
LTE Band 2 (PCS)	Data	1 850.7 ~ 1 909.3 MHz
LTE Band 4 (AWS)	Data	1 710.7 ~ 1 754.3 MHz
LTE Band 12	Data	699.7 ~ 715.3 MHz
2.4 GHz WLAN	Data	2 412 ~ 2 462 MHz
Bluetooth v4.2	Data	2 402 ~ 2 480 MHz

Device Description		
Device Dimension	Device length : 52.6 mm Device width : 45.2 mm Device height : 14.95 mm	
Battery Options:	Standard (Li-ion Polymer Battery)	
	Battery Model Name: FT502526	
Device Serial Numbers	Mode	Serial Number
	LTE Band 2/ LTE Band 4/ LTE Band 12/ 2.4 GHz WLAN/ Bluetooth	99000000

2.2 Nominal and Maximum Output Power Specifications

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

Mode / Band			Modulated Average (dBm)
LTE Band 2 (PCS)		Maximum	23.5
		Nominal	22.0
LTE Band 4 (AWS)		Maximum	24.0
		Nominal	22.5
LTE Band 12		Maximum	24.0
		Nominal	22.5
WLAN 2.4 GHz	802.11b	Maximum	13.0
		Nominal	12.0
	802.11g	Maximum	13.0
		Nominal	12.0
	80.211n (HT20)	Maximum	13.0
		Nominal	12.0
	80.211n (HT40)	Maximum	10.0
		Nominal	9.0
Bluetooth	DH5	Maximum	11.0
		Nominal	10.0
	2-DH5, 3-DH5	Maximum	9.5
		Nominal	8.5

2.3 DUT Antenna Locations

A diagram showing the location of the DUT antenna can be found in SAR _ Setup_ photos.

2.4 LTE information

Item.		Description		
Frequency Range	LTE Band 2 (PCS)	1 850.7 ~ 1 909.3 MHz		
	LTE Band 4 (AWS)	1 710.7 ~ 1 754.3 MHz		
	LTE Band 12	699.7 MHz~ 715.3 MHz		
Channel Bandwidths	LTE Band 2 (PCS)	1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz		
	LTE Band 4 (AWS)	1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz		
	LTE Band 12	1.4 MHz, 3 MHz, 5 MHz, 10 MHz		
Channel Numbers & Freq.(MHz)		Low	Mid	High
LTE Band 2	1.4 MHz	1 850.7 (18607)	1 880.0 (18900)	1 909.3 (19193)
	3 MHz	1 851.5 (18615)	1 880.0 (18900)	1 908.5 (19185)
	5 MHz	1 852.5 (18625)	1 880.0 (18900)	1 907.5 (19175)
	10 MHz	1 855.0 (18650)	1 880.0 (18900)	1 905.0 (19150)
	15 MHz	1 857.5 (18675)	1 880.0 (18900)	1 902.5 (19125)
	20 MHz	1 860.0 (18700)	1 880.0 (18900)	1 900.0 (19100)
LTE Band 4	1.4 MHz	1 710.7 (19957)	1 732.5 (20175)	1 754.3 (20393)
	3 MHz	1 711.5 (19965)	1 732.5 (20175)	1 753.5 (20385)
	5 MHz	1 712.5 (19975)	1 732.5 (20175)	1 752.5 (20375)
	10 MHz	1 715.0 (20000)	1 732.5 (20175)	1 750.0 (20350)
	15 MHz	1 717.5 (20025)	1 732.5 (20175)	1 747.5 (20325)
	20 MHz	1 720.0 (20050)	1 732.5 (20175)	1 745.0 (20300)
LTE Band 12	1.4 MHz	699.7 (23017)	707.5 (23095)	715.3 (23173)
	3 MHz	700.5 (23025)	707.5 (23095)	714.5 (23165)
	5 MHz	701.5 (23035)	707.5 (23095)	713.5 (23155)
	10 MHz	704.0 (23060)	707.5 (23095)	711.0 (23130)

Item.	Description
UE Category	LTE Rel. 10, Category 3
Modulations Supported in UL	QPSK, 16QAM
LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3	Yes
A-MPR disabled for SAR Testing.	Yes
LTE Carrier Aggregation	This device does not support downlink and uplink Carrier Aggregation for US region.
LTE Release 10 information	This device does not support full CA features on 3GPP Release 10. The following LTE Release 10 features are not supported. Uplink and Downlink Carrier aggregations, Relay, HetNet, Enhanced MIMO, elCl, WiFi offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.

2.5 Test Methodology and Procedures

The tests documented in this report were performed in accordance with IEEE Standard 1528-2013 and the following published KDB procedures.

- FCC KDB Publication 941225 D05 SAR for LTE Devices v02r05
- FCC KDB Publication 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB Publication 447498 D01 General SAR Guidance v06
- FCC KDB Publication 648474 D04 Handset SAR v01r03
- FCC KDB Publication 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- FCC KDB Publication 865664 D02 SAR Reporting v01r02
- April 2015 TCB Workshop Notes (Simultaneous transmission summation clarified)

2.6 SAR Summation Scenario

According to FCC KDB 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 EUT are shown below paths and are mode in same rectangle to indicate communication modes which share the same path. Modes which share the same transmission path cannot transmit simultaneously with one another.

Simultaneous transmission paths

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

Simultaneous Transmission Scenarios		
Applicable Combination	Next-to-Mouth	Extremity
LTE+ Bluetooth	Yes*	Yes*

1. Bluetooth cannot transmit simultaneously with WLAN.
2. All licensed modes share the same antenna path and cannot transmit simultaneously.
3. This device supports * Bluetooth tethering.

3. INTRODUCTION

The FCC has adopted the guidelines for evaluating the environmental effects of radio frequency radiation in ET Docket 93-62 on Aug. 6, 1996 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable devices.

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. 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York 10017. The measurement procedure described in IEEE/ANSI C95.3-1992 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave is used for guidance in measuring 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 National Council on Radiation Protection and Measurements (NCRP) in Biological Effects and Exposure Criteria for Radio Frequency Electromagnetic Fields," NCRP Report No. 86 NCRP, 1986, Bethesda, MD 20814. 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.

SAR Definition

Specific Absorption Rate (SAR) is defined as the time derivative of the incremental electromagnetic energy (d*W*) absorbed by (dissipated in) an incremental mass (d*m*) contained in a volume element (d*V*) of a given density (*r*). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body.

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

Figure 1. SAR Mathematical Equation

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

$$SAR = \sigma E^2 / \rho$$

Where:
σ = conductivity of the tissue-simulant material (S/m)
ρ = mass density of the tissue-simulant material (kg/㎥)
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 relations 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.

4. DESCRIPTION OF TEST EQUIPMENT

4.1 SAR MEASUREMENT SETUP

These measurements are performed using the DASY4 automated dosimetric assessment system. It is made by Schmid & Partner Engineering AG (SPEAG) in Zurich, Switzerland. It consists of high precision robotics system (Staubli), robot controller, Pentium III computer, near-field probe, probe alignment sensor, and the generic twin phantom containing the brain equivalent material. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF) (see Figure.2).

A cell controller system contains the power supply, robot controller, teach pendant (Joystick), and remote control, is used to drive the robot motors. The PC with Windows XP or Windows 7 is working with SAR Measurement system DASY4 & DASY5, A/D interface card, monitor, mouse, and keyboard. The Staubli Robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card.

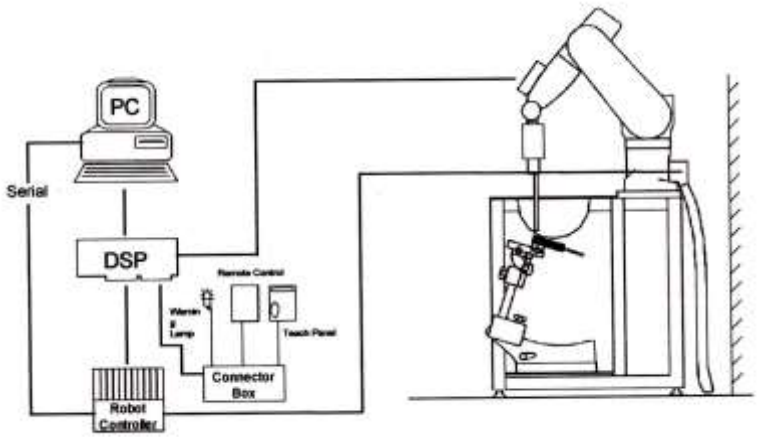


Figure 2. HCT SAR Lab. Test Measurement Set-up

The DAE consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer. The system is described in detail in.

5. SAR MEASUREMENT PROCEDURE

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

1. The SAR distribution at the exposed side of the head or body was measured at a distance no more than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the DUT's head and body area and the horizontal grid resolution was depending on the FCC KDB 865664 D01v01r04 table 4-1 & IEEE 1528-2013.

2. Based on step, the area of the maximum absorption was determined by sophisticated interpolations routines implemented in DASY software. When an Area Scan has measured all reachable point. DASY system computes the field maximal found in the scanned are, within a range of the maximum. SAR at this fixed point was measured and used as a reference value.

3. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB 865664 D01v01r04 table 4-1 and IEEE 1528-2013. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (reference from the DASY manual.)

   a. The data at the surface were extrapolated, since the center of the dipoles is no more than 2.7 mm away from the tip of the probe (it is different from the probe type) and the distance between the surface and the lowest measuring point is 1.2 mm. The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.

   b. The maximum interpolated value was searched with a straight-forward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed using the 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 integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the average.

   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. If the value changed by more than 5 %, the SAR evaluation and drift measurements were repeated.

Area scan and zoom scan resolution setting follow KDB 865664 D01v01r04 quoted below.

<table>
<tr><td colspan="3"></td><td>≤ 3 GHz</td><td>> 3 GHz</td></tr>
<tr><td colspan="3">Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface</td><td>5±1 mm</td><td>$^1/_2 \cdot \delta \cdot \ln(2) \pm 0.5$ mm</td></tr>
<tr><td colspan="3">Maximum probe angle from probe axis to phantom surface normal at the measurement location</td><td>30°±1°</td><td>20°±1°</td></tr>
<tr><td colspan="3" rowspan="2">Maximum area scan Spatial resolution: Δx_{Area}, Δy_{Area}</td><td>≤ 2 GHz: ≤15 mm
2-3 GHz: ≤12 mm</td><td>3-4 GHz: ≤12 mm
4-6 GHz: ≤10 mm</td></tr>
<tr><td colspan="2">When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.</td></tr>
<tr><td colspan="3">Maximum zoom scan Spatial resolution: Δx_{zoom}, Δy_{zoom}</td><td>≤ 2 GHz: ≤8mm
2-3 GHz: ≤5mm*</td><td>3-4 GHz: ≤5 mm*
4-6 GHz: ≤4 mm*</td></tr>
<tr><td rowspan="3">Maximum zoom scan Spatial resolution normal to phantom surface</td><td colspan="2">uniform grid: $\Delta z_{zoom}(n)$</td><td>≤ 5 mm</td><td>3-4 GHz: ≤4 mm
4-5 GHz: ≤3 mm
5-6 GHz: ≤2 mm</td></tr>
<tr><td rowspan="2">graded grid</td><td>$\Delta z_{zoom}(1)$: between 1 st two Points closest to phantom surface</td><td>≤ 4 mm</td><td>3-4 GHz: ≤3 mm
4-5 GHz: ≤2.5 mm
5-6 GHz: ≤2 mm</td></tr>
<tr><td>$\Delta z_{zoom}(n>1)$: between subsequent Points</td><td colspan="2">$\leq 1.5 \cdot \Delta z_{zoom}(n-1)$</td></tr>
<tr><td>Minimum zoom scan volume</td><td colspan="2">x, y, z</td><td>≥ 30 mm</td><td>3-4 GHz: ≥28 mm
4-5 GHz: ≥25 mm
5-6 GHz: ≥22 mm</td></tr>
<tr><td colspan="5">Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.
* When zoom scan is required and the reported SAR from the area scan based 1-g SAR estimation procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.</td></tr>
</table>

6. DESCRIPTION OF TEST POSITION

6.1 Wrist watch and wrist-worn transmitters

6.1.1 Device Holder

The device holder is made out of low-loss POM material having the following dielectric parameter; relative permittivity ε=3 and loss tangent σ =0.02

6.1.2 Positioning for Head

Devices that are designed to be worn on the wrist may operate in speaker mode for voice communication, with the device worn on the wrist and positioned next to the mouth. When next-to-mouth SAR evaluation is required, the device is positioned at 10mm from a flat phantom filled with head tissue-equivalent medium. The device is evaluated with wrist bands strapped together to represent normal use conditions. The 1-g head SAR Exclusion Threshold in KDB Publication 447498D01v06 should be applied to determine SAR test requirements.

6.1.3 Extremity Exposure Configurations.

Devices that are designed or intended for use on extremities or mainly operated in extremity only exposure conditions; i.e., hand, wrist, 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. When extremity SAR evaluation is required, the device is evaluated with the back of the device touching the flat phantom, which is filled with body tissue-equivalent medium. The device is evaluated with wrist band un strapped and touching the phantom; the space between the device and phantom must represent actual use conditions. The 10g extremity SAR exclusion Thresholds found in KDB Publication 447498 D01v06 should be applied to determine SAR test requirements

6.1.4 Bluetooth tethering Configurations

Per May 2017 TCBC Workshop documents When Bluetooth tethering applies ,simultaneous transmission SAR needs consideration

This model allows users to exchange data or media files with other Bluetooth enabled devices using Bluetooth, which means they can connect to other Bluetooth enabled devices via Bluetooth tethering.
Therefore, SAR test was performed for additional simultaneous transmissions.
Head and Bluetooth tethering SAR were evaluated for BT BR tethering applications

7. RF EXPOSURE LIMITS

HUMAN EXPOSURE	UNCONTROLLED ENVIRONMENT General Population	CONTROLLED ENVIRONMENT Occupational
	(W/kg) or (mW/g)	(W/kg) or (mW/g)
SPATIAL PEAK SAR * (Head)	1.60	8.00
SPATIAL AVERAGE SAR ** (Whole Body)	0.08	0.40
SPATIAL PEAK SAR *** (Hands / Feet / Ankle / Wrist)	4.00	20.00

NOTES:

* The Spatial Peak value of the SAR averaged over any 1 g of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

** The Spatial Average value of the SAR averaged over the whole-body.

*** The Spatial Peak value of the SAR averaged over any 10 g of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

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 mad 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.

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.

8. FCC SAR GENERAL MEASUREMENT PROCEDURES

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.

8.1 SAR Measurement Conditions for LTE

LTE modes are tested according to FCC KDB 941225 D05v02r05 publication. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluation SAR [4]. The R&S CMW500 or Anritsu MT8820C simulators are used for LTE output power measurements and SAR testing. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

8.1.1 Spectrum Plots for RB Configurations

A properly configured base station simulator was used for SAR tests and power measurements. Therefore, spectrum plots for RB configurations were not required to be included in this report.

8.1.2 MPR

MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36. 101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.

8.1.3 A-MPR

A-MPR (Additional MPR) has been disabled for all SAR tests by setting NS=01 on the base station simulator.

8.1.4 Required RB Size and RB offsets for SAR testing

According to FCC KDB 941225 D05v02r05

a. Per sec 4.2.1, SAR is required for QPSK 1 RB Allocation for the largest bandwidth
   i. The required channel and offset combination with the highest maximum output power is required for SAR.
   ii. When the reported SAR is ≤ 0.8 W/Kg, testing of the remaining RB offset configurations and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the RB offset configuration with highest output power for that channel.
   iii. When the reported SAR for a required test channel is > 1.45 W/kg, SAR is required for all RB offset configurations for that channel.

b. Per Sec 4.2.2, SAR is required for 50% RB allocation using the largest bandwidth following the same procedures outlined in Sec 4.2.1.

c. Per Sec. 4.2.3, QPSK SAR is not required for the 100% all0cation when the highest maximum output power for the 100% allocation is less than the highest maximum output power of the 1 RB and 50% RB allocations and the reported SAR for the 1 RB and 50% RB allocations is < 0.8 W/kg.

d. Per Sec. 4.2.4 and 4.3, SAR test for higher order modulations and lower bandwidths configurations are not required when the conducted power of the required test configurations determined by Sec. 4.2.1 through 4.2.3 is less than or equal to 1/2 dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is < 1.45 W/Kg.

8.2 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.

8.2.1 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 system 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.

8.2.2 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 is 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.

8.2.3 OFDM Transmission Mode and SAR Test Channel Selection

For the 2.4 GHz, 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 and lowest order 802.11 g/n mode. When the maximum output power of a channel is the same for equivalent OFDM configurations; for example, 802.11g and 802.11n with the same channel bandwidth, modulation and data rate etc., the lower order 802.11 mode i.e., 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.

9. OUTPUT POWER SPECIFICATIONS

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

9.1 LTE Maximum Conducted Power

- LTE Band 2
LTE Band 2 _ 1.4 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR Allowed Per 3GPP	MPR
				18607	18900	19193	[dB]	[dB]
				1850.7 MHz	1880 MHz	1909.3 MHz		
1.4 MHz	QPSK	1	0	22.07	22.17	22.50	0	0
		1	3	22.28	22.28	22.58	0	0
		1	5	22.23	22.12	22.40	0	0
		3	0	22.18	22.14	22.45	0	0
		3	1	22.22	22.16	22.50	0	0
		3	3	22.20	22.12	22.46	0	0
		6	0	20.98	21.12	21.30	0-1	1
	16QAM	1	0	21.14	20.59	20.97	0-1	1
		1	3	20.95	20.85	21.17	0-1	1
		1	5	20.78	20.78	20.96	0-1	1
		3	0	20.92	21.33	21.23	0-1	1
		3	1	21.02	21.29	21.42	0-1	1
		3	3	20.96	21.32	21.53	0-1	1
		6	0	19.89	20.24	20.34	0-2	2

LTE Band 2 _ 3 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR Allowed Per 3GPP	MPR
				18615	18900	19185	[dB]	[dB]
				1851.5 MHz	1880 MHz	1908.5 MHz		
3 MHz	QPSK	1	0	22.20	22.18	22.35	0	0
		1	7	22.24	22.30	22.40	0	0
		1	14	22.27	22.58	22.61	0	0
		8	0	21.25	21.07	21.30	0-1	1
		8	3	21.09	21.16	21.35	0-1	1
		8	7	21.06	21.21	21.33	0-1	1
		15	0	21.05	21.13	21.30	0-1	1
	16QAM	1	0	20.98	20.79	20.83	0-1	1
		1	7	20.79	20.66	20.97	0-1	1
		1	14	21.24	20.44	21.24	0-1	1
		8	0	20.57	20.13	20.39	0-2	2
		8	3	20.03	20.15	20.44	0-2	2
		8	7	19.99	20.21	20.42	0-2	2
		15	0	20.06	20.19	20.47	0-2	2

LTE Band 2 _ 5 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR Allowed Per 3GPP	MPR
				18625	18900	19175	[dB]	[dB]
				1852.5 MHz	1880 MHz	1907.5 MHz		
5 MHz	QPSK	1	0	22.24	22.18	22.33	0	0
		1	12	22.45	22.48	22.59	0	0
		1	24	22.26	22.19	22.35	0	0
		12	0	21.12	21.03	21.30	0-1	1
		12	6	21.14	21.09	21.30	0-1	1
		12	11	21.30	21.14	21.40	0-1	1
		25	0	21.20	21.14	21.43	0-1	1
	16QAM	1	0	20.96	20.75	21.48	0-1	1
		1	12	20.87	20.81	21.22	0-1	1
		1	24	21.30	20.57	21.32	0-1	1
		12	0	19.95	19.99	20.27	0-2	2
		12	6	20.33	20.03	20.17	0-2	2
		12	11	20.32	20.08	20.17	0-2	2
		25	0	20.25	20.02	20.42	0-2	2

LTE Band 2 _ 10 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR Allowed Per 3GPP	MPR
				18650	18900	19150	[dB]	[dB]
				1855 MHz	1880 MHz	1905 MHz		
10 MHz	QPSK	1	0	22.18	22.36	22.59	0	0
		1	24	22.17	22.25	22.28	0	0
		1	49	22.46	22.36	22.33	0	0
		25	0	21.25	21.10	21.31	0-1	1
		25	12	21.26	21.05	21.42	0-1	1
		25	24	21.18	21.16	21.41	0-1	1
		50	0	21.19	21.11	21.31	0-1	1
	16QAM	1	0	20.97	21.07	21.13	0-1	1
		1	24	20.93	20.56	20.96	0-1	1
		1	49	21.36	20.54	20.61	0-1	1
		25	0	20.50	20.07	20.34	0-2	2
		25	12	20.26	20.07	20.42	0-2	2
		25	24	20.27	20.26	20.51	0-2	2
		50	0	20.35	20.31	20.49	0-2	2

LTE Band 2 _ 15 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR Allowed Per 3GPP	MPR
				18675	18900	19125	[dB]	[dB]
				1857.5 MHz	1880 MHz	1902.5 MHz		
15 MHz	QPSK	1	0	22.41	22.35	22.57	0	0
		1	36	22.47	22.49	22.49	0	0
		1	74	22.31	22.44	22.58	0	0
		36	0	21.08	21.04	21.33	0-1	1
		36	18	21.13	21.08	21.30	0-1	1
		36	38	21.15	21.14	21.29	0-1	1
		75	0	21.04	21.16	21.36	0-1	1
	16QAM	1	0	20.84	21.09	20.85	0-1	1
		1	36	20.60	20.75	20.95	0-1	1
		1	74	20.62	20.81	20.69	0-1	1
		36	0	20.20	20.12	20.28	0-2	2
		36	18	20.15	20.08	20.33	0-2	2
		36	38	20.19	20.13	20.34	0-2	2
		75	0	20.08	19.99	20.54	0-2	2

LTE Band 2 _ 20 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR Allowed Per 3GPP	MPR
				18700	18900	19100	[dB]	[dB]
				1860 MHz	1880 MHz	1900 MHz		
20 MHz	QPSK	1	0	22.48	22.38	22.48	0	0
		1	49	22.44	22.26	**22.59**	0	0
		1	99	22.24	22.40	22.38	0	0
		50	0	21.25	21.18	**21.39**	0-1	1
		50	25	21.14	21.08	21.26	0-1	1
		50	49	21.15	21.17	21.33	0-1	1
		100	0	21.15	21.18	21.38	0-1	1
	16QAM	1	0	20.97	20.74	20.85	0-1	1
		1	49	20.81	21.07	20.73	0-1	1
		1	99	20.50	21.22	20.45	0-1	1
		50	0	20.44	19.98	20.49	0-2	2
		50	25	20.33	20.09	20.36	0-2	2
		50	49	20.11	20.18	20.32	0-2	2
		100	0	20.01	20.17	20.43	0-2	2

- LTE Band 4

LTE Band 4 _ 1.4 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR Allowed Per 3GPP	MPR
				19957	20175	20393	[dB]	[dB]
				1710.7 MHz	1732.5 MHz	1754.3 MHz		
1.4 MHz	QPSK	1	0	22.75	22.48	22.83	0	0
		1	3	22.74	22.66	22.75	0	0
		1	5	22.73	22.55	22.85	0	0
		3	0	22.68	22.64	22.79	0	0
		3	1	22.63	22.66	22.81	0	0
		3	3	22.63	22.59	22.74	0	0
		6	0	21.60	21.54	21.74	0-1	1
	16QAM	1	0	21.28	21.65	21.39	0-1	1
		1	3	21.56	21.78	21.35	0-1	1
		1	5	21.32	21.34	20.92	0-1	1
		3	0	21.53	21.38	21.49	0-1	1
		3	1	21.47	21.35	21.72	0-1	1
		3	3	21.40	21.31	21.65	0-1	1
		6	0	20.49	20.33	20.62	0-2	2

LTE Band 4 _ 3 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR Allowed Per 3GPP	MPR
				19965	20175	20385	[dB]	[dB]
				1711.5 MHz	1732.5 MHz	1753.5 MHz		
3 MHz	QPSK	1	0	22.68	22.81	22.78	0	0
		1	7	22.70	22.57	22.96	0	0
		1	14	22.69	22.80	22.94	0	0
		8	0	21.61	21.56	21.77	0-1	1
		8	3	21.74	21.57	21.80	0-1	1
		8	7	21.73	21.50	21.74	0-1	1
		15	0	21.72	21.53	21.76	0-1	1
	16QAM	1	0	21.71	21.62	21.09	0-1	1
		1	7	21.36	21.31	21.30	0-1	1
		1	14	21.79	21.04	21.47	0-1	1
		8	0	20.67	20.54	20.69	0-2	2
		8	3	20.41	20.56	20.70	0-2	2
		8	7	20.80	20.70	20.74	0-2	2
		15	0	20.47	20.57	20.54	0-2	2

LTE Band 4 _ 5 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR Allowed Per 3GPP	MPR
				19975	20175	20375	[dB]	[dB]
				1712.5 MHz	1732.5 MHz	1752.5 MHz		
5 MHz	QPSK	1	0	22.81	22.70	22.93	0	0
		1	12	23.13	22.69	23.02	0	0
		1	24	22.74	22.60	22.79	0	0
		12	0	21.69	21.71	21.73	0-1	1
		12	6	21.62	21.52	21.79	0-1	1
		12	11	21.63	21.55	21.89	0-1	1
		25	0	21.74	21.60	21.87	0-1	1
	16QAM	1	0	21.19	21.01	21.56	0-1	1
		1	12	21.42	21.02	21.49	0-1	1
		1	24	21.06	21.02	21.46	0-1	1
		12	0	20.49	20.21	20.60	0-2	2
		12	6	20.57	20.30	20.67	0-2	2
		12	11	20.57	20.34	20.66	0-2	2
		25	0	20.68	20.37	20.74	0-2	2

LTE Band 4 _ 10 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR Allowed Per 3GPP	MPR
				20000	20175	20350	[dB]	[dB]
				1715 MHz	1732.5 MHz	1750 MHz		
10 MHz	QPSK	1	0	22.95	22.65	23.05	0	0
		1	24	23.19	22.75	23.12	0	0
		1	49	22.85	22.74	23.15	0	0
		25	0	21.91	21.55	21.88	0-1	1
		25	12	21.73	21.49	22.05	0-1	1
		25	24	21.74	21.56	22.06	0-1	1
		50	0	21.78	21.44	21.91	0-1	1
	16QAM	1	0	21.57	21.07	21.02	0-1	1
		1	24	21.68	21.13	21.13	0-1	1
		1	49	21.24	21.10	21.40	0-1	1
		25	0	20.87	20.54	20.91	0-2	2
		25	12	20.85	20.57	20.99	0-2	2
		25	24	20.81	20.85	20.99	0-2	2
		50	0	20.76	20.42	20.95	0-2	2

LTE Band 4 _ 15 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR Allowed Per 3GPP	MPR
				20025	20175	20325	[dB]	[dB]
				1717.5 MHz	1732.5 MHz	1747.5 MHz		
15 MHz	QPSK	1	0	22.96	22.71	23.07	0	0
		1	36	22.99	22.60	23.06	0	0
		1	74	22.89	22.85	23.04	0	0
		36	0	21.61	21.60	21.83	0-1	1
		36	18	21.53	21.45	21.88	0-1	1
		36	39	21.53	21.57	21.94	0-1	1
		75	0	21.55	21.62	21.85	0-1	1
	16QAM	1	0	21.91	21.12	21.47	0-1	1
		1	36	21.69	21.02	21.56	0-1	1
		1	74	21.30	21.02	21.14	0-1	1
		36	0	20.70	20.46	20.69	0-2	2
		36	18	20.56	20.43	20.90	0-2	2
		36	39	20.58	20.56	20.89	0-2	2
		75	0	20.83	20.62	20.91	0-2	2

LTE Band 4 _ 20 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power (dBm)	MPR Allowed Per 3GPP	MPR
				20175	[dB]	[dB]
				1732.5 MHz		
20 MHz	QPSK	1	0	22.82	0	0
		1	49	22.67	0	0
		1	99	22.84	0	0
		50	0	21.48	0-1	1
		50	25	21.46	0-1	1
		50	49	21.58	0-1	1
		100	0	21.50	0-1	1
	16QAM	1	0	21.11	0-1	1
		1	49	21.12	0-1	1
		1	99	21.45	0-1	1
		50	0	20.37	0-2	2
		50	25	20.38	0-2	2
		50	49	20.52	0-2	2
		100	0	20.36	0-2	2

Note: LTE Band 4 (AWS) at 20 MHz Bandwidth does not support three non-overlapping channels. Per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the mid channel of the group of overlapping channels should be selected for testing.

- LTE Band 12

LTE Band 12 _ 1.4 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR Allowed Per 3GPP	MPR
				23017	23095	23173	[dB]	[dB]
				699.7 MHz	707.5 MHz	715.3 MHz		
1.4 MHz	QPSK	1	0	22.93	22.84	22.90	0	0
		1	3	23.10	23.22	23.23	0	0
		1	5	23.01	23.26	23.12	0	0
		3	0	22.97	23.04	22.76	0	0
		3	1	23.01	23.08	22.98	0	0
		3	3	23.02	23.04	22.78	0	0
		6	0	21.96	21.93	21.90	0-1	1
	16QAM	1	0	21.65	21.55	21.94	0-1	1
		1	3	21.89	21.88	22.10	0-1	1
		1	5	21.67	22.06	21.64	0-1	1
		3	0	21.84	21.89	21.72	0-1	1
		3	1	21.79	21.96	21.68	0-1	1
		3	3	21.79	21.84	21.61	0-1	1
		6	0	20.85	20.78	20.77	0-2	2

LTE Band 12 _ 3 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR Allowed Per 3GPP	MPR
				23025	23095	23165	[dB]	[dB]
				700.5 MHz	707.5 MHz	714.5 MHz		
3 MHz	QPSK	1	0	22.87	22.95	23.16	0	0
		1	7	23.02	23.25	23.25	0	0
		1	14	22.83	23.12	23.00	0	0
		8	0	21.91	21.98	22.04	0-1	1
		8	3	21.95	22.16	21.90	0-1	1
		8	7	21.86	22.07	21.93	0-1	1
		15	0	21.85	21.88	21.88	0-1	1
	16QAM	1	0	21.22	21.36	21.55	0-1	1
		1	7	21.56	21.59	21.22	0-1	1
		1	14	21.60	21.76	21.07	0-1	1
		8	0	20.88	21.08	20.96	0-2	2
		8	3	20.93	21.15	20.95	0-2	2
		8	7	21.05	21.24	21.00	0-2	2
		15	0	20.88	21.02	20.96	0-2	2

LTE Band 12 _ 5 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR Allowed Per 3GPP	MPR
				23035	23095	23155	[dB]	[dB]
				701.5 MHz	707.5 MHz	713.5 MHz		
5 MHz	QPSK	1	0	22.95	22.89	23.11	0	0
		1	12	23.17	23.12	23.04	0	0
		1	24	22.74	22.98	22.92	0	0
		12	0	21.86	22.01	21.89	0-1	1
		12	6	21.86	22.01	21.76	0-1	1
		12	11	21.95	22.03	21.82	0-1	1
		25	0	21.93	22.08	21.90	0-1	1
	16QAM	1	0	21.41	21.36	22.08	0-1	1
		1	12	22.02	21.59	21.75	0-1	1
		1	24	21.54	22.00	21.46	0-1	1
		12	0	20.69	20.76	20.86	0-2	2
		12	6	20.83	20.80	20.75	0-2	2
		12	11	20.80	21.11	20.80	0-2	2
		25	0	21.00	21.09	21.15	0-2	2

LTE Band 12 _ 10 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power (dBm)	MPR Allowed Per 3GPP	MPR
				23095	[dB]	[dB]
				707.5 MHz		
10 MHz	QPSK	1	0	23.18	0	0
		1	24	**23.22**	0	0
		1	49	22.98	0	0
		25	0	21.95	0-1	1
		25	12	**22.05**	0-1	1
		25	24	21.93	0-1	1
		50	0	22.00	0-1	1
	16QAM	1	0	21.56	0-1	1
		1	24	21.80	0-1	1
		1	49	22.10	0-1	1
		25	0	20.99	0-2	2
		25	12	21.06	0-2	2
		25	24	20.94	0-2	2
		50	0	21.01	0-2	2

Note: LTE Band 12 at 10 MHz Bandwidth does not support three non-overlapping channels. Per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the mid channel of the group of overlapping channels should be selected for testing.

9.2 WiFi Maximum Conducted Power

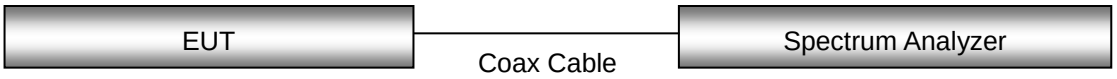
IEEE 802.11 Average Conducted Power

Mode	Freq. [MHz]	Channel	IEEE 802.11 (2.4 GHz) Conducted Power [dBm]
802.11b	2 412	1	12.22
	2 437	6	12.56
	2 462	11	12.10
802.11g	2 412	1	12.44
	2 437	6	12.15
	2 462	11	12.13
802.11n (HT20)	2 412	1	12.41
	2 437	6	12.23
	2 462	11	12.13
802.11n (HT40)	2 422	3	9.56
	2 437	6	8.55
	2 452	9	8.83

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 mode 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.

Test Configuration

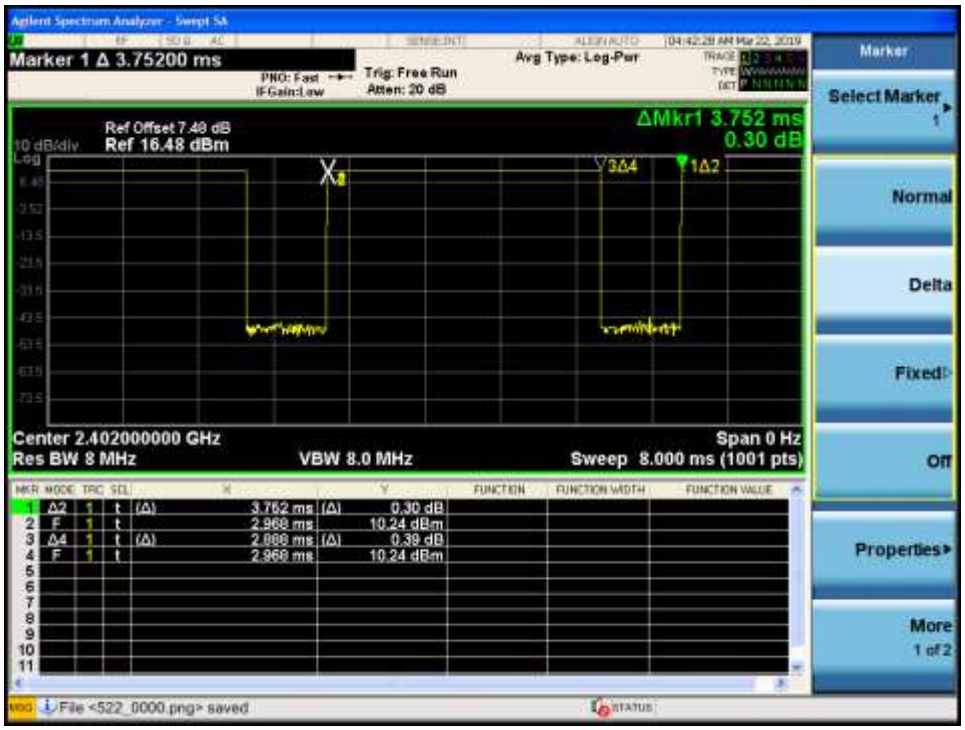


9.3 Bluetooth Conducted Power

The Burst averaged-conducted Power

Mode	Channel	Bluetooth Power [dBm]
DH5	0	10.55
	39	10.66
	78	9.09
2-DH5	0	9.13
	39	9.20
	78	7.62
3-DH5	0	9.13
	39	9.19
	78	7.64

Per October 2016 TCB Workshop Notes:
When call box and Bluetooth protocol are used for BT SAR measurement, time-domain plot is required to identify duty factor for supporting the test setup and result.
Bluetooth duty cycle was measured using Bluetooth tester equipment (CBT / R&S) with Bluetooth protocol. DH5 mode is the highest duty cycle and conducted power. SAR test were performed at DH5 mode.



Duty Cycle

= (BT-On time /BT-Full time) =(2.888/3.752) = 0.770 (DH5)

Duty factor= 1/Duty cycle : 1.299

10. SYSTEM VERIFICATION

10.1 Tissue Verification

The Head /body simulating material is calibrated by HCT using the DAKS 3.5 to determine the conductivity and permittivity.

Table for Head Tissue Verification									
Date of Tests	Tissue Temp. (°C)	Tissue Type	Freq. (MHz)	Measured Conductivity σ (S/m)	Measured Dielectric Constant, ε	Target Conductivity σ (S/m)	Target Dielectric Constant, ε	% dev σ	% dev ε
03/20/2019	20.8	750H	705	0.850	42.406	0.889	42.174	-4.39%	0.55%
			710	0.855	42.351	0.890	42.148	-3.93%	0.48%
			750	0.902	41.678	0.893	41.940	1.01%	-0.62%
03/20/2019	20.8	1800H	1710	1.286	39.468	1.348	40.142	-4.60%	-1.68%
			1750	1.314	39.343	1.371	40.079	-4.16%	-1.84%
			1800	1.356	39.139	1.400	40.000	-3.14%	-2.15%
03/20/2019	20.9	1900H	1850	1.391	38.848	1.400	40.000	-0.64%	-2.88%
			1900	1.449	38.746	1.400	40.000	3.50%	-3.13%
			1910	1.456	38.759	1.400	40.000	4.00%	-3.10%
03/21/2019	20.2	2450H	2400	1.734	38.565	1.756	39.290	-1.25%	-1.85%
			2450	1.798	38.404	1.800	39.200	-0.11%	-2.03%
			2500	1.852	38.234	1.855	39.140	-0.16%	-2.31%

Table for Body Tissue Verification									
Date of Tests	Tissue Temp. (°C)	Tissue Type	Freq. (MHz)	Measured Conductivity σ (S/m)	Measured Dielectric Constant, ε	Target Conductivity σ (S/m)	Target Dielectric Constant, ε	% dev σ	% dev ε
03/19/2019	21.1	750B	705	0.925	57.860	0.959	55.710	-3.55%	3.86%
			710	0.930	57.836	0.960	55.690	-3.12%	3.85%
			750	0.970	57.421	0.963	55.530	0.73%	3.41%
03/18/2019	19.5	1800B	1710	1.400	54.303	1.463	53.534	-4.31%	1.44%
			1750	1.438	54.229	1.488	53.430	-3.36%	1.50%
			1800	1.490	54.020	1.520	53.300	-1.97%	1.35%
03/18/2019	19.5	1900B	1850	1.530	53.835	1.520	53.300	0.66%	1.00%
			1900	1.579	53.716	1.520	53.300	3.88%	0.78%
			1910	1.586	53.645	1.520	53.300	4.34%	0.65%
03/21/2019	20.1	2450B	2400	1.841	52.117	1.902	52.770	-3.21%	-1.24%
			2450	1.908	52.914	1.950	52.700	-2.15%	0.41%
			2500	1.966	51.738	2.021	52.640	-2.72%	-1.71%

10.2 System Verification

System Verification Results – 1g SAR

*** Input Power: 50mW**

Freq.	Date	Probe (S/N)	Dipole (S/N)	Liquid	Amb. Temp.	Liquid Temp.	1 W Target SAR_{1g} (SPEAG)	50mW Measured SAR_{1g}	1 W Normalized SAR_{1g}	Deviation	Limit [%]
[MHz]					[°C]	[°C]	[W/kg]	[W/kg]	[W/kg]	[%]	[%]
750	03/20/2019	7370	1014	Head	21.2	20.8	8.15	0.375	7.50	- 7.98	± 10
1 800	03/20/2019	7370	2d007	Head	21.2	20.8	39.1	1.87	37.4	- 4.35	± 10
1 900	03/20/2019	7370	5d032	Head	21.2	20.9	40.0	1.96	39.2	- 2.00	± 10
2 450	03/21/2019	7370	743	Head	20.5	20.2	51.8	2.59	51.8	+ 0.00	± 10

System Verification Results 10g SAR

Freq.	Date	Probe (S/N)	Dipole (S/N)	Liquid	Amb. Temp.	Liquid Temp.	1 W Target SAR_{10g} (SPEAG)	50 mW Measured SAR_{10g}	1 W Normalized SAR_{10g}	Deviation	Limit [%]
[MHz]					[°C]	[°C]	[W/kg]	[W/kg]	[W/kg]	[%]	[%]
750	03/19/2019	3863	1014	Body	21.1	20.8	5.63	0.265	5.3	- 5.86	± 10
1 800	03/18/2019	3863	2d007	Body	19.9	19.5	20.0	0.969	19.38	- 3.10	± 10
1 900	03/18/2019	3863	5d032	Body	19.9	19.5	20.8	0.943	18.86	- 9.33	± 10
2 450	03/21/2019	7370	743	Body	20.5	20.1	23.4	1.12	22.4	- 4.27	± 10

10.3 System Verification Procedure

SAR measurement was prior to assessment, the system is verified to the ± 10 % of the specifications at each frequency band by using the system verification kit. (Graphic Plots Attached)

- Cabling the system, using the verification kit equipments.
- Generate about 50 mW Input level from the signal generator to the Dipole Antenna.
- Dipole antenna was placed below the flat phantom.
- The measured one-gram SAR at the surface of the phantom above the dipole feed-point should be within 10 % of the target reference value.
- The results are normalized to 1 W input power.

NOTE;
SAR Verification was performed according to the FCC KDB 865664 D01v01r04.

11. SAR TEST DATA SUMMARY

11.1 Standalone Next-to-Mouth SAR Results

LTE Band 2 Next-to-Mouth SAR																
Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)		(dB)				(mm)	(W/kg)		(W/kg)	
1 900	19100	QPSK	20	23.5	22.59	-0.1	Front	1	1	49	1:1	10	0.407	1.233	0.502	1
1 900	19100	QPSK	20	22.5	21.39	-0.01	Front	0	50	0	1:1	10	0.301	1.291	0.389	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population												Head 1.6 W/kg Averaged over 1 gram				

LTE Band 4 Next-to-Mouth SAR																
Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)		(dB)				(mm)	(W/kg)		(W/kg)	
1732.5	20175	QPSK	20	24.0	22.84	0.05	Front	1	1	99	1:1	10	0.666	1.306	0.870	2
1732.5	20175	QPSK	20	23.0	21.58	0.11	Front	0	50	49	1:1	10	0.615	1.387	0.853	-
1732.5	20175	QPSK	20	23.0	21.50	0.10	Front	0	100	0	1:1	10	0.553	1.413	0.781	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population												Head 1.6 W/kg Averaged over 1 gram				

LTE Band 12 Next-to-Mouth SAR																
Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)		(dB)				(mm)	(W/kg)		(W/kg)	
707.5	23095	QPSK	10	24.0	23.22	-0.04	Front	0	1	24	1:1	10	0.311	1.197	0.372	3
707.5	23095	QPSK	10	23.0	22.05	0.06	Front	0	25	12	1:1	10	0.234	1.245	0.291	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population												Head 1.6 W/kg Averaged over 1 gram				

2.4GHz WLAN Next-to-Mouth SAR															
Frequency		Mode	Band width	Data Rate	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Duty Cycle	Distance	Meas. SAR	Scaling Factor	Scaling Factor	Reported SAR	Plot No.
MHz	Ch.		(MHz)	(Mbps)	(dBm)	(dBm)	(dB)			(mm)	(W/kg)	(Power)	(Duty)	(W/kg)	
2 437	6	802.11b	22	1	13.0	12.56	-0.19	Front	97.7	10	0.062	1.107	1.024	0.070	4
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Head 1.6 W/kg Averaged over 1 gram							

DSS Tethering Next-to-Mouth SAR												
Frequency		Mode	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Distance	Meas. SAR	Scaling Factor	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(dBm)	(dBm)	(dB)		(mm)	(W/kg)		(Duty)	(W/kg)	
2 441	39	Bluetooth DH5	11.0	10.66	-0.19	Front	10	0.043	1.081	1.299	0.060	5
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Head 1.6 W/kg Averaged over 1 gram					

11.2 Standalone Extremity SAR Results

LTE Band 2 Extremity SAR																
Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Distance	Meas. 10g SAR	Scaling Factor	Scaled 10g SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)		(dB)				(mm)	(W/kg)		(W/kg)	
1 900	19100	QPSK	20	23.5	22.59	0.17	Back	1	1	49	1:1	0	0.820	1.233	1.011	6
1 900	19100	QPSK	20	22.5	21.39	0.09	Back	0	50	0	1:1	0	0.626	1.291	0.808	-
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak(Hands / Feet / Ankle / Wrist) Uncontrolled Exposure/ General Population												Extremity SAR 4.0 W/kg Averaged over 10 gram				

LTE Band 4 Extremity SAR																
Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Distance	Meas. 10g SAR	Scaling Factor	Scaled 10g SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)		(dB)				(mm)	(W/kg)		(W/kg)	
1732.5	20175	QPSK	20	24.0	22.84	-0.06	Back	1	1	99	1:1	0	1.09	1.306	1.424	7
1732.5	20175	QPSK	20	23.0	21.58	-0.08	Back	0	50	49	1:1	0	0.878	1.387	1.218	-
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak(Hands / Feet / Ankle / Wrist) Uncontrolled Exposure/ General Population												Extremity SAR 4.0 W/kg Averaged over 10 gram				

LTE Band 12 Extremity SAR																
Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Distance	Meas. 10g SAR	Scaling Factor	Scaled 10g SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)		(dB)				(mm)	(W/kg)		(W/kg)	
707.5	23095	QPSK	10	24.0	23.22	-0.15	Back	0	1	24	1:1	0	0.615	1.197	0.736	8
707.5	23095	QPSK	10	23.0	22.05	-0.12	Back	0	25	12	1:1	0	0.474	1.245	0.590	-
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak(Hands / Feet / Ankle / Wrist) Uncontrolled Exposure/ General Population												Extremity SAR 4.0 W/kg Averaged over 10 gram				

2.4GHz WLAN Extremity SAR															
Frequency		Mode	Band width	Data Rate	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Duty Cycle	Distance	Meas. 10g SAR	Scaling Factor	Scaling Factor	Scaled 10g SAR	Plot No.
MHz	Ch.		(MHz)	(Mbps)	(dBm)	(dBm)	(dB)			(mm)	(W/kg)	(Power)	(Duty)	(W/kg)	
2 437	6	802.11b	22	1	13.0	12.56	-0.19	Back	97.7	0	0.050	1.107	1.024	0.057	9
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak(Hands / Feet / Ankle / Wrist) Uncontrolled Exposure/ General Population								Extremity SAR 4.0 W/kg Averaged over 10 gram							

DSS Tethering SAR												
Frequency		Mode	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Distance	Meas. SAR	Scaling Factor	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(dBm)	(dBm)	(dB)		(mm)	(W/kg)		(Duty)	(W/kg)	
2 441	39	Bluetooth DH5	11.0	10.66	-0.14	Back	0	0.030	1.081	1.299	0.042	10
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak(Hands / Feet / Ankle / Wrist) Uncontrolled Exposure/ General Population							Extremity SAR 4.0 W/kg Averaged over 10 gram					

11.3 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in, FCC KDB Procedure.
2. Batteries are fully charged at the beginning of the SAR measurements. A standard battery was used for all 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. Per FCC KDB865664 D02v01, variability SAR test were not performed when the measured SAR results for a frequency band were greater than 0.8 W/Kg for 1g SAR and 2.0 W/kg for 10g SAR. Please see section 13 for variability analysis.
6. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB 447498 D01v06.
7. Per FCC KDB 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is $\leq$ 0.8 W/kg for 1g SAR/ $\leq$ 2W/kg for 10g SAR then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is 1/2 dB, instead of the middle channel, the highest output power channel must be used.

LTE Notes:

1. LTE Considerations: LTE test configurations are determined according to SAR Evaluation Consideration for LTE Devices in FCC KDB 941225 D05v02r05.
2. According to FCC KDB 941225 D05v02r05:
   When the reported SAR is $\leq$ 0.8 W/kg, testing of the 100% RB allocation and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the 1RB, 50%RB and 100%RB allocation with highest output power for that channel.
   Only one channel, and as reported SAR values for 1RB allocation and 50%RB allocation were less than 1.45W/Kg only the highest power RB offset for each allocation was required.
3. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to target MPR is indicated alongside the SAR results.
4. A-MPR was disabled for all SAR tests by setting NS=01 on the base station simulator.
5. SAR test reduction is applied using the following criteria:
   Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB, and 50% RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is >0.8 W/kg, testing for other Channels is performed at the highest output power level for 1RB, and 50% RB configuration for that channel. Testing for 100% RB configuration is performed at the highest output power level for 100% RB configuration across the Low, Mid and High Channel when the highest reported SAR for 1 RB and 50% RB are >0.8 W/kg, testing for the remaining required channels is not needed because the reported SAR for 100% RB Allocation <1.45 W/kg. Testing for 16-QAM modulation is not required because the reported SAR for QPSK is <1.45 W/kg and its output power is not more than 0.5 dB higher than that a QPSK. Testing for the other channel bandwidths is not required because the reported SAR for the highest channel bandwidth is <1.45 W/kg and its output power is not more than 0.5 dB higher than that of the highest channel bandwidth.

WLAN Notes:

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1. Per KDB 248227 D01v02r02 justification for test configurations of 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 802.11 g/n) was not required due to the maximum allowed powers and the highest reported DSSS SAR. .
2. 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.
3. The device was configured to transmit continuously at the required data rated, 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 WLAN test reports.

Bluetooth Notes:

1. Bluetooth SAR was measured with the device connected to a call box with hopping disabled with DH5 operation and Tx Tests mode type. Per October 2016 TCBC Workshop Notes, the reported SAR was scaled to 100% transmission duty factor to determine compliance. Please see sec.9.4.3 for the time-domain plot and calculation for duty factor of the device.
2. Head and Bluetooth tethering SAR were evaluated for BT BR tethering applications.

12. SIMULTANEOUS SAR ANALYSIS

12.1 Simultaneous Transmission Summation for Next-to-Mouth

Simultaneous Transmission Summation Scenario with Bluetooth Tethering					
Exposure condition	Distance (mm)	Band	WWAN SAR (W/kg)	Bluetooth SAR (W/kg)	∑ 1-g SAR (W/kg)
Next-to-Mouth	10	LTE Band 2	0.502	0.060	0.562
		LTE Band 4	0.870	0.060	0.930
		LTE Band 12	0.372	0.060	0.432

12.2 Simultaneous Transmission Summation for Extremity

Simultaneous Transmission Summation Scenario with Bluetooth Tethering					
Exposure condition	Distance (mm)	Band	WWAN SAR (W/kg)	Bluetooth SAR (W/kg)	∑ 10-g SAR (W/kg)
Extremity	0	LTE Band 2	1.011	0.042	1.053
		LTE Band 4	1.424	0.042	1.466
		LTE Band 12	0.736	0.042	0.778

12.3 Simultaneous Transmission Conclusion

The above numerical summed SAR Results 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 D01v06 and IEEE1528-2013.

13. SAR Measurement Variability

Per FCC KDB Publication 865664 D01v01, SAR measurement variability is assessed when measured 1g SAR is >0.8W/kg or 10g SAR is >2.0 W/kg. Since Highest measured SAR for this device was below these limits, measurement variability was not assessed

14. MEASUREMENT UNCERTAINTY

The measured SAR was <1.5 W/Kg for 1g SAR and <3.75 W/KgFor 10g SAR for all frequency bands. Therefore,per KDB Publication 865664 D01v01r04,the extended measurement uncertainty analysis per IEEE1528-2013 was not required.

15. SAR TEST EQUIPMENT

Manufacturer	Type / Model	S/N	Calib. Date	Calib.Interval	Calib.Due
SPEAG	Triple Modular Phantom	-	N/A	N/A	N/A
SPEAG	SAM Phantom	-	N/A	N/A	N/A
HP	SAR System Control PC	-	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	F17/ 59CHA1/ C/ 01	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	F11/5K3RA1/C/01	N/A	N/A	N/A
Staubli	TX90 XLspeag	F17/ 59CHA1/ A/ 01	N/A	N/A	N/A
Staubli	TX90 XLspeag	F11/5K3RA1/A/01	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	010963	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	S-1203 0309	N/A	N/A	N/A
SPEAG	DAE4	652	04/20/2018	Annual	04/20/2019
SPEAG	DAE3	648	05/25/2018	Annual	05/25/2019
SPEAG	E-Field Probe EX3DV4	7370	08/30/2018	Annual	08/30/2019
SPEAG	E-Field Probe EX3DV4	3863	04/25/2018	Annual	04/25/2019
SPEAG	Dipole D750V3	1014	08/14/2018	Annual	08/14/2019
SPEAG	Dipole D1800V2	2d007	11/19/2018	Annual	11/19/2019
SPEAG	Dipole D1900V2	5d032	02/21/2019	Annual	02/21/2020
SPEAG	Dipole D2450V2	743	01/28/2019	Annual	01/28/2020
Agilent	Power Meter E4419B	MY40511244	04/25/2018	Annual	04/25/2019
Agilent	Power Meter E4419B	MY40511243	03/30/2018	Annual	03/30/2019
Agilent	Power Sensor 8481A	SG1091286	10/11/2018	Annual	10/11/2019
Agilent	Power Sensor 8481A	MY41090873	10/11/2018	Annual	10/11/2019
SPEAG	DAKS 3.5	1038	05/29/2018	Annual	05/29/2019
SPEAG	VNA-R140	0141013	05/29/2018	Annual	05/29/2019
Agilent	WIRELESS COMMUNICATION E5515C	MY48361100	10/02/2018	Annual	10/02/2019
Agilent	Signal Generator N5182A	MY47070230	05/10/2018	Annual	05/10/2019
Agilent	11636B/Power Divider	58698	02/28/2019	Annual	03/06/2020
TESTO	175-H1/Thermometer	40331915309	01/29/2019	Annual	01/29/2020
TESTO	175-H1/Thermometer	40331949309	01/29/2019	Annual	01/29/2020
EMPOWER	RF Power Amplifier	1084	06/11/2018	Annual	06/11/2019
EMPOWER	RF Power Amplifier	1011	10/11/2018	Annual	10/11/2019
MICRO LAB	LP Filter / LA-15N	10453	10/11/2018	Annual	10/11/2019
MICRO LAB	LP Filter / LA-30N	-	10/11/2018	Annual	10/11/2019
Apitech	Attenuator (3dB) 18B-03	1	06/07/2018	Annual	06/07/2019
Agilent	Attenuator (20dB) 33340C	13311	05/10/2018	Annual	05/10/2019
HP	Dielectric Probe Kit 85070C	00721521	N/A	N/A	N/A
Agilent	Directional Bridge	3140A03878	06/11/2018	Annual	06/11/2019
Agilent	MXA Signal Analyzer N9020A	MY50510407	10/31/2018	Annual	10/31/2019
HP	Dual Directional Coupler	16072	10/11/2018	Annual	10/11/2019
Anritsu	Radio Communication Tester MT8820C	6200628628	07/19/2018	Annual	07/19/2019
Anritsu	Radio Communication Tester MT8821C	6201502997	08/13/2018	Annual	08/13/2019
R&S	Bluetooth CBT	100272	03/04/2019	Annual	03/04/2020

1. The E-field probe was calibrated by SPEAG, by the waveguide technique procedure. Dipole Verification measurement is performed by HCT Lab. before each test. The brain/body simulating material is calibrated by HCT using the DAKS 3.5 to determine the conductivity and permittivity (dielectric constant) of the brain/body-equivalent material.

16. CONCLUSION

The SAR measurement indicates that the EUT complies with the RF radiation exposure limits of the ANSI/ IEEE C95.1 - 2005.

These measurements were taken to simulate the RF effects 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 abortion and distribution of electromagnetic energy in the body are very complex phenomena the 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.

17. REFERENCES

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[21] 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.

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[23] Health Canada Safety Code 6 Limits of Human Exposure to Radio Frequency Electromagnetic Fields in the Frequency Rage from 3 kHz – 300 GHz, 2009

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[25] SAR Measurement Guidance for IEEE 802.11 transmitters, KDB 248227 D01v02r02

[26] SAR Evaluation of Handsets with Multiple Transmitters and Antennas KDB 648474 D03, D04.

[27] SAR Evaluation for Laptop, Notebook, Netbook and Tablet computers KDB 616217 D04.

[28] SAR Measurement and Reporting Requirements for 100 MHz – 6 GHz, KDB 865664 D01, D02.

[29] FCC General RF Exposure Guidance and SAR procedures for Dongles, KDB 447498 D01,D02.

Attachment 1. – SAR Test Plots

Test Laboratory:	HCT CO., LTD
EUT Type:	Kids Watch
Liquid Temperature:	20.9 ℃
Ambient Temperature:	21.2 ℃
Test Date:	03/20/2019
Plot No.:	1

DUT: IF-W522T

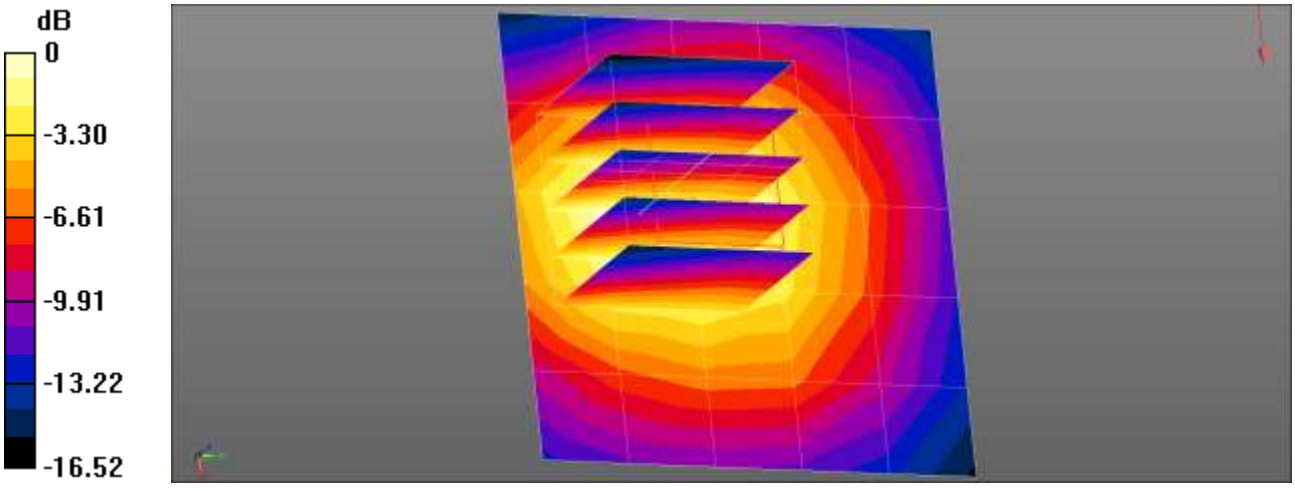
Communication System: UID 0, LTE Band 2 (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.449 S/m; ε_r = 38.746; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN7370; ConvF(8.13, 8.13, 8.13); Calibrated: 2018-08-30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2018-04-20
- Phantom: Twin-SAM V8.0
- Measurement SW: DASY52, Version 52.10 (2);

IF-W522T/LTE Band 2 Body Front QPSK 20MHz 1RB 49offset 19100ch/Area Scan (6x6x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.551 W/kg

IF-W522T/LTE Band 2 Body Front QPSK 20MHz 1RB 49offset 19100ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.38 V/m; Power Drift = -0.1 dB
Peak SAR (extrapolated) = 0.668 W/kg
SAR(1 g) = 0.407 W/kg; SAR(10 g) = 0.247 W/kg
Maximum value of SAR (measured) = 0.561 W/kg



0 dB = 0.561 W/kg = −2.51 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Kids Watch
Liquid Temperature:	20.8 ℃
Ambient Temperature:	21.2 ℃
Test Date:	03/20/2019
Plot No.:	2

DUT: IF-W522T

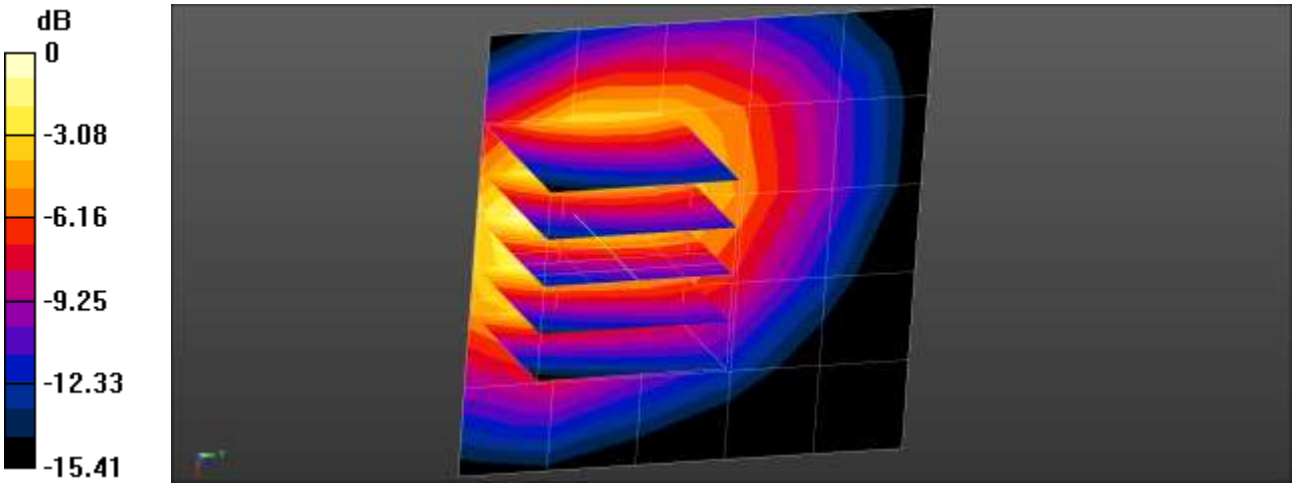
Communication System: UID 0, LTE Band4 (0); Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.306 S/m; ε_r = 39.384; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN7370; ConvF(8.56, 8.56, 8.56); Calibrated: 2018-08-30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2018-04-20
- Phantom: Twin-SAM V8.0
- Measurement SW: DASY52, Version 52.10 (2);

IF-W522T/LTE Band 4 Body Front QPSK 20MHz 1RB 99offset 20175ch/Area Scan (6x6x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.976 W/kg

IF-W522T/LTE Band 4 Body Front QPSK 20MHz 1RB 99offset 20175ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.34 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 1.13 W/kg
SAR(1 g) = 0.666 W/kg; SAR(10 g) = 0.388 W/kg
Maximum value of SAR (measured) = 0.925 W/kg



0 dB = 0.925 W/kg = −0.34 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Kids Watch
Liquid Temperature:	20.8 ℃
Ambient Temperature:	21.2 ℃
Test Date:	03/20/2019
Plot No.:	3

DUT: IF-W522T

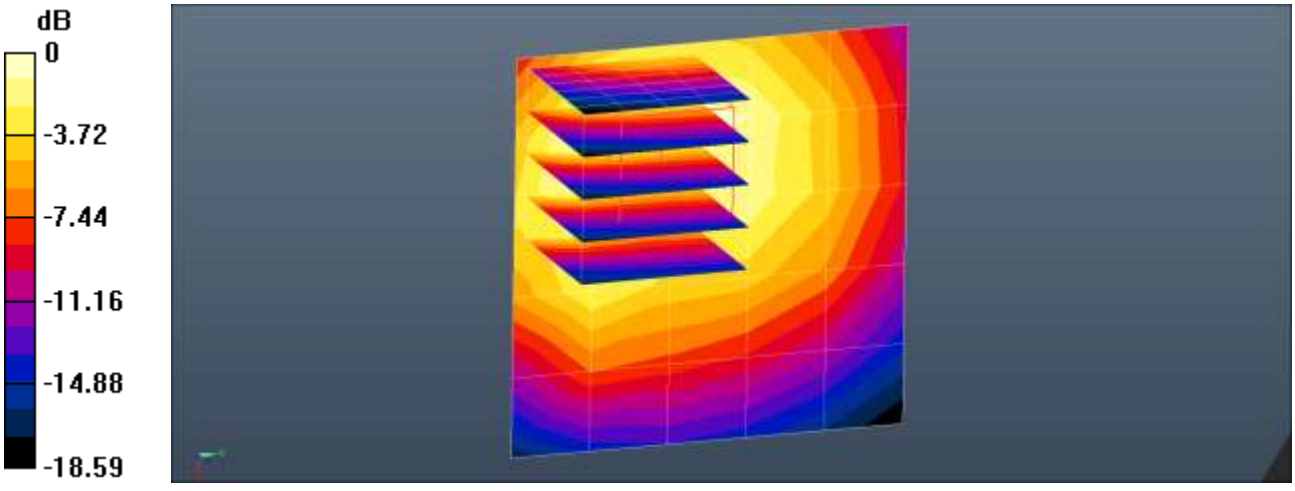
Communication System: UID 0, LTE 12 (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.854 S/m; ε_r = 42.379; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN7370; ConvF(10.35, 10.35, 10.35); Calibrated: 2018-08-30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2018-04-20
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.8 (8);

IF-W522T/LTE Band 12 Body Front QPSK 10MHz 1RB 24offset 23095ch/Area Scan (6x6x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.440 W/kg

IF-W522T/LTE Band 12 Body Front QPSK 10MHz 1RB 24offset 23095ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.70 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.576 W/kg
SAR(1 g) = 0.311 W/kg; SAR(10 g) = 0.191 W/kg
Maximum value of SAR (measured) = 0.482 W/kg



0 dB = 0.440 W/kg = −3.57 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Kids Watch
Liquid Temperature:	20.2 ℃
Ambient Temperature:	20.5 ℃
Test Date:	03/21/2019
Plot No.:	4

DUT: IF-W522T

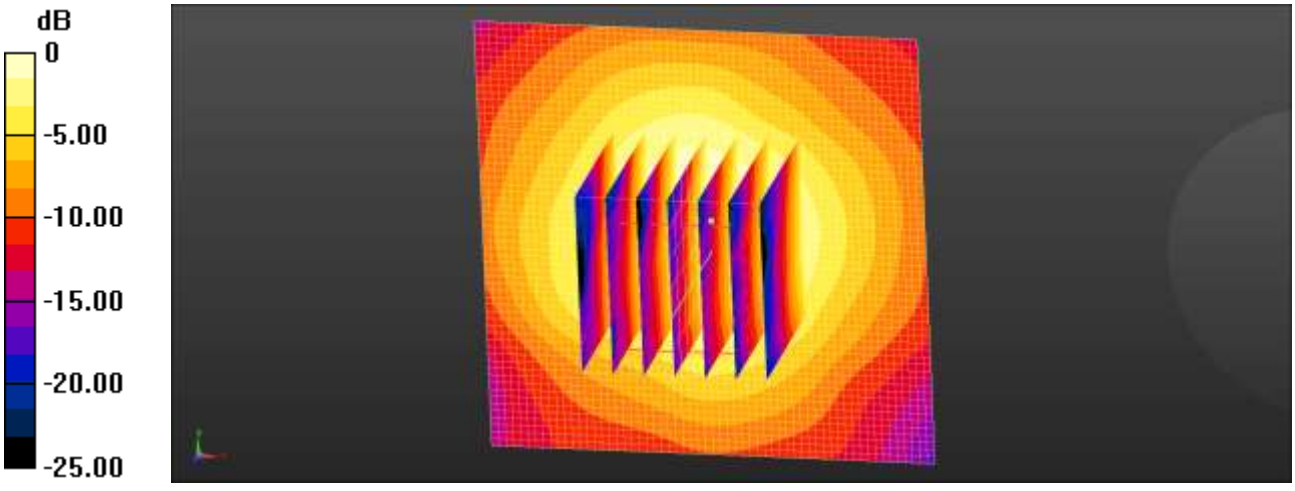
Communication System: UID 0, 2450MHz FCC (0); Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.787 S/m; ε_r = 38.418; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN7370; ConvF(7.27, 7.27, 7.27); Calibrated: 2018-08-30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2018-04-20
- Phantom: Twin-SAM V4.0
- Measurement SW: DASY52, Version 52.10 (2);

IF-W522T/802.11b Body Front 1Mbps 6ch/Area Scan (61x61x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.104 W/kg

IF-W522T/802.11b Body Front 1Mbps 6ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.965 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.119 W/kg
SAR(1 g) = 0.062 W/kg; SAR(10 g) = 0.033 W/kg
Maximum value of SAR (measured) = 0.0971 W/kg



0 dB = 0.0971 W/kg = −10.13 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Kids Watch
Liquid Temperature:	20.2 ℃
Ambient Temperature:	20.5 ℃
Test Date:	03/21/2019
Plot No.:	5

DUT: IF-W522T

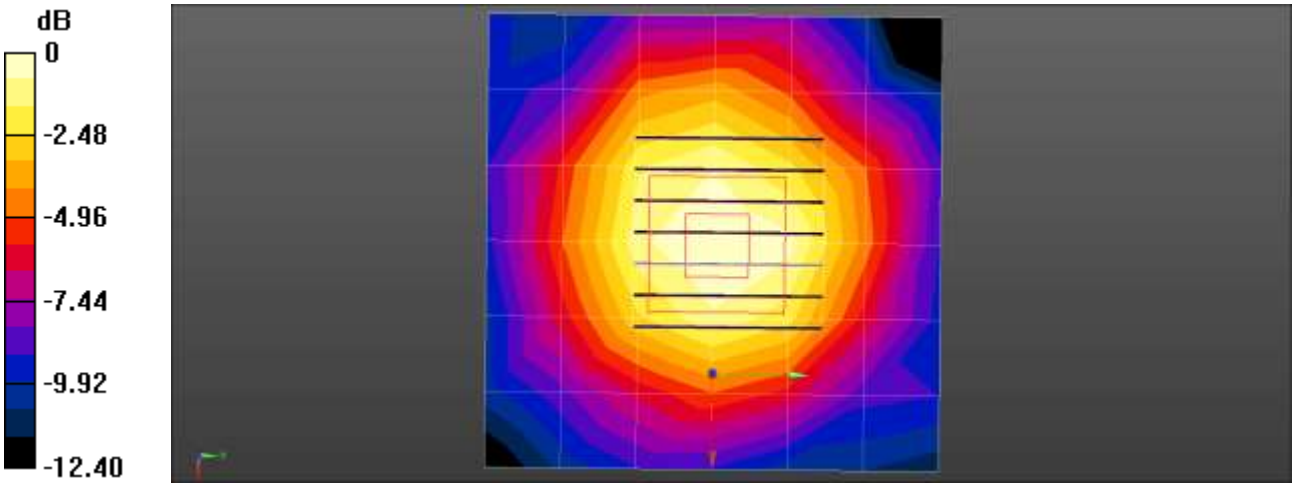
Communication System: UID 0, Bluetooth (0); Frequency: 2441 MHz;Duty Cycle: 1:1.299
Medium parameters used (interpolated): f = 2441 MHz; σ = 1.791 S/m; ε_r = 38.404; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN7370; ConvF(7.27, 7.27, 7.27); Calibrated: 2018-08-30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2018-04-20
- Phantom: Twin-SAM V4.0
- Measurement SW: DASY52, Version 52.10 (2);

IF-W522T/BT Body Front DH5 39ch/Area Scan (7x7x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.0696 W/kg

IF-W522T/BT Body Front DH5 39ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.667 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.0820 W/kg
SAR(1 g) = 0.043 W/kg; SAR(10 g) = 0.023 W/kg
Maximum value of SAR (measured) = 0.0657 W/kg



0 dB = 0.0657 W/kg = −11.82 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Kids Watch
Liquid Temperature:	19.5 ℃
Ambient Temperature:	19.9 ℃
Test Date:	03/18/2019
Plot No.:	6

DUT: IF-W522T

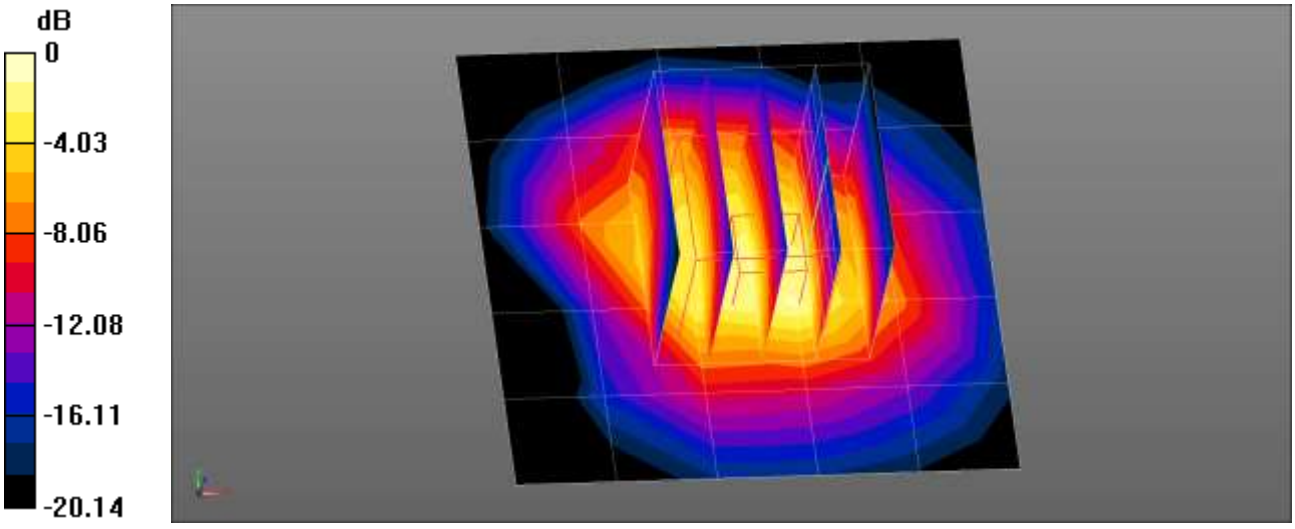
Communication System: UID 0, LTE Band 2 (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.579 S/m; ε_r = 53.716; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(7.84, 7.84, 7.84); Calibrated: 2018-04-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2018-05-25
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

IF-W522T/LTE Band 2 Body Rear QPSK 20MHz 1RB 49offset 19100ch/Area Scan (6x6x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.97 W/kg

IF-W522T/LTE Band 2 Body Rear QPSK 20MHz 1RB 49offset 19100ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 38.71 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 3.43 W/kg
SAR(1 g) = 1.59 W/kg; SAR(10 g) = 0.820 W/kg
Maximum value of SAR (measured) = 2.59 W/kg



0 dB = 2.59 W/kg = 4.13 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Kids Watch
Liquid Temperature:	19.5 ℃
Ambient Temperature:	19.9 ℃
Test Date:	03/18/2019
Plot No.:	7

DUT: IF-W522T

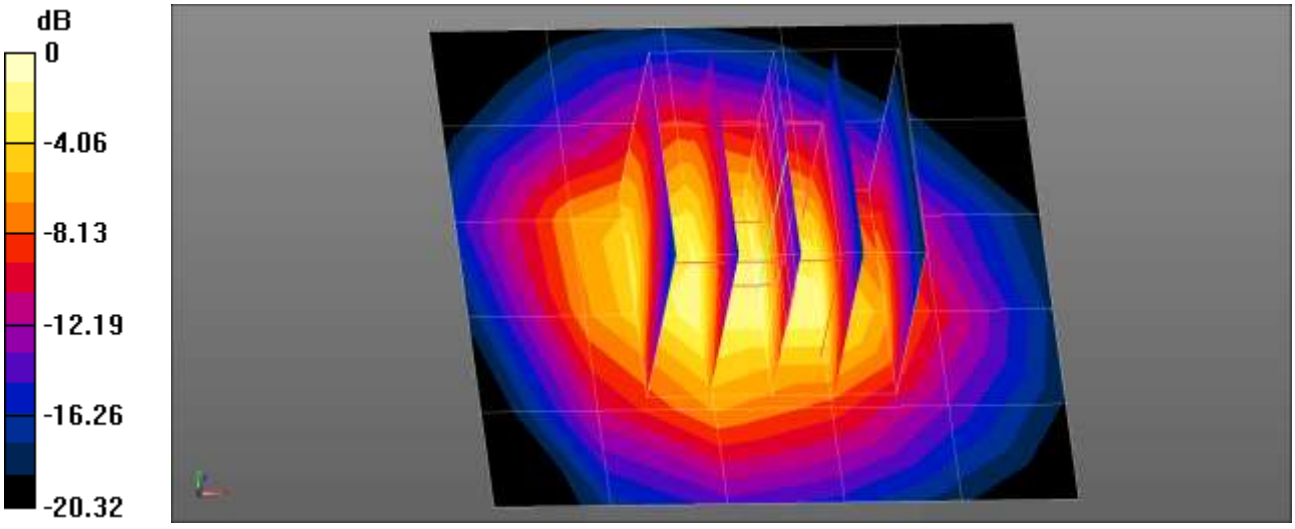
Communication System: UID 0, LTE Band 4 (0); Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.423 S/m; ε_r = 54.288; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(8.18, 8.18, 8.18); Calibrated: 2018-04-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2018-05-25
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

IF-W522T/LTE Band 4 Body Rear QPSK 20MHz 1RB 99offset 20175ch/Area Scan (6x6x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.35 W/kg

IF-W522T/LTE Band 4 Body Rear QPSK 20MHz 1RB 99offset 20175ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 47.32 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 3.96 W/kg
SAR(1 g) = 2.09 W/kg; SAR(10 g) = 1.09 W/kg
Maximum value of SAR (measured) = 3.31 W/kg



0 dB = 3.31 W/kg = 5.20 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Kids Watch
Liquid Temperature:	20.8 ℃
Ambient Temperature:	21.1 ℃
Test Date:	03/19/2019
Plot No.:	8

DUT: IF-W522T

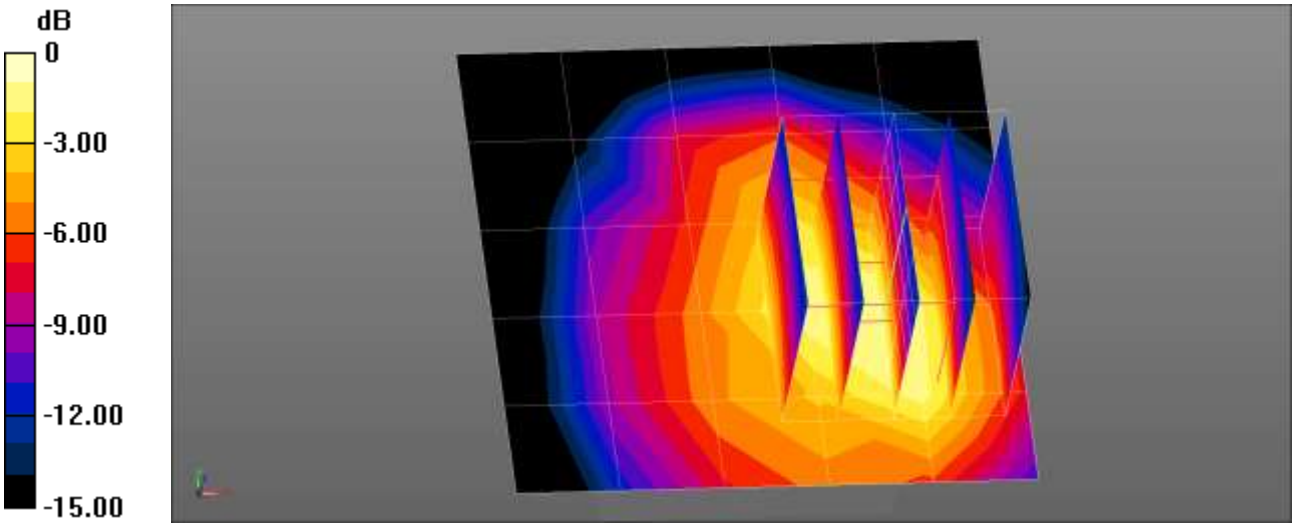
Communication System: UID 0, LTE 12 (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.929 S/m; ε_r = 57.848; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(10.02, 10.02, 10.02); Calibrated: 2018-04-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2018-05-25
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

IF-W522T/LTE Band 12 Body Rear QPSK 10MHz 1RB 24offset 23095ch/Area Scan (6x6x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.27 W/kg

IF-W522T/LTE Band 12 Body Rear QPSK 10MHz 1RB 24offset 23095ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.82 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 2.03 W/kg
SAR(1 g) = 1.07 W/kg; SAR(10 g) = 0.615 W/kg
Maximum value of SAR (measured) = 1.67 W/kg



0 dB = 1.67 W/kg = 2.23 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Kids Watch
Liquid Temperature:	20.1 ℃
Ambient Temperature:	20.5 ℃
Test Date:	03/21/2019
Plot No.:	9

DUT: IF-W522T

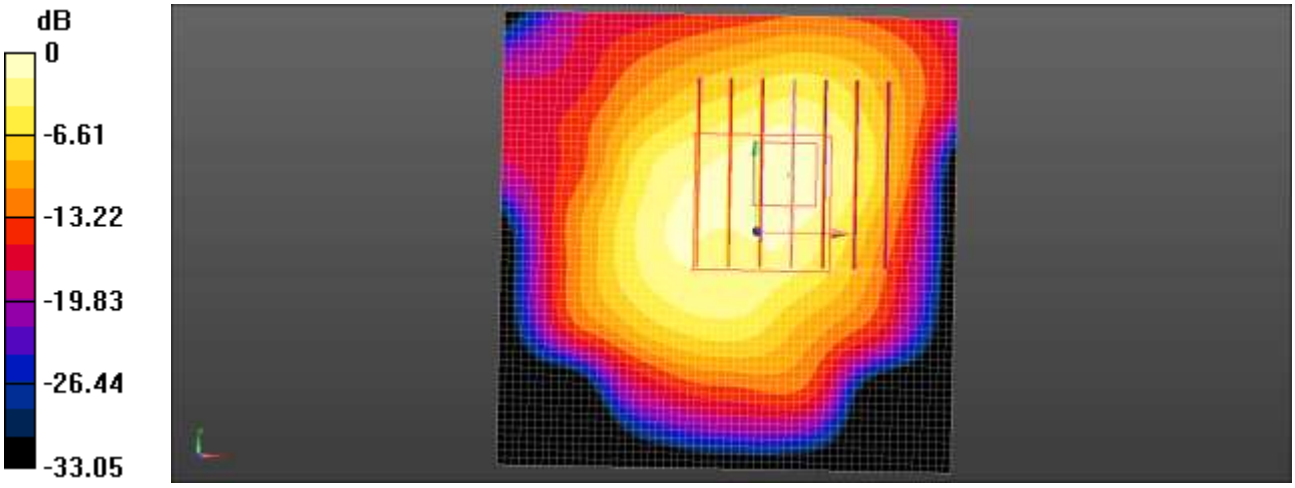
Communication System: UID 0, 2450MHz FCC (0); Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.889 S/m; ε_r = 52.672; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN7370; ConvF(7.45, 7.45, 7.45); Calibrated: 2018-08-30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2018-04-20
- Phantom: MFP_V5.1C
- Measurement SW: DASY52, Version 52.10 (2);

IF-W522T/802.11b Body Rear 1Mbps 6ch/Area Scan (61x61x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.231 W/kg

IF-W522T/802.11b Body Rear 1Mbps 6ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.379 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.274 W/kg
SAR(1 g) = 0.100 W/kg; SAR(10 g) = 0.050 W/kg
Maximum value of SAR (measured) = 0.202 W/kg



0 dB = 0.202 W/kg = −6.95 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Kids Watch
Liquid Temperature:	20.1 ℃
Ambient Temperature:	20.5 ℃
Test Date:	03/21/2019
Plot No.:	10

DUT: IF-W522T

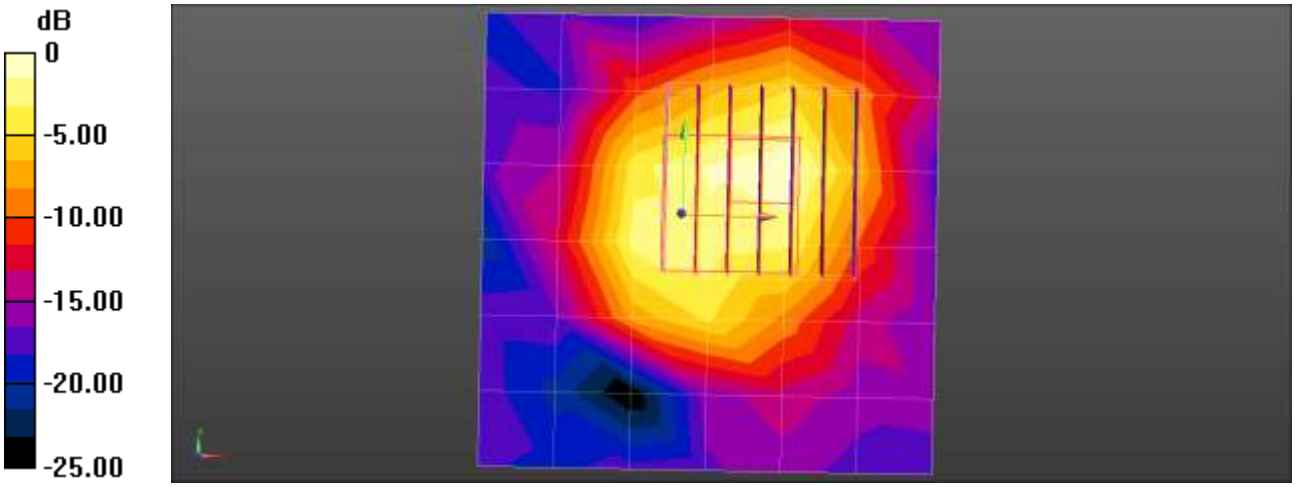
Communication System: UID 0, Bluetooth (0); Frequency: 2441 MHz;Duty Cycle: 1:1.299
Medium parameters used (interpolated): f = 2441 MHz; σ = 1.895 S/m; ε_r = 52.954; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN7370; ConvF(7.45, 7.45, 7.45); Calibrated: 2018-08-30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2018-04-20
- Phantom: MFP_V5.1C
- Measurement SW: DASY52, Version 52.10 (2);

IF-W522T/BT Body Rear DH5 39ch/Area Scan (7x7x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.118 W/kg

IF-W522T/BT Body Rear DH5 39ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.460 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.167 W/kg
SAR(1 g) = 0.059 W/kg; SAR(10 g) = 0.030 W/kg



0 dB = 0.118 W/kg = −9.28 dBW/kg

Attachment 2. – Dipole Verification Plots

■ Verification Data (750 MHz Head Liquid (Next-to-Mouth) 1g SAR))

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.8 ℃
Test Date:	03/20/2019

DUT: Dipole 750 MHz; Type: D750V3

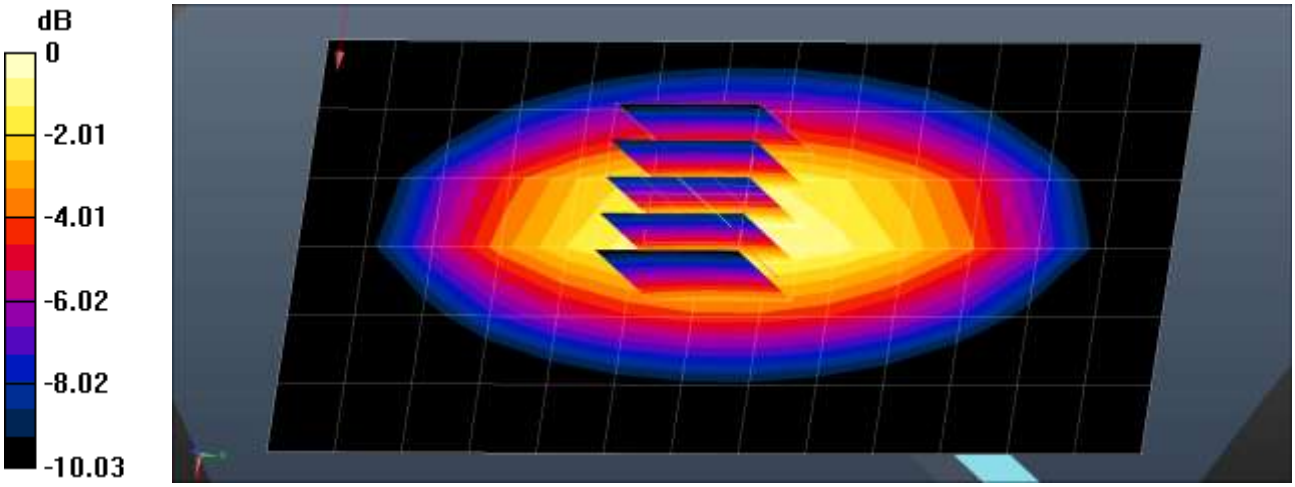
Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.902 S/m; ε_r = 41.678; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN7370; ConvF(10.35, 10.35, 10.35); Calibrated: 2018-08-30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2018-04-20
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/750 MHz Verification/Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.441 W/kg

Dipole/750 MHz Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.49 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.540 W/kg
SAR(1 g) = 0.375 W/kg; SAR(10 g) = 0.250 W/kg
Maximum value of SAR (measured) = 0.491 W/kg



0 dB = 0.491 W/kg = −3.09 dBW/kg

■ Verification Data (1 800 MHz Head Liquid (Next-to-Mouth) 1g SAR))

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.8 ℃
Test Date:	03/20/2019

DUT: Dipole 1800 MHz; Type: D1800V2

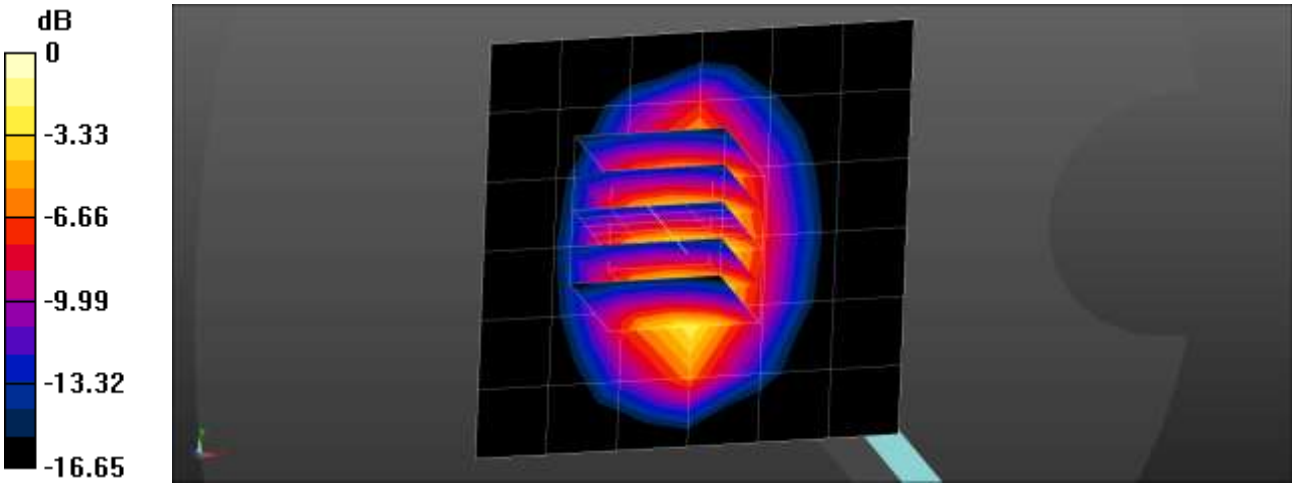
Communication System: UID 0, CW (0); Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.356 S/m; ε_r = 39.139; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN7370; ConvF(8.56, 8.56, 8.56); Calibrated: 2018-08-30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2018-04-20
- Phantom: Twin-SAM V8.0
- Measurement SW: DASY52, Version 52.10 (2);

Dipole/1 800 MHz Verification/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.77 W/kg

Dipole/1 800 MHz Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 46.79 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 3.39 W/kg
SAR(1 g) = 1.87 W/kg; SAR(10 g) = 1 W/kg
Maximum value of SAR (measured) = 2.87 W/kg



0 dB = 2.87 W/kg = 4.58 dBW/kg

■ Verification Data (1 900 MHz Head Liquid (Next-to-Mouth) 1g SAR))

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.8 ℃
Test Date:	03/20/2019

DUT: Dipole 1900 MHz; Type: D1900V2

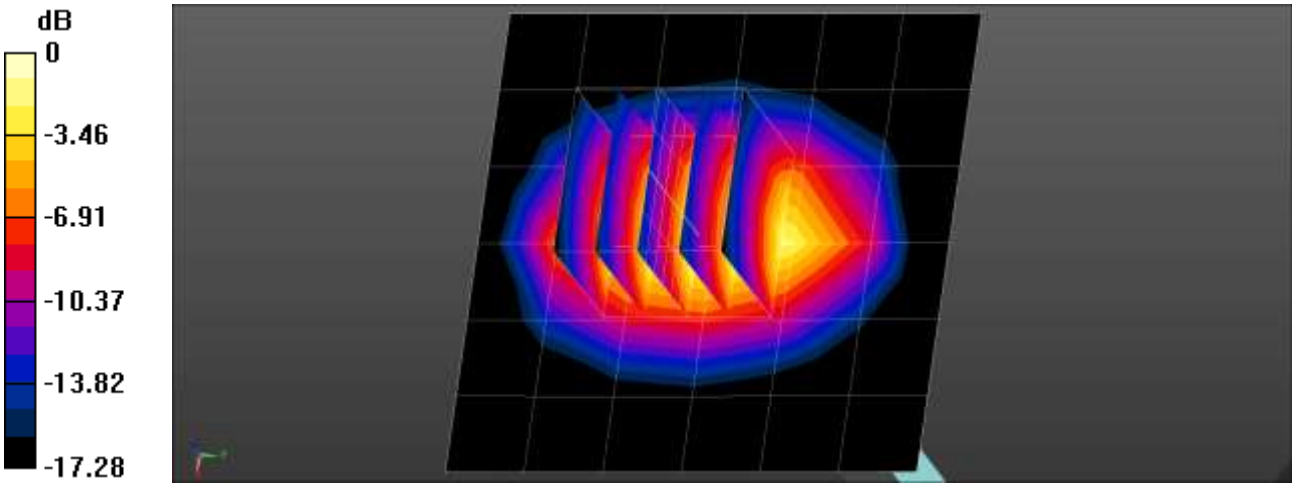
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.449 S/m; ε_r = 38.746; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN7370; ConvF(8.13, 8.13, 8.13); Calibrated: 2018-08-30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2018-04-20
- Phantom: Twin-SAM V8.0
- Measurement SW: DASY52, Version 52.10 (2);

Dipole/1 900 MHz Verification/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.93 W/kg

Dipole/1 900 MHz Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 46.63 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 3.62 W/kg
SAR(1 g) = 1.96 W/kg; SAR(10 g) = 1.03 W/kg
Maximum value of SAR (measured) = 3.04 W/kg



0 dB = 3.04 W/kg = 4.83 dBW/kg

■ Verification Data (2 450 MHz Head Liquid (Next-to-Mouth) 1g SAR))

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 20.2 ℃
Test Date: 03/21/2019

DUT: Dipole 2450 MHz; Type: D2450V2

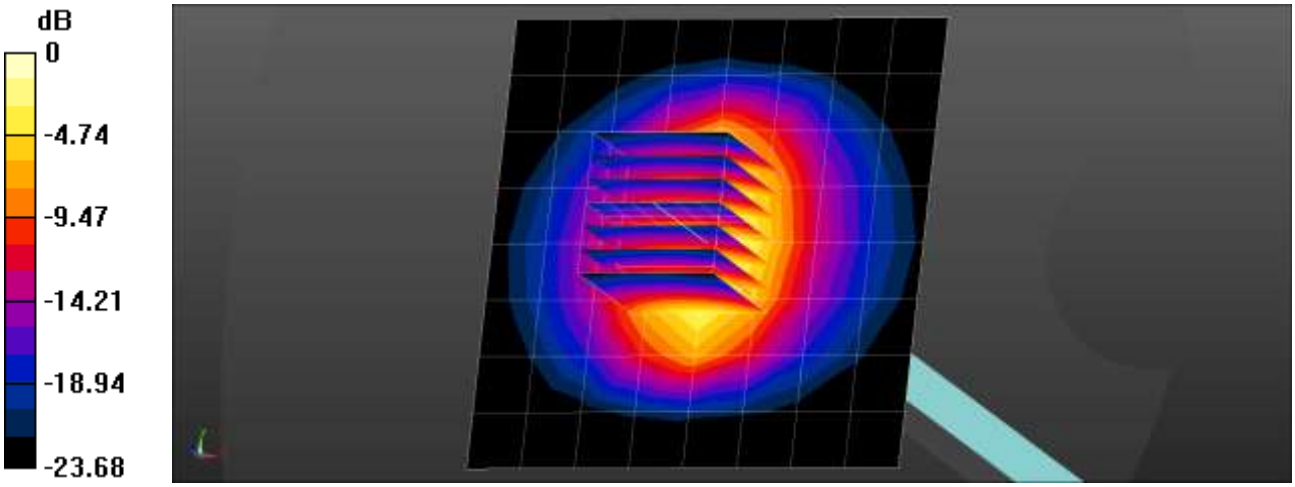
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.798 S/m; ε_r = 38.404; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN7370; ConvF(7.27, 7.27, 7.27); Calibrated: 2018-08-30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2018-04-20
- Phantom: Twin-SAM V4.0
- Measurement SW: DASY52, Version 52.10 (2);

Dipole/2 450 MHz Verification/Area Scan (9x9x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 4.52 W/kg

Dipole/2 450 MHz Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.13 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 5.75 W/kg
SAR(1 g) = 2.59 W/kg; SAR(10 g) = 1.17 W/kg
Maximum value of SAR (measured) = 4.51 W/kg



0 dB = 4.51 W/kg = 6.54 dBW/kg

■ Verification Data (750 MHz Body Liquid (Extremity) 10g SAR)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.8 ℃
Test Date:	03/19/2019

DUT: Dipole 750 MHz; Type: D750V3

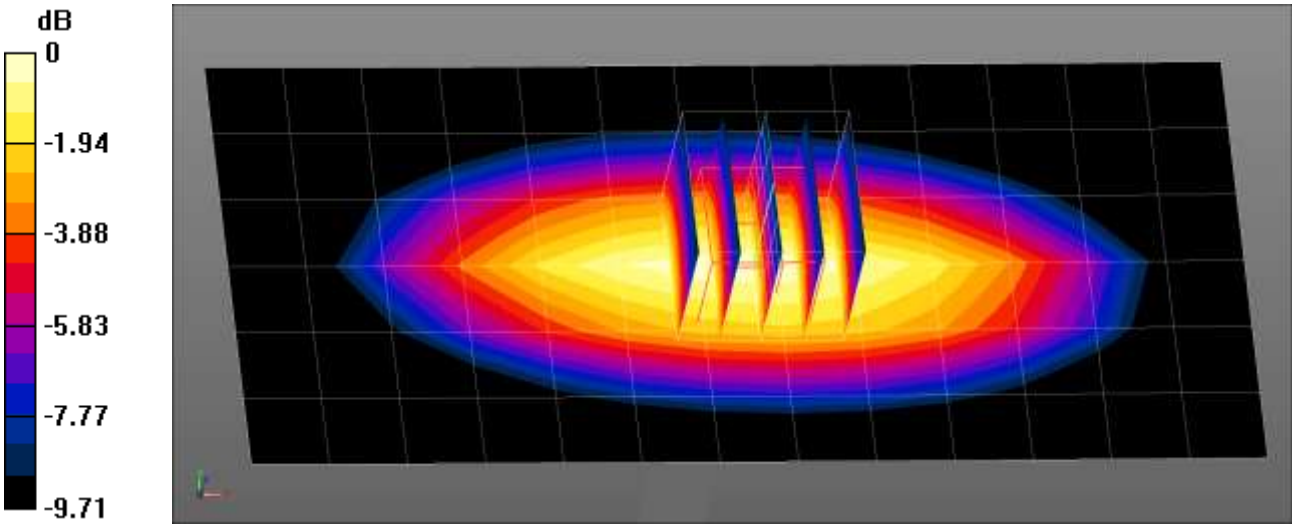
Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.97 S/m; ε_r = 57.421; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(10.02, 10.02, 10.02); Calibrated: 2018-04-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2018-05-25
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/750 MHz Verification/Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.514 W/kg

Dipole/750 MHz Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.50 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.590 W/kg
SAR(1 g) = 0.400 W/kg; SAR(10 g) = 0.265 W/kg
Maximum value of SAR (measured) = 0.523 W/kg



0 dB = 0.523 W/kg = −2.81 dBW/kg

■ Verification Data (1 800 MHz Body Liquid (Extremity) 10g SAR)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	19.5 ℃
Test Date:	03/18/2019

DUT: Dipole 1800 MHz; Type: D1800V2

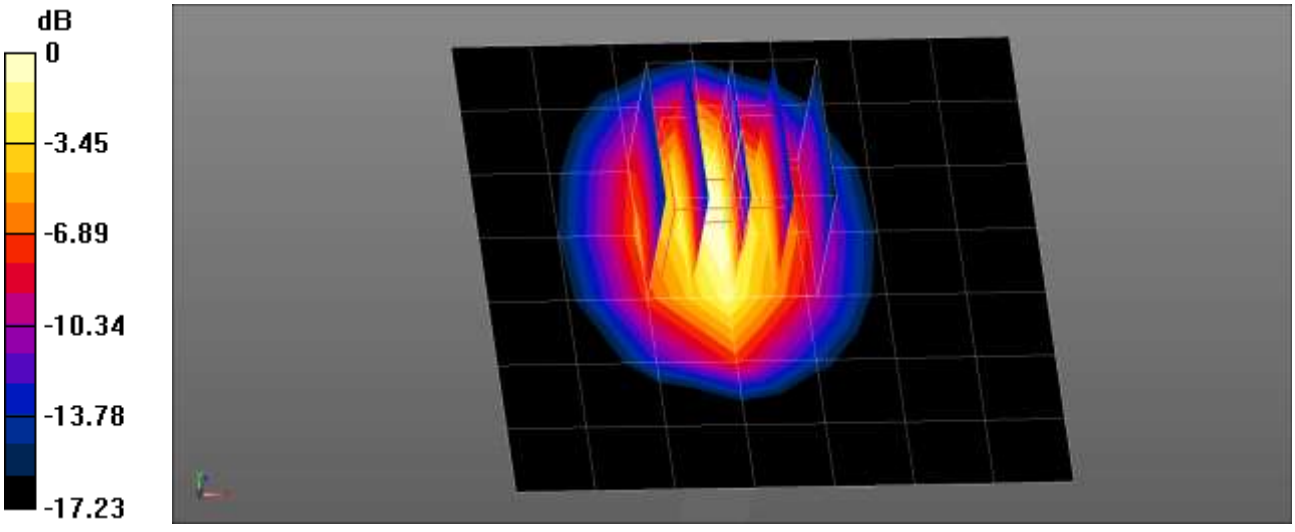
Communication System: UID 0, CW (0); Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.49 S/m; ε_r = 54.02; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(8.18, 8.18, 8.18); Calibrated: 2018-04-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2018-05-25
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/1 800 MHz Verification/Area Scan (8x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.74 W/kg

Dipole/1 800 MHz Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 31.69 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 3.25 W/kg
SAR(1 g) = 1.87 W/kg; SAR(10 g) = 0.969 W/kg
Maximum value of SAR (measured) = 2.71 W/kg



0 dB = 2.71 W/kg = 4.33 dBW/kg

■ Verification Data (1 900 MHz Body Liquid (Extremity) 10g SAR)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	19.5 ℃
Test Date:	03/18/2019

DUT: Dipole 1900 MHz; Type: D1900V2

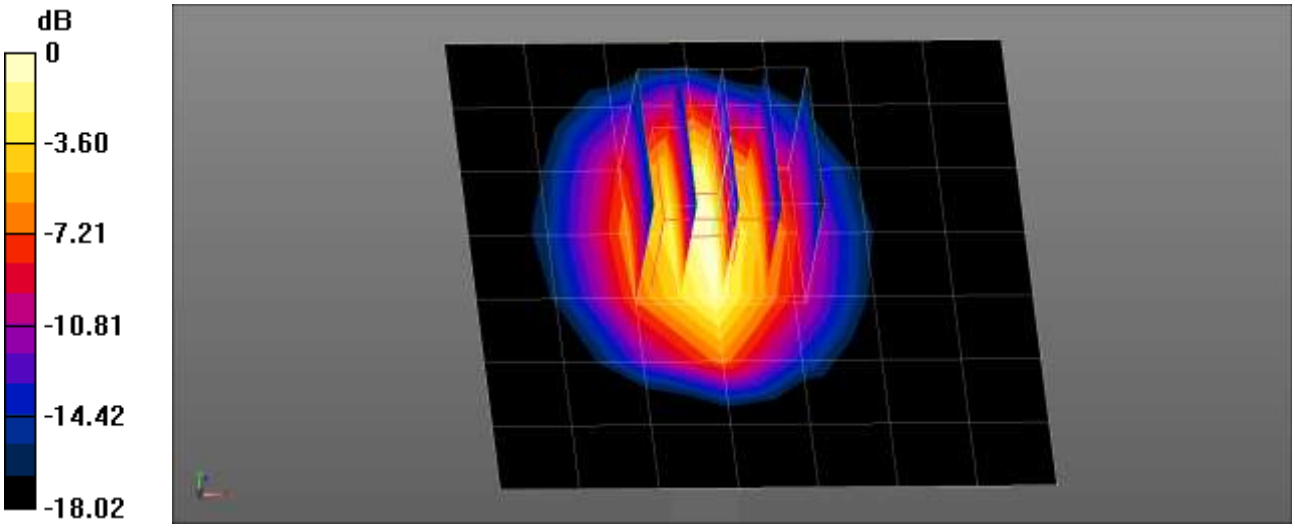
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.579 S/m; ε_r = 53.716; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(7.84, 7.84, 7.84); Calibrated: 2018-04-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2018-05-25
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/1 900 MHz Verification/Area Scan (8x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.83 W/kg

Dipole/1 900 MHz Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 30.95 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 3.44 W/kg
SAR(1 g) = 1.83 W/kg; SAR(10 g) = 0.943 W/kg
Maximum value of SAR (measured) = 2.79 W/kg



0 dB = 2.79 W/kg = 4.46 dBW/kg

■ Verification Data (2 450 MHz Body Liquid (Extremity) 10g SAR)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.1 ℃
Test Date:	03/21/2019

DUT: Dipole 2450 MHz; Type: D2450V2

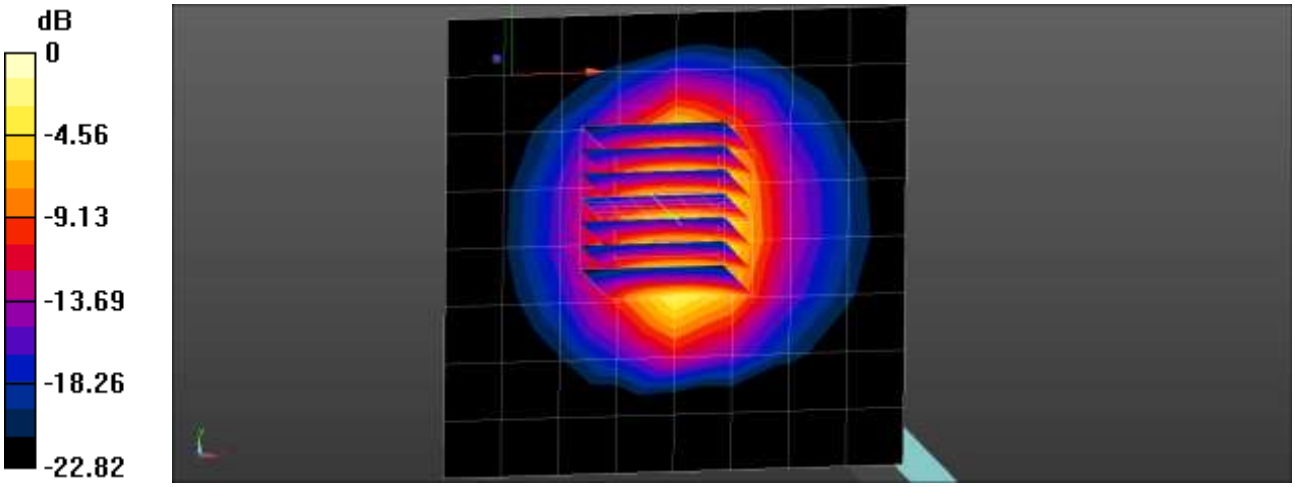
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.908 S/m; ε_r = 52.914; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN7370; ConvF(7.45, 7.45, 7.45); Calibrated: 2018-08-30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2018-04-20
- Phantom: MFP_V5.1C
- Measurement SW: DASY52, Version 52.10 (2);

Dipole/2 450 MHz Verification/Area Scan (9x9x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 3.94 W/kg

Dipole/2 450 MHz Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 47.27 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 5.30 W/kg
SAR(1 g) = 2.47 W/kg; SAR(10 g) = 1.12 W/kg
Maximum value of SAR (measured) = 4.21 W/kg



0 dB = 4.21 W/kg = 6.24 dBW/kg

Attachment 3. – SAR Tissue Characterization

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Ingredients (% by weight)	Frequency (MHz)							
	750		1 750		1 900		2 450 – 2 700	
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body
Water	41.1	51.7	52.6	68.8	54.9	70.17	71.88	73.2
Salt (NaCl)	1.4	0.9	0.4	0.2	0.18	0.39	0.16	0.1
Sugar	57.0	47.2	0.0	0.0	0.0	0	0.0	0.0
HEC	0.2	0	0.0	0.0	0.0	0	0.0	0.0
Bactericide	0.2	0.1	0.0	0.0	0.0	0	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0	19.97	0.0
DGBE	0.0	0.0	47	31	44.92	29.44	7.99	26.7
Diethylene glycol hexyl ether	-	-	-	-	-	-	-	-

Salt:	99 % Pure Sodium Chloride	Sugar:	98 % Pure Sucrose
Water:	De-ionized, 16M resistivity	HEC:	Hydroxyethyl Cellulose
DGBE:	99 % Di(ethylene glycol) butyl ether,[2-(2-butoxyethoxy) ethanol]		
Triton X-100(ultra-pure):	Polyethylene glycol mono[4-(1,1,3,3-tetramethylbutyl)phenyl] ether		

Composition of the Tissue Equivalent Matter

Attachment 4. – SAR SYSTEM VALIDATION

Per FCC KCB 865664 D02v01r02, SAR system validation status should be document 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 IEEE 1528-2013 and FCC KDB 865664 D01v01r04. 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.

SAR System No.	Probe	Probe Type	Probe Calibration Point		Dipole	Date	Dielectric Parameters		CW Validation			Modulation Validation		
							Measured Permittivity	Measured Conductivity	Sensitivity	Probe Linearity	Probe Isotropy	MOD. Type	Duty Factor	PAR
12	7370	EX3DV4	Head	750	1014	2018-09-10	41.8	0.89	PASS	PASS	PASS	N/A	N/A	N/A
12	7370	EX3DV4	Head	1750	2d007	2018-12-03	40.1	1.39	PASS	PASS	PASS	N/A	N/A	N/A
12	7370	EX3DV4	Head	1900	5d032	2019-03-04	40.1	1.42	PASS	PASS	PASS	N/A	N/A	N/A
12	7370	EX3DV4	Head	2450	743	2019-02-12	39.4	1.81	PASS	PASS	PASS	OFDM	N/A	PASS

SAR System Validation Summary 1g

SAR System No.	Probe	Probe Type	Probe Calibration Point		Dipole	Date	Dielectric Parameters		CW Validation			Modulation Validation		
							Measured Permittivity	Measured Conductivity	Sensitivity	Probe Linearity	Probe Isotropy	MOD. Type	Duty Factor	PAR
1	3863	EX3DV4	Body	750	1014	2018-08-24	55.7	0.97	PASS	PASS	PASS	N/A	N/A	N/A
1	3863	EX3DV4	Body	1750	2d007	2018-12-03	53.5	1.52	PASS	PASS	PASS	N/A	N/A	N/A
1	3863	EX3DV4	Body	1900	5d032	2019-03-04	53.5	1.52	PASS	PASS	PASS	N/A	N/A	N/A
12	7370	EX3DV4	Body	2450	743	2019-02-11	52.8	1.94	PASS	PASS	PASS	OFDM	N/A	PASS

SAR System Validation Summary – Extremity SAR Considerations

Note;

All measurement were performed using probes calibrated for CW signal only. Modulations in the table above represent test configurations for which the measurement system has been validated per FCC KDB Publication 865664 D01v01r04. SAR system 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 KDB 865664 D01v01r04.

Attachment 5. – Probe Calibration Data

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 HCT (Dymstec) Certificate No: EX3-7370_Aug18

CALIBRATION CERTIFICATE

Object EX3DV4 - SN:7370

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

Calibration date: August 30, 2018

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

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

Calibration Equipment used (M&TE critical for calibration)

결재	담 당 자	확 인 자
직위/성명	SW / 가대수	GJ / 가대기
일 자	2018 / 9. 12	2018 / 9. 12

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

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

Issued: August 30, 2018

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

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

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

Probe EX3DV4

SN:7370

Manufactured: March 17, 2015
Calibrated: August 30, 2018

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

EX3DV4– SN:7370 August 30, 2018

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7370

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.46	0.50	0.42	± 10.1 %
DCP (mV)[B]	96.3	107.2	89.4	

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	136.0	±2.7 %
		Y	0.0	0.0	1.0		138.5	
		Z	0.0	0.0	1.0		140.7	

Note: For details on UID parameters see Appendix.

Sensor Model Parameters

	C1 fF	C2 fF	α V^{-1}	T1 $ms.V^{-2}$	T2 $ms.V^{-1}$	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
X	45.51	356.7	38.72	6.408	0.348	5.061	0.000	0.493	1.009
Y	33.24	238.1	33.10	6.587	0.000	5.006	1.247	0.113	1.002
Z	39.36	309.7	38.99	4.847	0.416	5.057	0.000	0.384	1.011

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

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

EX3DV4– SN:7370 August 30, 2018

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7370

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)
150	52.3	0.76	12.93	12.93	12.93	0.00	1.00	± 13.3 %
450	43.5	0.87	10.96	10.96	10.96	0.13	1.25	± 13.3 %
750	41.9	0.89	10.35	10.35	10.35	0.58	0.84	± 12.0 %
835	41.5	0.90	10.02	10.02	10.02	0.55	0.84	± 12.0 %
900	41.5	0.97	9.72	9.72	9.72	0.51	0.85	± 12.0 %
1450	40.5	1.20	8.69	8.69	8.69	0.38	0.80	± 12.0 %
1750	40.1	1.37	8.56	8.56	8.56	0.38	0.84	± 12.0 %
1900	40.0	1.40	8.13	8.13	8.13	0.34	0.84	± 12.0 %
2450	39.2	1.80	7.27	7.27	7.27	0.37	0.80	± 12.0 %
2600	39.0	1.96	7.11	7.11	7.11	0.29	0.92	± 12.0 %
3500	37.9	2.91	7.23	7.23	7.23	0.27	1.20	± 13.1 %
3700	37.7	3.12	7.11	7.11	7.11	0.25	1.20	± 13.1 %
5250	35.9	4.71	5.10	5.10	5.10	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.57	4.57	4.57	0.40	1.80	± 13.1 %
5750	35.4	5.22	4.80	4.80	4.80	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.

EX3DV4– SN:7370 August 30, 2018

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7370

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)
150	61.9	0.80	12.53	12.53	12.53	0.00	1.00	± 13.3 %
450	56.7	0.94	11.17	11.17	11.17	0.08	1.25	± 13.3 %
750	55.5	0.96	9.98	9.98	9.98	0.36	1.01	± 12.0 %
835	55.2	0.97	9.78	9.78	9.78	0.43	0.88	± 12.0 %
1750	53.4	1.49	8.04	8.04	8.04	0.37	0.87	± 12.0 %
1900	53.3	1.52	7.63	7.63	7.63	0.41	0.87	± 12.0 %
2450	52.7	1.95	7.45	7.45	7.45	0.37	0.84	± 12.0 %
2600	52.5	2.16	7.33	7.33	7.33	0.35	0.88	± 12.0 %
3500	51.3	3.31	7.10	7.10	7.10	0.28	1.25	± 13.1 %
3700	51.0	3.55	7.00	7.00	7.00	0.25	1.25	± 13.1 %
5250	48.9	5.36	4.63	4.63	4.63	0.50	1.90	± 13.1 %
5600	48.5	5.77	4.07	4.07	4.07	0.50	1.90	± 13.1 %
5750	48.3	5.94	4.23	4.23	4.23	0.50	1.90	± 13.1 %

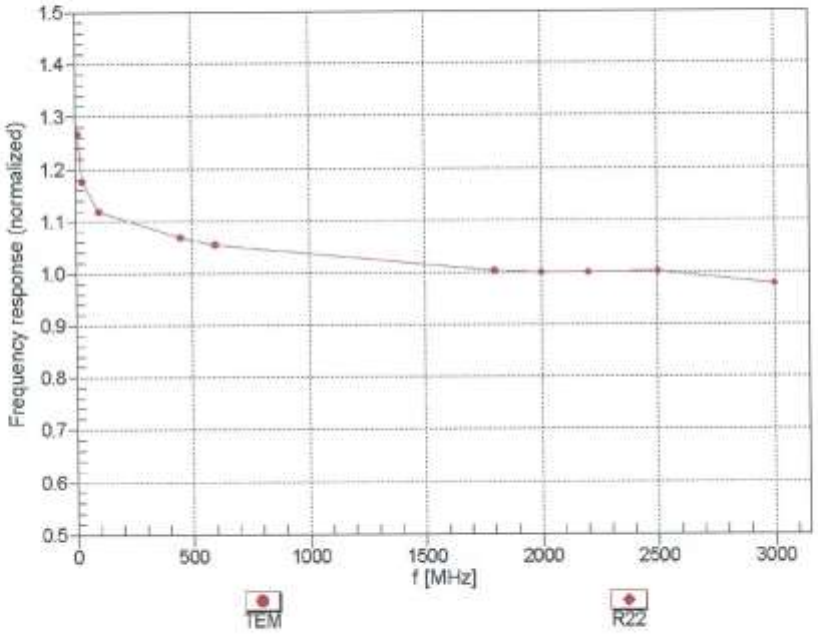
[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz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

EX3DV4– SN:7370 August 30, 2018

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

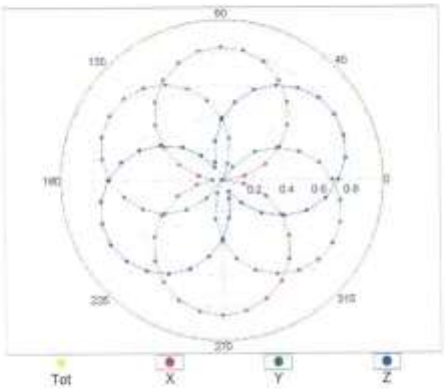


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

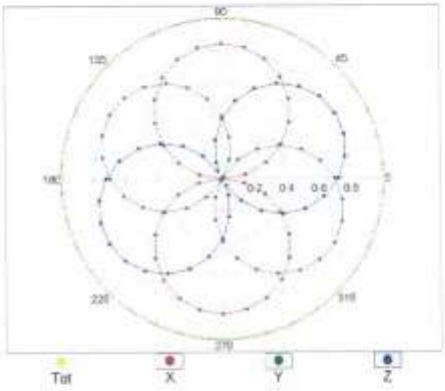
EX3DV4– SN:7370 August 30, 2018

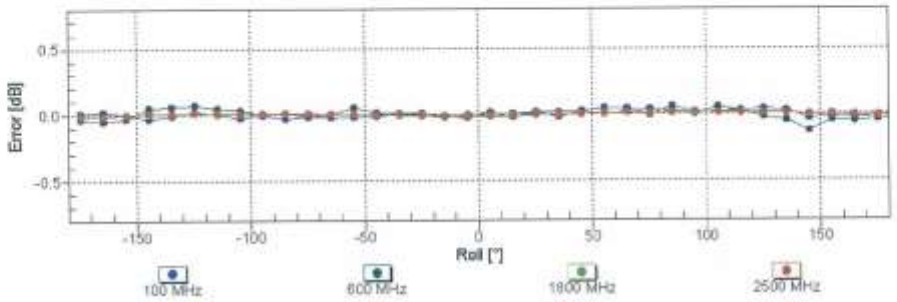
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



f=1800 MHz,R22

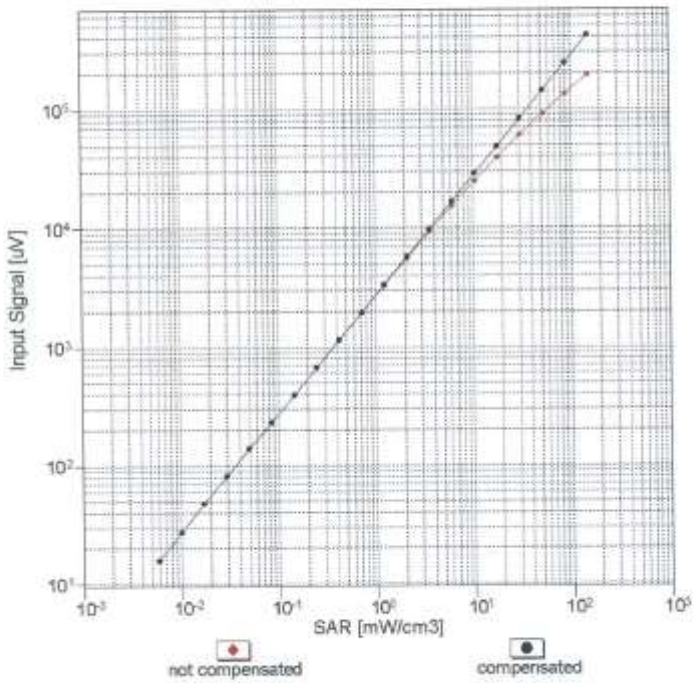


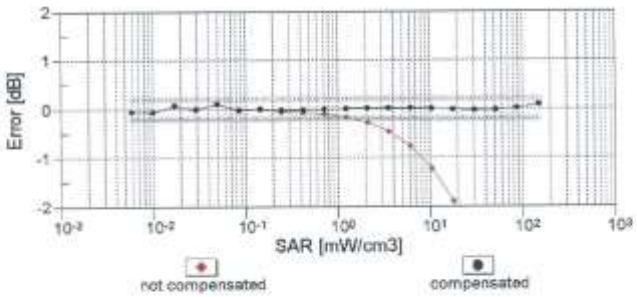


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

EX3DV4– SN:7370 August 30, 2018

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



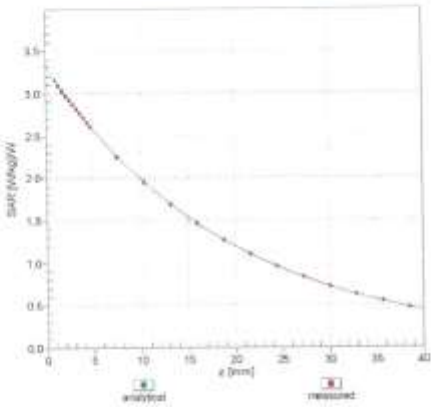


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

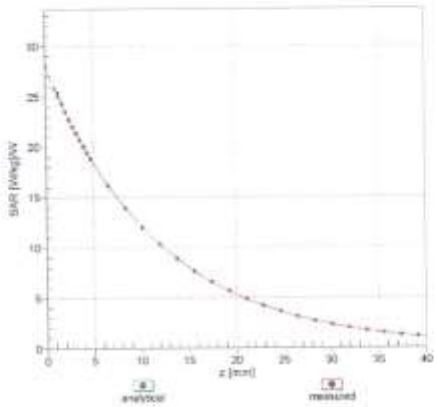
EX3DV4– SN:7370 August 30, 2018

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

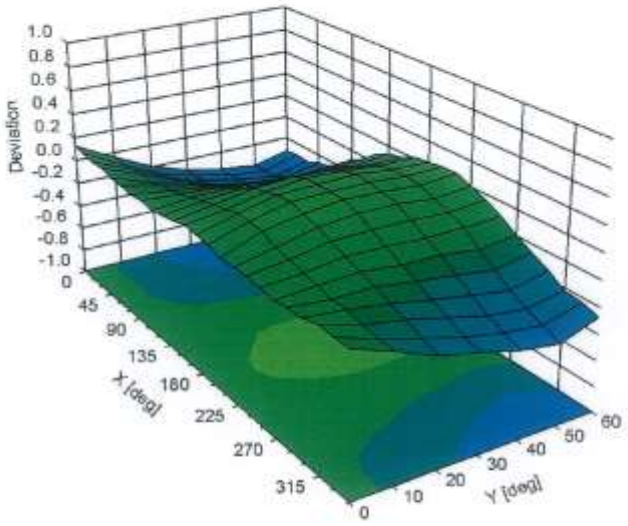


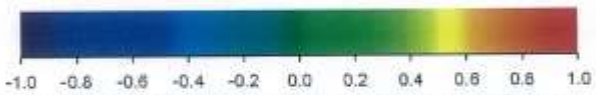
f = 1900 MHz,WGLS R22 (H_convF)



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:7370

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	95.4
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

EX3DV4– SN:7370 August 30, 2018

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	136.0	± 2.7 %
		Y	0.00	0.00	1.00		138.5	
		Z	0.00	0.00	1.00		140.7	
10010-CAA	SAR Validation (Square, 100ms, 10ms)	X	1.50	62.00	7.46	10.00	20.0	± 9.6 %
		Y	1.53	62.62	7.66		20.0	
		Z	1.52	61.84	7.36		20.0	
10011-CAB	UMTS-FDD (WCDMA)	X	0.88	65.99	13.94	0.00	150.0	± 9.6 %
		Y	0.97	67.22	14.99		150.0	
		Z	0.83	65.71	13.57		150.0	
10012-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	1.03	62.84	14.58	0.41	150.0	± 9.6 %
		Y	1.12	63.60	14.85		150.0	
		Z	1.00	62.73	14.42		150.0	
10013-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	X	4.74	66.35	16.99	1.46	150.0	± 9.6 %
		Y	4.60	66.71	16.78		150.0	
		Z	4.64	66.40	16.96		150.0	
10021-DAC	GSM-FDD (TDMA, GMSK)	X	100.00	106.57	23.30	9.39	50.0	± 9.6 %
		Y	100.00	104.00	21.88		50.0	
		Z	89.95	104.94	22.85		50.0	
10023-DAC	GPRS-FDD (TDMA, GMSK, TN 0)	X	99.99	106.25	23.22	9.57	50.0	± 9.6 %
		Y	69.31	99.92	20.89		50.0	
		Z	15.12	85.96	18.02		50.0	
10024-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	100.00	104.46	21.17	6.56	60.0	± 9.6 %
		Y	100.00	104.18	20.91		60.0	
		Z	100.00	103.21	20.57		60.0	
10025-DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	X	3.71	68.31	25.38	12.57	50.0	± 9.6 %
		Y	5.21	80.39	31.82		50.0	
		Z	3.36	64.95	23.17		50.0	
10026-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	X	6.62	86.46	31.07	9.56	60.0	± 9.6 %
		Y	5.89	84.55	30.24		60.0	
		Z	5.85	83.48	29.78		60.0	
10027-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	100.00	102.36	19.47	4.80	80.0	± 9.6 %
		Y	100.00	106.82	21.34		80.0	
		Z	100.00	100.16	18.42		80.0	
10028-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	X	100.00	98.77	17.31	3.55	100.0	± 9.6 %
		Y	100.00	111.89	22.85		100.0	
		Z	100.00	95.09	15.65		100.0	
10029-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	X	4.26	76.45	25.71	7.80	80.0	± 9.6 %
		Y	3.88	74.74	24.74		80.0	
		Z	3.89	74.56	24.85		80.0	
10030-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	X	100.00	101.64	19.47	5.30	70.0	± 9.6 %
		Y	100.00	102.58	19.78		70.0	
		Z	22.76	88.27	15.99		70.0	
10031-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	X	0.22	60.00	3.65	1.88	100.0	± 9.6 %
		Y	100.00	110.86	21.24		100.0	
		Z	0.35	60.00	2.48		100.0	

10032-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	X	9.04	322.12	52.15	1.17	100.0	± 9.6 %
		Y	100.00	130.16	27.87		100.0	
		Z	1.07	249.68	38.02		100.0	
10033-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	X	10.22	94.54	25.16	5.30	70.0	± 9.6 %
		Y	6.33	85.40	20.98		70.0	
		Z	6.88	87.23	22.08		70.0	
10034-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	X	1.92	72.57	15.84	1.88	100.0	± 9.6 %
		Y	1.89	71.98	14.68		100.0	
		Z	1.47	69.01	13.44		100.0	
10035-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	X	1.33	68.68	13.81	1.17	100.0	± 9.6 %
		Y	1.42	69.53	13.46		100.0	
		Z	1.07	66.10	11.71		100.0	
10036-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	X	17.67	103.21	27.73	5.30	70.0	± 9.6 %
		Y	8.85	90.35	22.62		70.0	
		Z	10.66	93.83	24.19		70.0	
10037-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	X	1.78	71.75	15.48	1.88	100.0	± 9.6 %
		Y	1.69	70.76	14.18		100.0	
		Z	1.37	68.29	13.10		100.0	
10038-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	X	1.35	69.06	14.10	1.17	100.0	± 9.6 %
		Y	1.42	69.75	13.70		100.0	
		Z	1.08	66.42	11.99		100.0	
10039-CAB	CDMA2000 (1xRTT, RC1)	X	1.26	67.43	12.60	0.00	150.0	± 9.6 %
		Y	1.34	69.56	13.24		150.0	
		Z	0.94	64.65	10.37		150.0	
10042-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	X	4.11	73.38	12.78	7.78	50.0	± 9.6 %
		Y	100.00	101.33	19.99		50.0	
		Z	2.44	68.41	10.81		50.0	
10044-CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	X	0.19	126.45	3.78	0.00	150.0	± 9.6 %
		Y	0.01	91.99	0.19		150.0	
		Z	0.32	129.63	0.02		150.0	
10048-CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	X	6.76	73.64	15.35	13.80	25.0	± 9.6 %
		Y	5.21	70.23	13.28		25.0	
		Z	5.60	70.87	14.32		25.0	
10049-CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	X	7.11	76.93	15.42	10.79	40.0	± 9.6 %
		Y	5.95	74.39	13.83		40.0	
		Z	5.43	73.53	14.16		40.0	
10056-CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	X	33.01	104.90	27.66	9.03	50.0	± 9.6 %
		Y	33.83	102.67	25.82		50.0	
		Z	18.85	95.08	24.33		50.0	
10058-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	X	3.42	72.27	23.03	6.55	100.0	± 9.6 %
		Y	3.20	71.05	22.20		100.0	
		Z	3.18	70.91	22.40		100.0	
10059-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	X	1.03	63.65	15.08	0.61	110.0	± 9.6 %
		Y	1.12	64.21	15.22		110.0	
		Z	1.00	63.48	14.89		110.0	
10060-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	X	8.06	102.32	26.69	1.30	110.0	± 9.6 %
		Y	2.70	87.23	23.15		110.0	
		Z	5.25	96.17	24.73		110.0	

EX3DV4– SN:7370 August 30, 2018

10061-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	X	1.89	76.19	20.80	2.04	110.0	± 9.6 %
		Y	1.64	73.08	19.27		110.0	
		Z	1.72	74.87	20.14		110.0	
10062-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	X	4.55	66.35	16.41	0.49	100.0	± 9.6 %
		Y	4.42	66.77	16.28		100.0	
		Z	4.45	66.37	16.36		100.0	
10063-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	X	4.56	66.43	16.50	0.72	100.0	± 9.6 %
		Y	4.43	66.84	16.35		100.0	
		Z	4.46	66.46	16.46		100.0	
10064-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	X	4.84	66.71	16.74	0.86	100.0	± 9.6 %
		Y	4.66	67.01	16.54		100.0	
		Z	4.72	66.70	16.69		100.0	
10065-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	X	4.70	66.58	16.83	1.21	100.0	± 9.6 %
		Y	4.52	66.81	16.58		100.0	
		Z	4.58	66.55	16.77		100.0	
10066-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	X	4.71	66.59	16.99	1.46	100.0	± 9.6 %
		Y	4.52	66.77	16.70		100.0	
		Z	4.59	66.56	16.93		100.0	
10067-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	X	5.00	66.77	17.45	2.04	100.0	± 9.6 %
		Y	4.79	67.01	17.15		100.0	
		Z	4.89	66.82	17.42		100.0	
10068-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	X	5.03	66.77	17.65	2.55	100.0	± 9.6 %
		Y	4.81	66.88	17.28		100.0	
		Z	4.91	66.74	17.58		100.0	
10069-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	X	5.11	66.79	17.85	2.67	100.0	± 9.6 %
		Y	4.87	66.88	17.46		100.0	
		Z	4.98	66.79	17.79		100.0	
10071-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	X	4.82	66.41	17.28	1.99	100.0	± 9.6 %
		Y	4.68	66.74	17.04		100.0	
		Z	4.73	66.47	17.26		100.0	
10072-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	X	4.78	66.69	17.48	2.30	100.0	± 9.6 %
		Y	4.61	66.91	17.19		100.0	
		Z	4.69	66.71	17.44		100.0	
10073-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	X	4.83	66.80	17.79	2.83	100.0	± 9.6 %
		Y	4.66	67.04	17.49		100.0	
		Z	4.74	66.85	17.76		100.0	
10074-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	X	4.80	66.66	17.91	3.30	100.0	± 9.6 %
		Y	4.65	66.96	17.63		100.0	
		Z	4.72	66.75	17.90		100.0	
10075-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	X	4.82	66.71	18.20	3.82	90.0	± 9.6 %
		Y	4.66	66.92	17.86		90.0	
		Z	4.74	66.76	18.16		90.0	
10076-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	X	4.83	66.49	18.31	4.15	90.0	± 9.6 %
		Y	4.69	66.79	18.02		90.0	
		Z	4.77	66.60	18.31		90.0	
10077-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	X	4.85	66.55	18.40	4.30	90.0	± 9.6 %
		Y	4.72	66.87	18.12		90.0	
		Z	4.79	66.67	18.41		90.0	

10081-CAB	CDMA2000 (1xRTT, RC3)	X	0.59	62.75	9.56	0.00	150.0	± 9.6 %
		Y	0.65	64.53	10.51		150.0	
		Z	0.46	60.97	7.61		150.0	
10082-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	X	0.74	60.00	2.70	4.77	80.0	± 9.6 %
		Y	0.57	60.00	3.13		80.0	
		Z	7.11	60.20	1.61		80.0	
10090-DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	X	100.00	104.60	21.25	6.56	60.0	± 9.6 %
		Y	100.00	104.15	20.91		60.0	
		Z	100.00	103.36	20.66		60.0	
10097-CAB	UMTS-FDD (HSDPA)	X	1.67	66.79	14.90	0.00	150.0	± 9.6 %
		Y	1.80	68.52	15.58		150.0	
		Z	1.62	66.81	14.63		150.0	
10098-CAB	UMTS-FDD (HSUPA, Subtest 2)	X	1.63	66.73	14.86	0.00	150.0	± 9.6 %
		Y	1.76	68.45	15.56		150.0	
		Z	1.58	66.75	14.59		150.0	
10099-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	X	6.67	86.62	31.13	9.56	60.0	± 9.6 %
		Y	5.94	84.72	30.30		60.0	
		Z	5.89	83.61	29.83		60.0	
10100-CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	2.92	69.35	16.13	0.00	150.0	± 9.6 %
		Y	2.92	70.13	16.62		150.0	
		Z	2.81	69.09	16.02		150.0	
10101-CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	3.10	66.93	15.61	0.00	150.0	± 9.6 %
		Y	3.06	67.45	15.78		150.0	
		Z	3.01	66.78	15.51		150.0	
10102-CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	3.20	66.94	15.73	0.00	150.0	± 9.6 %
		Y	3.17	67.48	15.89		150.0	
		Z	3.11	66.81	15.64		150.0	
10103-CAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	5.17	73.60	19.83	3.98	65.0	± 9.6 %
		Y	5.10	74.07	19.75		65.0	
		Z	4.93	73.19	19.67		65.0	
10104-CAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	5.21	71.41	19.65	3.98	65.0	± 9.6 %
		Y	5.03	71.45	19.28		65.0	
		Z	4.96	70.87	19.38		65.0	
10105-CAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	5.00	70.39	19.49	3.98	65.0	± 9.6 %
		Y	4.91	70.75	19.26		65.0	
		Z	4.79	69.92	19.24		65.0	
10108-CAF	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	2.54	68.68	15.97	0.00	150.0	± 9.6 %
		Y	2.51	69.42	16.42		150.0	
		Z	2.42	68.47	15.85		150.0	
10109-CAF	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	2.74	66.77	15.45	0.00	150.0	± 9.6 %
		Y	2.71	67.43	15.64		150.0	
		Z	2.64	66.65	15.31		150.0	
10110-CAF	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	2.03	67.78	15.47	0.00	150.0	± 9.6 %
		Y	2.01	68.63	15.89		150.0	
		Z	1.92	67.57	15.24		150.0	
10111-CAF	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	2.44	67.51	15.59	0.00	150.0	± 9.6 %
		Y	2.47	68.77	15.93		150.0	
		Z	2.34	67.48	15.35		150.0	

EX3DV4– SN:7370 August 30, 2018

10112-CAF	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	2.87	66.81	15.54	0.00	150.0	± 9.6 %
		Y	2.84	67.53	15.73		150.0	
		Z	2.77	66.72	15.41		150.0	
10113-CAF	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	2.59	67.71	15.76	0.00	150.0	± 9.6 %
		Y	2.62	68.96	16.07		150.0	
		Z	2.49	67.71	15.54		150.0	
10114-CAC	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	X	5.04	66.97	16.40	0.00	150.0	± 9.6 %
		Y	4.89	67.20	16.30		150.0	
		Z	4.93	66.85	16.34		150.0	
10115-CAC	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	X	5.32	67.08	16.47	0.00	150.0	± 9.6 %
		Y	5.13	67.24	16.31		150.0	
		Z	5.20	66.98	16.42		150.0	
10116-CAC	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	X	5.13	67.14	16.41	0.00	150.0	± 9.6 %
		Y	4.97	67.37	16.31		150.0	
		Z	5.02	67.06	16.38		150.0	
10117-CAC	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	4.99	66.77	16.32	0.00	150.0	± 9.6 %
		Y	4.89	67.15	16.29		150.0	
		Z	4.92	66.79	16.33		150.0	
10118-CAC	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	X	5.41	67.33	16.61	0.00	150.0	± 9.6 %
		Y	5.18	67.38	16.39		150.0	
		Z	5.30	67.26	16.57		150.0	
10119-CAC	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	X	5.12	67.12	16.41	0.00	150.0	± 9.6 %
		Y	4.97	67.37	16.32		150.0	
		Z	5.02	67.07	16.39		150.0	
10140-CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	3.23	66.94	15.64	0.00	150.0	± 9.6 %
		Y	3.19	67.50	15.80		150.0	
		Z	3.14	66.81	15.55		150.0	
10141-CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	3.36	67.07	15.83	0.00	150.0	± 9.6 %
		Y	3.32	67.68	16.00		150.0	
		Z	3.27	66.98	15.76		150.0	
10142-CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	1.78	67.53	14.86	0.00	150.0	± 9.6 %
		Y	1.77	68.63	15.24		150.0	
		Z	1.65	67.14	14.35		150.0	
10143-CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	2.24	67.81	14.90	0.00	150.0	± 9.6 %
		Y	2.28	69.30	15.14		150.0	
		Z	2.08	67.39	14.24		150.0	
10144-CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	2.02	65.54	13.26	0.00	150.0	± 9.6 %
		Y	1.92	66.03	12.98		150.0	
		Z	1.85	64.95	12.48		150.0	
10145-CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	0.91	62.24	9.28	0.00	150.0	± 9.6 %
		Y	0.77	61.67	8.20		150.0	
		Z	0.71	60.43	7.26		150.0	
10146-CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	1.45	63.33	9.63	0.00	150.0	± 9.6 %
		Y	0.91	60.17	6.18		150.0	
		Z	1.08	61.22	7.63		150.0	
10147-CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	1.59	64.37	10.30	0.00	150.0	± 9.6 %
		Y	0.95	60.47	6.43		150.0	
		Z	1.15	61.74	8.02		150.0	

EX3DV4-- SN:7370 August 30, 2018

10149-CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	2.75	66.84	15.50	0.00	150.0	± 9.6 %
		Y	2.72	67.50	15.70		150.0	
		Z	2.65	66.71	15.36		150.0	
10150-CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	2.88	66.86	15.58	0.00	150.0	± 9.6 %
		Y	2.85	67.59	15.78		150.0	
		Z	2.78	66.78	15.46		150.0	
10151-CAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	5.30	75.86	20.87	3.98	65.0	± 9.6 %
		Y	5.16	76.15	20.64		65.0	
		Z	5.02	75.44	20.68		65.0	
10152-CAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	4.74	71.30	19.29	3.98	65.0	± 9.6 %
		Y	4.54	71.27	18.76		65.0	
		Z	4.49	70.75	18.93		65.0	
10153-CAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	5.06	72.26	20.11	3.98	65.0	± 9.6 %
		Y	4.90	72.40	19.65		65.0	
		Z	4.83	71.84	19.82		65.0	
10154-CAF	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	2.08	68.18	15.72	0.00	150.0	± 9.6 %
		Y	2.05	69.01	16.13		150.0	
		Z	1.96	67.95	15.48		150.0	
10155-CAF	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	2.44	67.53	15.61	0.00	150.0	± 9.6 %
		Y	2.48	68.82	15.96		150.0	
		Z	2.34	67.51	15.37		150.0	
10156-CAF	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	1.60	67.30	14.38	0.00	150.0	± 9.6 %
		Y	1.59	68.38	14.67		150.0	
		Z	1.44	66.60	13.59		150.0	
10157-CAF	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	1.83	65.75	13.01	0.00	150.0	± 9.6 %
		Y	1.72	66.23	12.67		150.0	
		Z	1.62	64.84	11.96		150.0	
10158-CAF	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	2.60	67.78	15.81	0.00	150.0	± 9.6 %
		Y	2.63	69.06	16.13		150.0	
		Z	2.50	67.79	15.59		150.0	
10159-CAF	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	1.91	66.11	13.26	0.00	150.0	± 9.6 %
		Y	1.81	66.60	12.89		150.0	
		Z	1.69	65.10	12.15		150.0	
10160-CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	2.61	68.18	15.94	0.00	150.0	± 9.6 %
		Y	2.54	68.68	16.16		150.0	
		Z	2.52	68.16	15.85		150.0	
10161-CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	2.77	66.80	15.48	0.00	150.0	± 9.6 %
		Y	2.74	67.57	15.65		150.0	
		Z	2.67	66.72	15.32		150.0	
10162-CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	2.88	66.98	15.61	0.00	150.0	± 9.6 %
		Y	2.85	67.81	15.81		150.0	
		Z	2.78	66.94	15.47		150.0	
10166-CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	3.38	69.13	19.05	3.01	150.0	± 9.6 %
		Y	3.08	68.69	18.48		150.0	
		Z	3.21	69.15	19.25		150.0	
10167-CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	4.04	71.66	19.32	3.01	150.0	± 9.6 %
		Y	3.67	71.80	19.02		150.0	
		Z	3.74	71.67	19.52		150.0	

EX3DV4– SN:7370 August 30, 2018

10168-CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	4.54	74.22	20.83	3.01	150.0	± 9.6 %
		Y	4.19	74.66	20.67		150.0	
		Z	4.28	74.71	21.29		150.0	
10169-CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	2.71	67.87	18.52	3.01	150.0	± 9.6 %
		Y	2.52	67.48	17.92		150.0	
		Z	2.50	67.19	18.42		150.0	
10170-CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	3.55	73.26	20.73	3.01	150.0	± 9.6 %
		Y	3.37	73.78	20.55		150.0	
		Z	3.15	72.53	20.76		150.0	
10171-AAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	2.92	69.16	17.84	3.01	150.0	± 9.6 %
		Y	2.71	69.36	17.52		150.0	
		Z	2.59	68.30	17.69		150.0	
10172-CAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	5.18	84.51	26.75	6.02	65.0	± 9.6 %
		Y	3.39	77.79	23.56		65.0	
		Z	4.09	81.34	25.92		65.0	
10173-CAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	9.93	93.58	27.87	6.02	65.0	± 9.6 %
		Y	5.88	85.89	24.46		65.0	
		Z	7.84	91.70	27.70		65.0	
10174-CAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	7.95	88.37	25.51	6.02	65.0	± 9.6 %
		Y	4.51	80.74	22.04		65.0	
		Z	5.38	83.91	24.39		65.0	
10175-CAF	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	2.68	67.57	18.26	3.01	150.0	± 9.6 %
		Y	2.50	67.21	17.68		150.0	
		Z	2.47	66.89	18.16		150.0	
10176-CAF	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	3.55	73.28	20.74	3.01	150.0	± 9.6 %
		Y	3.38	73.80	20.56		150.0	
		Z	3.16	72.55	20.77		150.0	
10177-CAH	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	2.70	67.72	18.36	3.01	150.0	± 9.6 %
		Y	2.51	67.32	17.76		150.0	
		Z	2.49	67.02	18.25		150.0	
10178-CAF	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	3.52	73.08	20.63	3.01	150.0	± 9.6 %
		Y	3.35	73.65	20.48		150.0	
		Z	3.13	72.36	20.66		150.0	
10179-CAF	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	3.20	71.07	19.14	3.01	150.0	± 9.6 %
		Y	3.00	71.42	18.89		150.0	
		Z	2.84	70.28	19.08		150.0	
10180-CAF	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	2.91	69.10	17.80	3.01	150.0	± 9.6 %
		Y	2.71	69.32	17.49		150.0	
		Z	2.58	68.25	17.65		150.0	
10181-CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	2.69	67.70	18.35	3.01	150.0	± 9.6 %
		Y	2.51	67.31	17.75		150.0	
		Z	2.48	67.01	18.24		150.0	
10182-CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	3.51	73.05	20.61	3.01	150.0	± 9.6 %
		Y	3.35	73.62	20.46		150.0	
		Z	3.13	72.33	20.65		150.0	
10183-AAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	2.91	69.07	17.79	3.01	150.0	± 9.6 %
		Y	2.70	69.30	17.48		150.0	
		Z	2.58	68.23	17.64		150.0	

10184-CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	2.70	67.74	18.37	3.01	150.0	± 9.6 %
		Y	2.52	67.35	17.77		150.0	
		Z	2.49	67.05	18.26		150.0	
10185-CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	3.53	73.13	20.65	3.01	150.0	± 9.6 %
		Y	3.37	73.70	20.50		150.0	
		Z	3.14	72.41	20.69		150.0	
10186-AAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	2.92	69.14	17.82	3.01	150.0	± 9.6 %
		Y	2.72	69.36	17.51		150.0	
		Z	2.59	68.29	17.68		150.0	
10187-CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	2.71	67.80	18.44	3.01	150.0	± 9.6 %
		Y	2.53	67.43	17.85		150.0	
		Z	2.50	67.12	18.34		150.0	
10188-CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	3.64	73.78	21.05	3.01	150.0	± 9.6 %
		Y	3.47	74.34	20.88		150.0	
		Z	3.24	73.08	21.10		150.0	
10189-AAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	2.98	69.54	18.10	3.01	150.0	± 9.6 %
		Y	2.78	69.76	17.79		150.0	
		Z	2.64	68.69	17.96		150.0	
10193-CAC	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	X	4.40	66.31	16.02	0.00	150.0	± 9.6 %
		Y	4.32	66.93	16.03		150.0	
		Z	4.31	66.34	15.97		150.0	
10194-CAC	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	X	4.57	66.61	16.15	0.00	150.0	± 9.6 %
		Y	4.45	67.15	16.16		150.0	
		Z	4.46	66.61	16.11		150.0	
10195-CAC	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	X	4.61	66.65	16.17	0.00	150.0	± 9.6 %
		Y	4.49	67.15	16.16		150.0	
		Z	4.50	66.64	16.13		150.0	
10196-CAC	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	4.40	66.36	16.03	0.00	150.0	± 9.6 %
		Y	4.30	66.92	16.01		150.0	
		Z	4.30	66.36	15.97		150.0	
10197-CAC	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	X	4.58	66.63	16.17	0.00	150.0	± 9.6 %
		Y	4.46	67.15	16.16		150.0	
		Z	4.47	66.62	16.12		150.0	
10198-CAC	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	X	4.61	66.66	16.19	0.00	150.0	± 9.6 %
		Y	4.48	67.15	16.16		150.0	
		Z	4.49	66.65	16.14		150.0	
10219-CAC	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	X	4.35	66.37	15.99	0.00	150.0	± 9.6 %
		Y	4.26	66.96	15.99		150.0	
		Z	4.25	66.38	15.93		150.0	
10220-CAC	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	X	4.58	66.60	16.15	0.00	150.0	± 9.6 %
		Y	4.45	67.11	16.14		150.0	
		Z	4.46	66.59	16.11		150.0	
10221-CAC	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	X	4.62	66.59	16.17	0.00	150.0	± 9.6 %
		Y	4.49	67.10	16.15		150.0	
		Z	4.51	66.59	16.13		150.0	
10222-CAC	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	X	4.97	66.78	16.31	0.00	150.0	± 9.6 %
		Y	4.86	67.13	16.27		150.0	
		Z	4.89	66.76	16.31		150.0	

EX3DV4– SN:7370 August 30, 2018

10223-CAC	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	X	5.30	67.10	16.50	0.00	150.0	± 9.6 %
		Y	5.10	67.27	16.35		150.0	
		Z	5.19	67.05	16.48		150.0	
10224-CAC	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	X	5.01	66.89	16.29	0.00	150.0	± 9.6 %
		Y	4.90	67.26	16.26		150.0	
		Z	4.92	66.85	16.28		150.0	
10225-CAB	UMTS-FDD (HSPA+)	X	2.65	65.62	14.90	0.00	150.0	± 9.6 %
		Y	2.61	66.40	14.83		150.0	
		Z	2.55	65.54	14.59		150.0	
10226-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	10.73	95.13	28.48	6.02	65.0	± 9.6 %
		Y	6.31	87.21	25.01		65.0	
		Z	8.52	93.39	28.36		65.0	
10227-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	10.72	93.53	27.25	6.02	65.0	± 9.6 %
		Y	6.15	85.53	23.69		65.0	
		Z	9.01	92.94	27.46		65.0	
10228-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	6.04	88.03	28.16	6.02	65.0	± 9.6 %
		Y	3.71	79.59	24.30		65.0	
		Z	4.70	84.61	27.30		65.0	
10229-CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	10.01	93.70	27.92	6.02	65.0	± 9.6 %
		Y	5.94	86.01	24.51		65.0	
		Z	7.91	91.83	27.75		65.0	
10230-CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	9.92	92.09	26.70	6.02	65.0	± 9.6 %
		Y	5.72	84.29	23.19		65.0	
		Z	8.24	91.25	26.83		65.0	
10231-CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	5.78	87.07	27.72	6.02	65.0	± 9.6 %
		Y	3.59	78.90	23.95		65.0	
		Z	4.51	83.68	26.86		65.0	
10232-CAE	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	9.99	93.68	27.91	6.02	65.0	± 9.6 %
		Y	5.92	85.99	24.50		65.0	
		Z	7.89	91.80	27.74		65.0	
10233-CAE	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	9.89	92.06	26.69	6.02	65.0	± 9.6 %
		Y	5.70	84.25	23.18		65.0	
		Z	8.20	91.19	26.81		65.0	
10234-CAE	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	5.59	86.26	27.30	6.02	65.0	± 9.6 %
		Y	3.50	78.34	23.60		65.0	
		Z	4.38	82.95	26.45		65.0	
10235-CAE	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	10.01	93.72	27.93	6.02	65.0	± 9.6 %
		Y	5.92	86.01	24.51		65.0	
		Z	7.91	91.84	27.76		65.0	
10236-CAE	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	10.03	92.27	26.75	6.02	65.0	± 9.6 %
		Y	5.77	84.41	23.23		65.0	
		Z	8.33	91.42	26.87		65.0	
10237-CAE	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	5.78	87.12	27.75	6.02	65.0	± 9.6 %
		Y	3.58	78.91	23.95		65.0	
		Z	4.51	83.71	26.87		65.0	
10238-CAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	9.97	93.65	27.90	6.02	65.0	± 9.6 %
		Y	5.91	85.96	24.49		65.0	
		Z	7.87	91.77	27.73		65.0	

10239-CAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	9.85	92.02	26.68	6.02	65.0	± 9.6 %
		Y	5.67	84.20	23.16		65.0	
		Z	8.17	91.14	26.80		65.0	
10240-CAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	5.76	87.07	27.73	6.02	65.0	± 9.6 %
		Y	3.58	78.89	23.95		65.0	
		Z	4.50	83.67	26.86		65.0	
10241-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	6.61	78.35	24.54	6.98	65.0	± 9.6 %
		Y	6.11	78.98	24.28		65.0	
		Z	6.23	78.49	24.73		65.0	
10242-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	6.19	76.96	23.85	6.98	65.0	± 9.6 %
		Y	5.67	77.56	23.63		65.0	
		Z	5.84	77.14	24.05		65.0	
10243-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	5.09	73.64	23.28	6.98	65.0	± 9.6 %
		Y	4.70	73.92	22.95		65.0	
		Z	4.85	73.65	23.39		65.0	
10244-CAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	4.44	72.93	17.21	3.98	65.0	± 9.6 %
		Y	2.90	67.00	12.63		65.0	
		Z	3.80	70.96	15.75		65.0	
10245-CAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	4.32	72.21	16.83	3.98	65.0	± 9.6 %
		Y	2.85	66.55	12.35		65.0	
		Z	3.67	70.17	15.32		65.0	
10246-CAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	3.89	74.77	18.15	3.98	65.0	± 9.6 %
		Y	2.97	70.94	15.34		65.0	
		Z	3.14	71.70	16.19		65.0	
10247-CAE	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	3.85	71.08	17.30	3.98	65.0	± 9.6 %
		Y	3.38	69.48	15.40		65.0	
		Z	3.44	69.60	16.06		65.0	
10248-CAE	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	3.86	70.56	17.03	3.98	65.0	± 9.6 %
		Y	3.34	68.83	15.08		65.0	
		Z	3.44	69.08	15.79		65.0	
10249-CAE	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	4.99	78.80	20.90	3.98	65.0	± 9.6 %
		Y	4.32	76.69	19.15		65.0	
		Z	4.43	77.15	19.82		65.0	
10250-CAE	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	4.67	73.58	20.28	3.98	65.0	± 9.6 %
		Y	4.48	73.43	19.48		65.0	
		Z	4.42	73.08	19.83		65.0	
10251-CAE	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	4.51	71.61	18.98	3.98	65.0	± 9.6 %
		Y	4.23	71.23	18.06		65.0	
		Z	4.22	70.93	18.41		65.0	
10252-CAE	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	5.27	78.46	21.90	3.98	65.0	± 9.6 %
		Y	5.00	78.20	21.26		65.0	
		Z	4.94	77.90	21.54		65.0	
10253-CAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	4.65	70.83	19.03	3.98	65.0	± 9.6 %
		Y	4.49	70.95	18.50		65.0	
		Z	4.43	70.37	18.67		65.0	
10254-CAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	4.95	71.71	19.76	3.98	65.0	± 9.6 %
		Y	4.80	71.91	19.25		65.0	
		Z	4.73	71.34	19.44		65.0	

EX3DV4– SN:7370 August 30, 2018

10255-CAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	5.03	75.08	20.77	3.98	65.0	± 9.6 %
		Y	4.91	75.42	20.48		65.0	
		Z	4.79	74.74	20.56		65.0	
10256-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	3.19	68.10	13.80	3.98	65.0	± 9.6 %
		Y	2.05	63.08	9.32		65.0	
		Z	2.56	65.56	11.82		65.0	
10257-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	3.11	67.38	13.33	3.98	65.0	± 9.6 %
		Y	2.03	62.73	9.03		65.0	
		Z	2.51	64.94	11.39		65.0	
10258-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	2.71	69.18	14.66	3.98	65.0	± 9.6 %
		Y	1.97	65.27	11.40		65.0	
		Z	2.10	65.90	12.28		65.0	
10259-CAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	4.19	72.13	18.43	3.98	65.0	± 9.6 %
		Y	3.83	71.16	16.98		65.0	
		Z	3.85	71.09	17.52		65.0	
10260-CAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	4.23	71.87	18.31	3.98	65.0	± 9.6 %
		Y	3.85	70.89	16.84		65.0	
		Z	3.88	70.82	17.39		65.0	
10261-CAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	4.83	77.74	20.97	3.98	65.0	± 9.6 %
		Y	4.43	76.68	19.74		65.0	
		Z	4.43	76.71	20.22		65.0	
10262-CAE	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	4.66	73.52	20.23	3.98	65.0	± 9.6 %
		Y	4.46	73.35	19.42		65.0	
		Z	4.41	73.00	19.77		65.0	
10263-CAE	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	4.50	71.59	18.98	3.98	65.0	± 9.6 %
		Y	4.22	71.21	18.05		65.0	
		Z	4.21	70.91	18.40		65.0	
10264-CAE	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	5.21	78.25	21.79	3.98	65.0	± 9.6 %
		Y	4.95	77.98	21.14		65.0	
		Z	4.88	77.68	21.42		65.0	
10265-CAE	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	4.74	71.30	19.29	3.98	65.0	± 9.6 %
		Y	4.54	71.27	18.76		65.0	
		Z	4.49	70.75	18.93		65.0	
10266-CAE	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	5.06	72.25	20.09	3.98	65.0	± 9.6 %
		Y	4.90	72.39	19.64		65.0	
		Z	4.82	71.83	19.81		65.0	
10267-CAE	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	5.29	75.81	20.85	3.98	65.0	± 9.6 %
		Y	5.15	76.10	20.62		65.0	
		Z	5.01	75.39	20.65		65.0	
10268-CAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	5.36	71.31	19.71	3.98	65.0	± 9.6 %
		Y	5.21	71.51	19.38		65.0	
		Z	5.13	70.87	19.47		65.0	
10269-CAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	5.37	70.93	19.58	3.98	65.0	± 9.6 %
		Y	5.24	71.21	19.27		65.0	
		Z	5.14	70.52	19.35		65.0	
10270-CAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	5.33	73.33	19.93	3.98	65.0	± 9.6 %
		Y	5.25	73.82	19.83		65.0	
		Z	5.10	72.98	19.79		65.0	

EX3DV4- SN:7370 August 30, 2018

10274-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	X	2.44	65.94	14.76	0.00	150.0	± 9.6 %
		Y	2.46	67.02	14.92		150.0	
		Z	2.36	65.96	14.51		150.0	
10275-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	X	1.44	66.78	14.60	0.00	150.0	± 9.6 %
		Y	1.51	68.07	15.31		150.0	
		Z	1.37	66.58	14.29		150.0	
10277-CAA	PHS (QPSK)	X	1.64	59.99	5.54	9.03	50.0	± 9.6 %
		Y	1.31	58.91	4.10		50.0	
		Z	1.56	59.49	4.99		50.0	
10278-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	X	3.36	68.45	12.95	9.03	50.0	± 9.6 %
		Y	2.43	64.41	9.76		50.0	
		Z	2.80	65.60	11.02		50.0	
10279-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	X	3.49	68.82	13.20	9.03	50.0	± 9.6 %
		Y	2.50	64.64	9.95		50.0	
		Z	2.89	65.88	11.23		50.0	
10290-AAB	CDMA2000, RC1, SO55, Full Rate	X	1.04	65.08	11.18	0.00	150.0	± 9.6 %
		Y	0.99	65.85	11.23		150.0	
		Z	0.79	62.87	9.16		150.0	
10291-AAB	CDMA2000, RC3, SO55, Full Rate	X	0.58	62.61	9.47	0.00	150.0	± 9.6 %
		Y	0.64	64.33	10.38		150.0	
		Z	0.45	60.87	7.53		150.0	
10292-AAB	CDMA2000, RC3, SO32, Full Rate	X	0.69	65.12	11.11	0.00	150.0	± 9.6 %
		Y	0.97	69.91	13.43		150.0	
		Z	0.51	62.53	8.75		150.0	
10293-AAB	CDMA2000, RC3, SO3, Full Rate	X	1.02	69.87	13.83	0.00	150.0	± 9.6 %
		Y	3.04	84.16	19.15		150.0	
		Z	0.71	65.95	10.97		150.0	
10295-AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	X	11.23	88.47	24.36	9.03	50.0	± 9.6 %
		Y	12.59	88.61	22.96		50.0	
		Z	15.56	91.71	24.45		50.0	
10297-AAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	2.55	68.78	16.04	0.00	150.0	± 9.6 %
		Y	2.53	69.53	16.49		150.0	
		Z	2.44	68.57	15.92		150.0	
10298-AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	1.25	65.18	12.07	0.00	150.0	± 9.6 %
		Y	1.15	65.40	11.69		150.0	
		Z	1.02	63.53	10.46		150.0	
10299-AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	2.10	67.21	12.74	0.00	150.0	± 9.6 %
		Y	1.38	63.27	9.21		150.0	
		Z	1.69	65.36	11.19		150.0	
10300-AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	1.62	63.40	10.09	0.00	150.0	± 9.6 %
		Y	1.13	61.02	7.29		150.0	
		Z	1.31	62.01	8.67		150.0	
10301-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	X	4.48	64.69	17.03	4.17	50.0	± 9.6 %
		Y	4.13	64.54	16.62		50.0	
		Z	4.35	64.85	16.99		50.0	
10302-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)	X	5.00	65.50	17.84	4.96	50.0	± 9.6 %
		Y	4.67	65.46	17.49		50.0	
		Z	4.87	65.51	17.69		50.0	

EX3DV4– SN:7370 August 30, 2018

10303-AAA	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	X	4.74	65.08	17.64	4.96	50.0	± 9.6 %
		Y	4.42	65.05	17.25		50.0	
		Z	4.66	65.58	17.81		50.0	
10304-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	X	4.56	64.99	17.15	4.17	50.0	± 9.6 %
		Y	4.27	65.10	16.85		50.0	
		Z	4.44	65.03	17.00		50.0	
10305-AAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	X	4.09	66.47	18.87	6.02	35.0	± 9.6 %
		Y	3.64	65.29	17.60		35.0	
		Z	4.05	66.89	18.66		35.0	
10306-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)	X	4.46	65.76	18.65	6.02	35.0	± 9.6 %
		Y	4.07	65.09	17.75		35.0	
		Z	4.39	66.07	18.52		35.0	
10307-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)	X	4.34	65.84	18.57	6.02	35.0	± 9.6 %
		Y	3.93	65.00	17.59		35.0	
		Z	4.27	66.11	18.41		35.0	
10308-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	X	4.32	66.01	18.70	6.02	35.0	± 9.6 %
		Y	3.90	65.13	17.71		35.0	
		Z	4.25	66.31	18.55		35.0	
10309-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)	X	4.51	65.96	18.79	6.02	35.0	± 9.6 %
		Y	4.08	65.13	17.82		35.0	
		Z	4.42	66.21	18.63		35.0	
10310-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)	X	4.41	65.79	18.62	6.02	35.0	± 9.6 %
		Y	4.01	65.09	17.71		35.0	
		Z	4.34	66.12	18.49		35.0	
10311-AAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	2.90	68.03	15.73	0.00	150.0	± 9.6 %
		Y	2.89	68.82	16.17		150.0	
		Z	2.79	67.80	15.63		150.0	
10313-AAA	iDEN 1:3	X	2.09	68.77	14.05	6.99	70.0	± 9.6 %
		Y	2.40	70.98	15.20		70.0	
		Z	1.90	67.78	13.55		70.0	
10314-AAA	iDEN 1:6	X	3.77	77.94	20.59	10.00	30.0	± 9.6 %
		Y	4.31	81.06	22.07		30.0	
		Z	3.77	77.68	20.34		30.0	
10315-AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	X	0.95	62.79	14.48	0.17	150.0	± 9.6 %
		Y	1.05	63.70	14.88		150.0	
		Z	0.93	62.71	14.34		150.0	
10316-AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	X	4.45	66.34	16.16	0.17	150.0	± 9.6 %
		Y	4.33	66.78	16.06		150.0	
		Z	4.35	66.34	16.11		150.0	
10317-AAC	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	X	4.45	66.34	16.16	0.17	150.0	± 9.6 %
		Y	4.33	66.78	16.06		150.0	
		Z	4.35	66.34	16.11		150.0	
10400-AAD	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)	X	4.56	66.67	16.15	0.00	150.0	± 9.6 %
		Y	4.40	67.11	16.11		150.0	
		Z	4.43	66.64	16.10		150.0	
10401-AAD	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)	X	5.35	67.10	16.48	0.00	150.0	± 9.6 %
		Y	5.06	66.88	16.11		150.0	
		Z	5.18	66.82	16.32		150.0	

10402-AAD	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)	X	5.53	67.14	16.36	0.00	150.0	± 9.6 %
		Y	5.41	67.49	16.31		150.0	
		Z	5.44	67.08	16.33		150.0	
10403-AAB	CDMA2000 (1xEV-DO, Rev. 0)	X	1.04	65.08	11.18	0.00	115.0	± 9.6 %
		Y	0.99	65.85	11.23		115.0	
		Z	0.79	62.87	9.16		115.0	
10404-AAB	CDMA2000 (1xEV-DO, Rev. A)	X	1.04	65.08	11.18	0.00	115.0	± 9.6 %
		Y	0.99	65.85	11.23		115.0	
		Z	0.79	62.87	9.16		115.0	
10406-AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	X	96.97	123.11	30.74	0.00	100.0	± 9.6 %
		Y	100.00	111.80	24.81		100.0	
		Z	100.00	124.50	30.74		100.0	
10410-AAE	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9, Subframe Conf=4)	X	100.00	126.40	31.66	3.23	80.0	± 9.6 %
		Y	4.28	82.74	18.79		80.0	
		Z	100.00	130.38	33.03		80.0	
10415-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	X	0.90	62.23	13.99	0.00	150.0	± 9.6 %
		Y	1.01	63.27	14.54		150.0	
		Z	0.88	62.18	13.87		150.0	
10416-AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	X	4.41	66.35	16.10	0.00	150.0	± 9.6 %
		Y	4.31	66.90	16.09		150.0	
		Z	4.31	66.36	16.05		150.0	
10417-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	X	4.41	66.35	16.10	0.00	150.0	± 9.6 %
		Y	4.31	66.90	16.09		150.0	
		Z	4.31	66.36	16.05		150.0	
10418-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preambule)	X	4.40	66.51	16.12	0.00	150.0	± 9.6 %
		Y	4.30	67.11	16.15		150.0	
		Z	4.30	66.55	16.09		150.0	
10419-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preambule)	X	4.42	66.46	16.12	0.00	150.0	± 9.6 %
		Y	4.32	67.03	16.13		150.0	
		Z	4.32	66.49	16.09		150.0	
10422-AAB	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	X	4.53	66.46	16.14	0.00	150.0	± 9.6 %
		Y	4.42	67.01	16.14		150.0	
		Z	4.43	66.48	16.11		150.0	
10423-AAB	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	X	4.69	66.76	16.25	0.00	150.0	± 9.6 %
		Y	4.54	67.25	16.22		150.0	
		Z	4.56	66.75	16.20		150.0	
10424-AAB	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	X	4.61	66.71	16.22	0.00	150.0	± 9.6 %
		Y	4.48	67.20	16.20		150.0	
		Z	4.49	66.70	16.18		150.0	
10425-AAB	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	X	5.24	67.07	16.46	0.00	150.0	± 9.6 %
		Y	5.08	67.30	16.34		150.0	
		Z	5.14	67.03	16.44		150.0	
10426-AAB	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	X	5.29	67.23	16.54	0.00	150.0	± 9.6 %
		Y	5.09	67.35	16.36		150.0	
		Z	5.19	67.20	16.52		150.0	

EX3DV4– SN:7370 August 30, 2018

10427-AAB	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	X	5.27	67.11	16.48	0.00	150.0	± 9.6 %
		Y	5.06	67.20	16.28		150.0	
		Z	5.14	66.97	16.40		150.0	
10430-AAC	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	X	4.12	70.76	18.01	0.00	150.0	± 9.6 %
		Y	4.25	72.67	18.35		150.0	
		Z	4.06	71.33	18.00		150.0	
10431-AAC	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	X	4.06	66.87	16.01	0.00	150.0	± 9.6 %
		Y	3.92	67.48	15.96		150.0	
		Z	3.92	66.87	15.88		150.0	
10432-AAC	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	X	4.37	66.76	16.14	0.00	150.0	± 9.6 %
		Y	4.24	67.31	16.13		150.0	
		Z	4.25	66.76	16.08		150.0	
10433-AAC	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	X	4.63	66.74	16.24	0.00	150.0	± 9.6 %
		Y	4.49	67.24	16.22		150.0	
		Z	4.51	66.73	16.20		150.0	
10434-AAA	W-CDMA (BS Test Model 1, 64 DPCH)	X	4.20	71.51	17.85	0.00	150.0	± 9.6 %
		Y	4.38	73.62	18.16		150.0	
		Z	4.13	71.96	17.69		150.0	
10435-AAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	126.12	31.53	3.23	80.0	± 9.6 %
		Y	4.03	81.88	18.46		80.0	
		Z	100.00	130.04	32.87		80.0	
10447-AAC	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.31	66.68	15.06	0.00	150.0	± 9.6 %
		Y	3.16	67.27	14.80		150.0	
		Z	3.14	66.51	14.65		150.0	
10448-AAC	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%)	X	3.90	66.64	15.86	0.00	150.0	± 9.6 %
		Y	3.79	67.29	15.84		150.0	
		Z	3.78	66.65	15.74		150.0	
10449-AAC	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%)	X	4.19	66.57	16.03	0.00	150.0	± 9.6 %
		Y	4.09	67.15	16.04		150.0	
		Z	4.08	66.58	15.97		150.0	
10450-AAC	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.40	66.50	16.08	0.00	150.0	± 9.6 %
		Y	4.30	67.03	16.09		150.0	
		Z	4.30	66.49	16.04		150.0	
10451-AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	X	3.16	66.66	14.50	0.00	150.0	± 9.6 %
		Y	2.94	66.96	14.01		150.0	
		Z	2.94	66.25	13.89		150.0	
10456-AAB	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)	X	6.15	67.69	16.66	0.00	150.0	± 9.6 %
		Y	5.98	67.78	16.47		150.0	
		Z	6.14	67.82	16.75		150.0	
10457-AAA	UMTS-FDD (DC-HSDPA)	X	3.69	64.99	15.80	0.00	150.0	± 9.6 %
		Y	3.69	65.69	15.82		150.0	
		Z	3.64	65.05	15.76		150.0	
10458-AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	X	3.78	70.47	16.98	0.00	150.0	± 9.6 %
		Y	3.68	71.34	16.55		150.0	
		Z	3.58	70.23	16.35		150.0	
10459-AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	X	4.97	68.48	18.10	0.00	150.0	± 9.6 %
		Y	4.80	69.29	17.72		150.0	
		Z	4.87	68.90	18.01		150.0	

EX3DV4– SN:7370 August 30, 2018

10460-AAA	UMTS-FDD (WCDMA, AMR)	X	0.75	66.65	14.62	0.00	150.0	± 9.6 %
		Y	0.87	68.18	15.92		150.0	
		Z	0.71	66.46	14.27		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	130.73	33.74	3.29	80.0	± 9.6 %
		Y	1.60	72.60	16.48		80.0	
		Z	100.00	135.78	35.59		80.0	
10462-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.13	63.41	10.01	3.23	80.0	± 9.6 %
		Y	0.65	60.00	6.61		80.0	
		Z	0.77	61.25	8.68		80.0	
10463-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.81	60.00	7.75	3.23	80.0	± 9.6 %
		Y	0.68	60.00	5.92		80.0	
		Z	0.69	60.00	7.34		80.0	
10464-AAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	127.11	31.91	3.23	80.0	± 9.6 %
		Y	1.20	68.95	14.32		80.0	
		Z	100.00	131.81	33.57		80.0	
10465-AAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.01	62.34	9.44	3.23	80.0	± 9.6 %
		Y	0.65	60.00	6.54		80.0	
		Z	0.71	60.46	8.21		80.0	
10466-AAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.81	60.00	7.69	3.23	80.0	± 9.6 %
		Y	0.69	60.00	5.87		80.0	
		Z	0.69	60.00	7.28		80.0	
10467-AAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	127.52	32.08	3.23	80.0	± 9.6 %
		Y	1.26	69.56	14.62		80.0	
		Z	100.00	132.33	33.80		80.0	
10468-AAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.04	62.62	9.59	3.23	80.0	± 9.6 %
		Y	0.65	60.00	6.56		80.0	
		Z	0.73	60.69	8.35		80.0	
10469-AAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.81	60.00	7.69	3.23	80.0	± 9.6 %
		Y	0.69	60.00	5.87		80.0	
		Z	0.69	60.00	7.28		80.0	
10470-AAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	127.55	32.08	3.23	80.0	± 9.6 %
		Y	1.25	69.56	14.62		80.0	
		Z	100.00	132.38	33.80		80.0	
10471-AAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.03	62.54	9.54	3.23	80.0	± 9.6 %
		Y	0.65	60.00	6.55		80.0	
		Z	0.72	60.62	8.30		80.0	
10472-AAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.81	60.00	7.67	3.23	80.0	± 9.6 %
		Y	0.69	60.00	5.85		80.0	
		Z	0.69	60.00	7.26		80.0	
10473-AAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	127.50	32.06	3.23	80.0	± 9.6 %
		Y	1.25	69.52	14.59		80.0	
		Z	100.00	132.33	33.78		80.0	
10474-AAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.03	62.51	9.52	3.23	80.0	± 9.6 %
		Y	0.64	60.00	6.54		80.0	
		Z	0.72	60.60	8.28		80.0	
10475-AAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.81	60.00	7.67	3.23	80.0	± 9.6 %
		Y	0.69	60.00	5.85		80.0	
		Z	0.69	60.00	7.26		80.0	

EX3DV4– SN:7370 August 30, 2018

10477-AAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.00	62.26	9.38	3.23	80.0	± 9.6 %
		Y	0.65	60.00	6.51		80.0	
		Z	0.70	60.39	8.15		80.0	
10478-AAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.81	60.00	7.66	3.23	80.0	± 9.6 %
		Y	0.69	60.00	5.84		80.0	
		Z	0.69	60.00	7.25		80.0	
10479-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	9.46	91.48	24.78	3.23	80.0	± 9.6 %
		Y	3.33	76.56	18.50		80.0	
		Z	49.04	117.41	31.52		80.0	
10480-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	6.58	80.33	18.98	3.23	80.0	± 9.6 %
		Y	1.92	66.30	12.10		80.0	
		Z	12.44	88.66	21.03		80.0	
10481-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.50	74.79	16.62	3.23	80.0	± 9.6 %
		Y	1.49	63.34	10.33		80.0	
		Z	5.06	76.82	16.81		80.0	
10482-AAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	1.98	67.76	14.56	2.23	80.0	± 9.6 %
		Y	1.44	64.53	12.12		80.0	
		Z	1.52	64.87	12.53		80.0	
10483-AAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.26	70.54	15.38	2.23	80.0	± 9.6 %
		Y	1.36	60.95	9.17		80.0	
		Z	2.59	68.02	13.65		80.0	
10484-AAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.03	69.33	14.88	2.23	80.0	± 9.6 %
		Y	1.35	60.67	9.01		80.0	
		Z	2.38	66.73	13.09		80.0	
10485-AAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.48	70.55	16.98	2.23	80.0	± 9.6 %
		Y	2.07	68.76	15.53		80.0	
		Z	2.20	69.39	16.05		80.0	
10486-AAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.46	66.77	14.69	2.23	80.0	± 9.6 %
		Y	2.03	65.11	12.96		80.0	
		Z	2.12	65.26	13.41		80.0	
10487-AAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.47	66.43	14.51	2.23	80.0	± 9.6 %
		Y	2.03	64.76	12.76		80.0	
		Z	2.13	64.93	13.22		80.0	
10488-AAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.86	70.33	17.81	2.23	80.0	± 9.6 %
		Y	2.53	69.32	17.02		80.0	
		Z	2.66	69.85	17.47		80.0	
10489-AAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.92	67.32	16.46	2.23	80.0	± 9.6 %
		Y	2.73	67.17	15.82		80.0	
		Z	2.76	67.05	16.11		80.0	
10490-AAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.01	67.22	16.42	2.23	80.0	± 9.6 %
		Y	2.80	67.07	15.77		80.0	
		Z	2.85	66.95	16.07		80.0	
10491-AAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.16	69.14	17.47	2.23	80.0	± 9.6 %
		Y	2.88	68.54	16.92		80.0	
		Z	2.98	68.75	17.25		80.0	
10492-AAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.30	66.80	16.60	2.23	80.0	± 9.6 %
		Y	3.11	66.77	16.14		80.0	
		Z	3.15	66.59	16.39		80.0	

EX3DV4– SN:7370 August 30, 2018

10493-AAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.37	66.71	16.57	2.23	80.0	± 9.6 %
		Y	3.17	66.68	16.10		80.0	
		Z	3.22	66.50	16.35		80.0	
10494-AAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.39	70.48	17.89	2.23	80.0	± 9.6 %
		Y	3.05	69.63	17.32		80.0	
		Z	3.17	69.97	17.66		80.0	
10495-AAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.32	67.11	16.79	2.23	80.0	± 9.6 %
		Y	3.13	66.97	16.34		80.0	
		Z	3.17	66.85	16.59		80.0	
10496-AAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.41	66.91	16.74	2.23	80.0	± 9.6 %
		Y	3.22	66.84	16.31		80.0	
		Z	3.26	66.68	16.55		80.0	
10497-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	1.27	62.44	10.81	2.23	80.0	± 9.6 %
		Y	0.91	60.00	8.32		80.0	
		Z	0.96	60.00	8.60		80.0	
10498-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.23	60.00	8.39	2.23	80.0	± 9.6 %
		Y	1.08	60.00	6.99		80.0	
		Z	1.15	60.00	7.44		80.0	
10499-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.25	60.00	8.24	2.23	80.0	± 9.6 %
		Y	1.10	60.00	6.82		80.0	
		Z	1.17	60.00	7.29		80.0	
10500-AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.61	70.29	17.27	2.23	80.0	± 9.6 %
		Y	2.26	69.03	16.15		80.0	
		Z	2.39	69.59	16.64		80.0	
10501-AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.68	67.20	15.47	2.23	80.0	± 9.6 %
		Y	2.37	66.35	14.26		80.0	
		Z	2.44	66.36	14.63		80.0	
10502-AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.74	67.08	15.35	2.23	80.0	± 9.6 %
		Y	2.40	66.19	14.09		80.0	
		Z	2.48	66.19	14.48		80.0	
10503-AAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.83	70.14	17.71	2.23	80.0	± 9.6 %
		Y	2.51	69.14	16.92		80.0	
		Z	2.63	69.65	17.37		80.0	
10504-AAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.90	67.23	16.40	2.23	80.0	± 9.6 %
		Y	2.71	67.07	15.76		80.0	
		Z	2.75	66.94	16.04		80.0	
10505-AAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.00	67.13	16.37	2.23	80.0	± 9.6 %
		Y	2.79	66.98	15.71		80.0	
		Z	2.83	66.85	16.01		80.0	
10506-AAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.36	70.34	17.82	2.23	80.0	± 9.6 %
		Y	3.03	69.50	17.25		80.0	
		Z	3.15	69.82	17.58		80.0	
10507-AAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.30	67.05	16.75	2.23	80.0	± 9.6 %
		Y	3.12	66.91	16.30		80.0	
		Z	3.16	66.79	16.55		80.0	

EX3DV4– SN:7370 August 30, 2018

10508-AAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.40	66.84	16.70	2.23	80.0	± 9.6 %
		Y	3.21	66.77	16.26		80.0	
		Z	3.25	66.61	16.50		80.0	
10509-AAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.75	69.35	17.42	2.23	80.0	± 9.6 %
		Y	3.49	68.98	17.06		80.0	
		Z	3.56	68.94	17.25		80.0	
10510-AAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.80	66.91	16.82	2.23	80.0	± 9.6 %
		Y	3.60	66.82	16.46		80.0	
		Z	3.65	66.63	16.66		80.0	
10511-AAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.86	66.71	16.77	2.23	80.0	± 9.6 %
		Y	3.68	66.70	16.43		80.0	
		Z	3.72	66.47	16.63		80.0	
10512-AAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.85	70.67	17.81	2.23	80.0	± 9.6 %
		Y	3.53	69.97	17.35		80.0	
		Z	3.62	70.08	17.58		80.0	
10513-AAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.67	67.09	16.90	2.23	80.0	± 9.6 %
		Y	3.49	66.90	16.50		80.0	
		Z	3.53	66.76	16.72		80.0	
10514-AAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.72	66.74	16.80	2.23	80.0	± 9.6 %
		Y	3.55	66.64	16.43		80.0	
		Z	3.58	66.45	16.64		80.0	
10515-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	X	0.86	62.38	14.01	0.00	150.0	± 9.6 %
		Y	0.97	63.43	14.59		150.0	
		Z	0.84	62.32	13.88		150.0	
10516-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	X	0.48	68.87	15.07	0.00	150.0	± 9.6 %
		Y	0.57	69.35	16.87		150.0	
		Z	0.46	68.87	14.72		150.0	
10517-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	X	0.70	64.01	14.29	0.00	150.0	± 9.6 %
		Y	0.81	65.05	15.14		150.0	
		Z	0.67	63.88	14.09		150.0	
10518-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	X	4.40	66.43	16.07	0.00	150.0	± 9.6 %
		Y	4.30	67.01	16.08		150.0	
		Z	4.30	66.45	16.03		150.0	
10519-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	X	4.57	66.65	16.19	0.00	150.0	± 9.6 %
		Y	4.44	67.16	16.16		150.0	
		Z	4.45	66.64	16.14		150.0	
10520-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	X	4.42	66.59	16.10	0.00	150.0	± 9.6 %
		Y	4.30	67.09	16.08		150.0	
		Z	4.31	66.57	16.04		150.0	
10521-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	X	4.36	66.57	16.08	0.00	150.0	± 9.6 %
		Y	4.23	67.05	16.06		150.0	
		Z	4.24	66.54	16.02		150.0	
10522-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	X	4.42	66.70	16.19	0.00	150.0	± 9.6 %
		Y	4.27	67.14	16.13		150.0	
		Z	4.30	66.68	16.13		150.0	

EX3DV4– SN:7370 August 30, 2018

10523-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	X	4.31	66.56	16.03	0.00	150.0	± 9.6 %
		Y	4.22	67.21	16.10		150.0	
		Z	4.21	66.61	16.01		150.0	
10524-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	X	4.36	66.61	16.15	0.00	150.0	± 9.6 %
		Y	4.23	67.13	16.15		150.0	
		Z	4.24	66.61	16.11		150.0	
10525-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	X	4.36	65.66	15.74	0.00	150.0	± 9.6 %
		Y	4.27	66.29	15.79		150.0	
		Z	4.26	65.68	15.72		150.0	
10526-AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)	X	4.51	66.00	15.88	0.00	150.0	± 9.6 %
		Y	4.38	66.53	15.89		150.0	
		Z	4.40	65.99	15.84		150.0	
10527-AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)	X	4.44	65.96	15.82	0.00	150.0	± 9.6 %
		Y	4.32	66.51	15.84		150.0	
		Z	4.32	65.94	15.77		150.0	
10528-AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)	X	4.45	65.97	15.85	0.00	150.0	± 9.6 %
		Y	4.33	66.53	15.87		150.0	
		Z	4.34	65.96	15.81		150.0	
10529-AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)	X	4.45	65.97	15.85	0.00	150.0	± 9.6 %
		Y	4.33	66.53	15.87		150.0	
		Z	4.34	65.96	15.81		150.0	
10531-AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)	X	4.44	66.05	15.85	0.00	150.0	± 9.6 %
		Y	4.29	66.53	15.84		150.0	
		Z	4.31	66.00	15.79		150.0	
10532-AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)	X	4.30	65.90	15.78	0.00	150.0	± 9.6 %
		Y	4.18	66.40	15.78		150.0	
		Z	4.19	65.85	15.71		150.0	
10533-AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)	X	4.46	66.03	15.84	0.00	150.0	± 9.6 %
		Y	4.34	66.61	15.88		150.0	
		Z	4.34	66.03	15.81		150.0	
10534-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	X	5.01	66.09	15.95	0.00	150.0	± 9.6 %
		Y	4.89	66.48	15.92		150.0	
		Z	4.92	66.06	15.93		150.0	
10535-AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)	X	5.09	66.31	16.06	0.00	150.0	± 9.6 %
		Y	4.92	66.58	15.97		150.0	
		Z	4.97	66.23	16.02		150.0	
10536-AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)	X	4.95	66.24	15.99	0.00	150.0	± 9.6 %
		Y	4.82	66.60	15.96		150.0	
		Z	4.85	66.19	15.97		150.0	
10537-AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)	X	5.01	66.20	15.98	0.00	150.0	± 9.6 %
		Y	4.88	66.60	15.96		150.0	
		Z	4.91	66.17	15.97		150.0	
10538-AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)	X	5.09	66.21	16.03	0.00	150.0	± 9.6 %
		Y	4.94	66.54	15.96		150.0	
		Z	4.99	66.16	16.01		150.0	
10540-AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)	X	5.04	66.26	16.07	0.00	150.0	± 9.6 %
		Y	4.87	66.51	15.97		150.0	
		Z	4.91	66.12	16.00		150.0	

EX3DV4– SN:7370 August 30, 2018

10541-AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)	X	5.00	66.09	15.97	0.00	150.0	± 9.6 %
		Y	4.87	66.46	15.93		150.0	
		Z	4.88	65.99	15.92		150.0	
10542-AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)	X	5.16	66.18	16.04	0.00	150.0	± 9.6 %
		Y	5.01	66.54	15.98		150.0	
		Z	5.05	66.12	16.01		150.0	
10543-AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)	X	5.22	66.21	16.08	0.00	150.0	± 9.6 %
		Y	5.08	66.60	16.04		150.0	
		Z	5.13	66.20	16.07		150.0	
10544-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)	X	5.34	66.20	15.95	0.00	150.0	± 9.6 %
		Y	5.24	66.56	15.91		150.0	
		Z	5.26	66.13	15.93		150.0	
10545-AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)	X	5.55	66.70	16.16	0.00	150.0	± 9.6 %
		Y	5.37	66.89	16.04		150.0	
		Z	5.47	66.67	16.16		150.0	
10546-AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)	X	5.39	66.39	16.01	0.00	150.0	± 9.6 %
		Y	5.26	66.66	15.94		150.0	
		Z	5.29	66.27	15.97		150.0	
10547-AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)	X	5.47	66.46	16.04	0.00	150.0	± 9.6 %
		Y	5.33	66.76	15.98		150.0	
		Z	5.39	66.42	16.03		150.0	
10548-AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)	X	5.76	67.53	16.55	0.00	150.0	± 9.6 %
		Y	5.43	67.23	16.19		150.0	
		Z	5.61	67.30	16.45		150.0	
10550-AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)	X	5.44	66.51	16.08	0.00	150.0	± 9.6 %
		Y	5.30	66.80	16.02		150.0	
		Z	5.38	66.53	16.11		150.0	
10551-AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)	X	5.42	66.45	16.02	0.00	150.0	± 9.6 %
		Y	5.25	66.63	15.90		150.0	
		Z	5.30	66.28	15.95		150.0	
10552-AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)	X	5.34	66.25	15.92	0.00	150.0	± 9.6 %
		Y	5.25	66.70	15.93		150.0	
		Z	5.26	66.21	15.91		150.0	
10553-AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)	X	5.42	66.27	15.97	0.00	150.0	± 9.6 %
		Y	5.30	66.63	15.92		150.0	
		Z	5.32	66.18	15.93		150.0	
10554-AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 99pc duty cycle)	X	5.76	66.58	16.06	0.00	150.0	± 9.6 %
		Y	5.65	66.87	15.98		150.0	
		Z	5.69	66.50	16.03		150.0	
10555-AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 99pc duty cycle)	X	5.89	66.91	16.20	0.00	150.0	± 9.6 %
		Y	5.73	67.05	16.06		150.0	
		Z	5.80	66.80	16.16		150.0	
10556-AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 99pc duty cycle)	X	5.91	66.95	16.21	0.00	150.0	± 9.6 %
		Y	5.76	67.14	16.10		150.0	
		Z	5.84	66.88	16.19		150.0	
10557-AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 99pc duty cycle)	X	5.87	66.82	16.17	0.00	150.0	± 9.6 %
		Y	5.73	67.07	16.08		150.0	
		Z	5.78	66.71	16.13		150.0	

EX3DV4- SN:7370 August 30, 2018

10558-AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 99pc duty cycle)	X	5.91	66.98	16.26	0.00	150.0	± 9.6 %
		Y	5.73	67.10	16.11		150.0	
		Z	5.80	66.82	16.20		150.0	
10560-AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 99pc duty cycle)	X	5.90	66.82	16.22	0.00	150.0	± 9.6 %
		Y	5.76	67.05	16.12		150.0	
		Z	5.81	66.71	16.18		150.0	
10561-AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 99pc duty cycle)	X	5.84	66.83	16.26	0.00	150.0	± 9.6 %
		Y	5.68	67.01	16.13		150.0	
		Z	5.75	66.73	16.22		150.0	
10562-AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 99pc duty cycle)	X	5.94	67.14	16.42	0.00	150.0	± 9.6 %
		Y	5.73	67.16	16.21		150.0	
		Z	5.81	66.90	16.31		150.0	
10563-AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 99pc duty cycle)	X	6.07	67.17	16.40	0.00	150.0	± 9.6 %
		Y	5.83	67.13	16.16		150.0	
		Z	5.93	66.94	16.30		150.0	
10564-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	X	4.72	66.49	16.23	0.46	150.0	± 9.6 %
		Y	4.60	66.99	16.19		150.0	
		Z	4.62	66.50	16.19		150.0	
10565-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	X	4.94	66.95	16.56	0.46	150.0	± 9.6 %
		Y	4.79	67.40	16.51		150.0	
		Z	4.82	66.93	16.52		150.0	
10566-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	X	4.78	66.77	16.37	0.46	150.0	± 9.6 %
		Y	4.63	67.20	16.31		150.0	
		Z	4.66	66.74	16.31		150.0	
10567-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	X	4.80	67.16	16.73	0.46	150.0	± 9.6 %
		Y	4.67	67.62	16.70		150.0	
		Z	4.69	67.15	16.70		150.0	
10568-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	X	4.69	66.55	16.13	0.46	150.0	± 9.6 %
		Y	4.51	66.86	16.00		150.0	
		Z	4.56	66.49	16.05		150.0	
10569-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	X	4.77	67.28	16.81	0.46	150.0	± 9.6 %
		Y	4.66	67.86	16.84		150.0	
		Z	4.67	67.34	16.82		150.0	
10570-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	X	4.80	67.14	16.74	0.46	150.0	± 9.6 %
		Y	4.66	67.62	16.72		150.0	
		Z	4.66	67.15	16.72		150.0	
10571-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	X	1.00	63.09	14.71	0.46	130.0	± 9.6 %
		Y	1.09	63.79	14.93		130.0	
		Z	0.97	62.96	14.53		130.0	
10572-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	X	1.00	63.60	15.04	0.46	130.0	± 9.6 %
		Y	1.09	64.27	15.26		130.0	
		Z	0.98	63.46	14.87		130.0	
10573-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	X	1.18	78.99	19.90	0.46	130.0	± 9.6 %
		Y	1.02	75.98	19.89		130.0	
		Z	1.08	77.95	19.25		130.0	
10574-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	X	1.03	68.65	17.66	0.46	130.0	± 9.6 %
		Y	1.11	68.80	17.78		130.0	
		Z	0.99	68.46	17.48		130.0	

EX3DV4– SN:7370 August 30, 2018

10575-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	X	4.50	66.26	16.27	0.46	130.0	± 9.6 %
		Y	4.37	66.68	16.15		130.0	
		Z	4.39	66.26	16.21		130.0	
10576-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	X	4.52	66.43	16.34	0.46	130.0	± 9.6 %
		Y	4.40	66.90	16.25		130.0	
		Z	4.42	66.46	16.29		130.0	
10577-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	X	4.72	66.73	16.51	0.46	130.0	± 9.6 %
		Y	4.56	67.12	16.39		130.0	
		Z	4.60	66.72	16.46		130.0	
10578-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	X	4.61	66.87	16.61	0.46	130.0	± 9.6 %
		Y	4.47	67.27	16.51		130.0	
		Z	4.50	66.86	16.56		130.0	
10579-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle)	X	4.37	66.09	15.87	0.46	130.0	± 9.6 %
		Y	4.21	66.40	15.72		130.0	
		Z	4.25	66.02	15.78		130.0	
10580-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	X	4.42	66.16	15.91	0.46	130.0	± 9.6 %
		Y	4.23	66.42	15.72		130.0	
		Z	4.29	66.10	15.82		130.0	
10581-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	X	4.51	66.89	16.54	0.46	130.0	± 9.6 %
		Y	4.38	67.37	16.49		130.0	
		Z	4.40	66.91	16.51		130.0	
10582-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	X	4.31	65.87	15.66	0.46	130.0	± 9.6 %
		Y	4.13	66.14	15.49		130.0	
		Z	4.18	65.79	15.56		130.0	
10583-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	X	4.50	66.26	16.27	0.46	130.0	± 9.6 %
		Y	4.37	66.68	16.15		130.0	
		Z	4.39	66.26	16.21		130.0	
10584-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	X	4.52	66.43	16.34	0.46	130.0	± 9.6 %
		Y	4.40	66.90	16.25		130.0	
		Z	4.42	66.46	16.29		130.0	
10585-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	X	4.72	66.73	16.51	0.46	130.0	± 9.6 %
		Y	4.56	67.12	16.39		130.0	
		Z	4.60	66.72	16.46		130.0	
10586-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	X	4.61	66.87	16.61	0.46	130.0	± 9.6 %
		Y	4.47	67.27	16.51		130.0	
		Z	4.50	66.86	16.56		130.0	
10587-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	X	4.37	66.09	15.87	0.46	130.0	± 9.6 %
		Y	4.21	66.40	15.72		130.0	
		Z	4.25	66.02	15.78		130.0	
10588-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	X	4.42	66.16	15.91	0.46	130.0	± 9.6 %
		Y	4.23	66.42	15.72		130.0	
		Z	4.29	66.10	15.82		130.0	
10589-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	X	4.51	66.89	16.54	0.46	130.0	± 9.6 %
		Y	4.38	67.37	16.49		130.0	
		Z	4.40	66.91	16.51		130.0	
10590-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	X	4.31	65.87	15.66	0.46	130.0	± 9.6 %
		Y	4.13	66.14	15.49		130.0	
		Z	4.18	65.79	15.56		130.0	

EX3DV4– SN:7370 August 30, 2018

10591-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	X	4.65	66.34	16.39	0.46	130.0	± 9.6 %
		Y	4.53	66.80	16.29		130.0	
		Z	4.55	66.36	16.35		130.0	
10592-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)	X	4.80	66.67	16.52	0.46	130.0	± 9.6 %
		Y	4.64	67.06	16.41		130.0	
		Z	4.68	66.66	16.48		130.0	
10593-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)	X	4.71	66.56	16.38	0.46	130.0	± 9.6 %
		Y	4.56	66.93	16.26		130.0	
		Z	4.59	66.53	16.33		130.0	
10594-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)	X	4.77	66.73	16.55	0.46	130.0	± 9.6 %
		Y	4.61	67.12	16.43		130.0	
		Z	4.65	66.72	16.50		130.0	
10595-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)	X	4.73	66.68	16.44	0.46	130.0	± 9.6 %
		Y	4.58	67.09	16.34		130.0	
		Z	4.62	66.68	16.40		130.0	
10596-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)	X	4.67	66.67	16.44	0.46	130.0	± 9.6 %
		Y	4.50	67.03	16.32		130.0	
		Z	4.55	66.65	16.39		130.0	
10597-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)	X	4.62	66.55	16.30	0.46	130.0	± 9.6 %
		Y	4.46	66.90	16.17		130.0	
		Z	4.50	66.51	16.24		130.0	
10598-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)	X	4.60	66.78	16.57	0.46	130.0	± 9.6 %
		Y	4.46	67.16	16.46		130.0	
		Z	4.49	66.75	16.51		130.0	
10599-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	5.35	66.93	16.66	0.46	130.0	± 9.6 %
		Y	5.19	67.17	16.50		130.0	
		Z	5.28	66.99	16.69		130.0	
10600-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)	X	5.53	67.52	16.93	0.46	130.0	± 9.6 %
		Y	5.24	67.37	16.58		130.0	
		Z	5.43	67.53	16.93		130.0	
10601-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	X	5.39	67.16	16.76	0.46	130.0	± 9.6 %
		Y	5.19	67.30	16.57		130.0	
		Z	5.29	67.16	16.76		130.0	
10602-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)	X	5.52	67.31	16.76	0.46	130.0	± 9.6 %
		Y	5.25	67.22	16.44		130.0	
		Z	5.42	67.30	16.74		130.0	
10603-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	X	5.57	67.56	17.01	0.46	130.0	± 9.6 %
		Y	5.32	67.52	16.73		130.0	
		Z	5.52	67.72	17.10		130.0	
10604-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	X	5.41	67.09	16.76	0.46	130.0	± 9.6 %
		Y	5.20	67.13	16.51		130.0	
		Z	5.40	67.35	16.89		130.0	
10605-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)	X	5.51	67.40	16.92	0.46	130.0	± 9.6 %
		Y	5.25	67.29	16.59		130.0	
		Z	5.40	67.34	16.89		130.0	
10606-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)	X	5.20	66.52	16.33	0.46	130.0	± 9.6 %
		Y	5.06	66.82	16.20		130.0	
		Z	5.15	66.63	16.37		130.0	

EX3DV4– SN:7370 August 30, 2018

10607-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	4.50	65.65	16.00	0.46	130.0	± 9.6 %
		Y	4.38	66.16	15.95		130.0	
		Z	4.40	65.68	15.97		130.0	
10608-AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	X	4.67	66.04	16.17	0.46	130.0	± 9.6 %
		Y	4.51	66.46	16.08		130.0	
		Z	4.55	66.03	16.13		130.0	
10609-AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)	X	4.56	65.87	15.99	0.46	130.0	± 9.6 %
		Y	4.40	66.29	15.90		130.0	
		Z	4.44	65.85	15.94		130.0	
10610-AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)	X	4.61	66.03	16.16	0.46	130.0	± 9.6 %
		Y	4.46	66.47	16.08		130.0	
		Z	4.49	66.02	16.12		130.0	
10611-AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)	X	4.52	65.83	16.00	0.46	130.0	± 9.6 %
		Y	4.37	66.25	15.91		130.0	
		Z	4.40	65.81	15.95		130.0	
10612-AAB	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)	X	4.52	65.98	16.04	0.46	130.0	± 9.6 %
		Y	4.35	66.34	15.94		130.0	
		Z	4.40	65.95	15.99		130.0	
10613-AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)	X	4.52	65.84	15.91	0.46	130.0	± 9.6 %
		Y	4.34	66.16	15.78		130.0	
		Z	4.39	65.77	15.84		130.0	
10614-AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)	X	4.47	66.03	16.15	0.46	130.0	± 9.6 %
		Y	4.33	66.42	16.05		130.0	
		Z	4.36	66.00	16.10		130.0	
10615-AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)	X	4.52	65.66	15.77	0.46	130.0	± 9.6 %
		Y	4.35	66.07	15.67		130.0	
		Z	4.40	65.64	15.71		130.0	
10616-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	X	5.16	66.14	16.24	0.46	130.0	± 9.6 %
		Y	5.00	66.40	16.11		130.0	
		Z	5.06	66.09	16.22		130.0	
10617-AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)	X	5.25	66.40	16.34	0.46	130.0	± 9.6 %
		Y	5.03	66.47	16.12		130.0	
		Z	5.14	66.32	16.31		130.0	
10618-AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)	X	5.12	66.36	16.34	0.46	130.0	± 9.6 %
		Y	4.95	66.57	16.19		130.0	
		Z	5.03	66.34	16.32		130.0	
10619-AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)	X	5.14	66.15	16.17	0.46	130.0	± 9.6 %
		Y	4.97	66.40	16.03		130.0	
		Z	5.04	66.14	16.16		130.0	
10620-AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)	X	5.22	66.19	16.24	0.46	130.0	± 9.6 %
		Y	5.03	66.37	16.07		130.0	
		Z	5.12	66.16	16.22		130.0	
10621-AAB	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)	X	5.23	66.33	16.43	0.46	130.0	± 9.6 %
		Y	5.06	66.54	16.28		130.0	
		Z	5.12	66.25	16.40		130.0	
10622-AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)	X	5.24	66.50	16.51	0.46	130.0	± 9.6 %
		Y	5.04	66.60	16.30		130.0	
		Z	5.12	66.38	16.45		130.0	

EX3DV4– SN:7370 August 30, 2018

10623-AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	X	5.12	66.00	16.13	0.46	130.0	± 9.6 %
		Y	4.94	66.19	15.96		130.0	
		Z	4.99	65.84	16.04		130.0	
10624-AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)	X	5.31	66.22	16.31	0.46	130.0	± 9.6 %
		Y	5.13	66.43	16.14		130.0	
		Z	5.20	66.15	16.27		130.0	
10625-AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	X	5.63	67.10	16.80	0.46	130.0	± 9.6 %
		Y	5.20	66.53	16.26		130.0	
		Z	5.34	66.46	16.48		130.0	
10626-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	5.48	66.20	16.21	0.46	130.0	± 9.6 %
		Y	5.34	66.44	16.08		130.0	
		Z	5.39	66.13	16.18		130.0	
10627-AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)	X	5.75	66.91	16.53	0.46	130.0	± 9.6 %
		Y	5.53	66.93	16.29		130.0	
		Z	5.68	66.91	16.54		130.0	
10628-AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)	X	5.50	66.28	16.14	0.46	130.0	± 9.6 %
		Y	5.33	66.39	15.95		130.0	
		Z	5.40	66.13	16.08		130.0	
10629-AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)	X	5.59	66.37	16.18	0.46	130.0	± 9.6 %
		Y	5.41	66.54	16.02		130.0	
		Z	5.51	66.36	16.19		130.0	
10630-AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)	X	6.10	68.11	17.05	0.46	130.0	± 9.6 %
		Y	5.56	67.19	16.36		130.0	
		Z	5.90	67.73	16.87		130.0	
10631-AAB	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)	X	5.90	67.63	17.01	0.46	130.0	± 9.6 %
		Y	5.60	67.43	16.67		130.0	
		Z	5.76	67.43	16.92		130.0	
10632-AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)	X	5.72	66.98	16.70	0.46	130.0	± 9.6 %
		Y	5.54	67.13	16.53		130.0	
		Z	5.67	67.06	16.76		130.0	
10633-AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	X	5.55	66.41	16.24	0.46	130.0	± 9.6 %
		Y	5.36	66.50	16.04		130.0	
		Z	5.45	66.32	16.21		130.0	
10634-AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	X	5.54	66.44	16.31	0.46	130.0	± 9.6 %
		Y	5.39	66.71	16.20		130.0	
		Z	5.44	66.36	16.28		130.0	
10635-AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	X	5.41	65.76	15.70	0.46	130.0	± 9.6 %
		Y	5.24	65.91	15.52		130.0	
		Z	5.30	65.62	15.63		130.0	
10636-AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	X	5.91	66.59	16.31	0.46	130.0	± 9.6 %
		Y	5.77	66.77	16.15		130.0	
		Z	5.84	66.52	16.29		130.0	
10637-AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	X	6.08	67.05	16.52	0.46	130.0	± 9.6 %
		Y	5.86	67.00	16.25		130.0	
		Z	5.99	66.93	16.48		130.0	
10638-AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	X	6.08	67.01	16.48	0.46	130.0	± 9.6 %
		Y	5.89	67.09	16.28		130.0	
		Z	6.00	66.94	16.46		130.0	

EX3DV4– SN:7370 August 30, 2018

10639-AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 90pc duty cycle)	X	6.03	66.88	16.46	0.46	130.0	± 9.6 %
		Y	5.86	67.00	16.27		130.0	
		Z	5.95	66.78	16.43		130.0	
10640-AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle)	X	6.04	66.89	16.41	0.46	130.0	± 9.6 %
		Y	5.81	66.85	16.14		130.0	
		Z	5.93	66.73	16.34		130.0	
10641-AAC	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle)	X	6.11	66.89	16.43	0.46	130.0	± 9.6 %
		Y	5.90	66.91	16.19		130.0	
		Z	6.04	66.84	16.42		130.0	
10642-AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 90pc duty cycle)	X	6.12	67.06	16.69	0.46	130.0	± 9.6 %
		Y	5.94	67.17	16.49		130.0	
		Z	6.03	66.98	16.66		130.0	
10643-AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle)	X	5.98	66.80	16.45	0.46	130.0	± 9.6 %
		Y	5.78	66.82	16.20		130.0	
		Z	5.89	66.71	16.41		130.0	
10644-AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 90pc duty cycle)	X	6.10	67.16	16.65	0.46	130.0	± 9.6 %
		Y	5.83	67.00	16.32		130.0	
		Z	5.95	66.89	16.52		130.0	
10645-AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	X	6.30	67.42	16.74	0.46	130.0	± 9.6 %
		Y	5.95	67.03	16.29		130.0	
		Z	6.25	67.45	16.77		130.0	
10646-AAE	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	X	10.67	100.12	34.89	9.30	60.0	± 9.6 %
		Y	6.20	89.57	30.87		60.0	
		Z	7.99	94.69	33.32		60.0	
10647-AAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	X	9.30	97.49	34.14	9.30	60.0	± 9.6 %
		Y	5.37	86.69	29.91		60.0	
		Z	7.00	92.14	32.55		60.0	
10648-AAA	CDMA2000 (1x Advanced)	X	0.49	61.01	8.00	0.00	150.0	± 9.6 %
		Y	0.50	61.89	8.49		150.0	
		Z	0.40	60.00	6.46		150.0	
10652-AAC	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.22	65.65	15.94	2.23	80.0	± 9.6 %
		Y	3.11	66.12	15.63		80.0	
		Z	3.10	65.59	15.71		80.0	
10653-AAC	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	X	3.77	65.16	16.23	2.23	80.0	± 9.6 %
		Y	3.68	65.57	16.01		80.0	
		Z	3.67	65.10	16.10		80.0	
10654-AAC	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	X	3.77	64.82	16.25	2.23	80.0	± 9.6 %
		Y	3.71	65.21	16.06		80.0	
		Z	3.69	64.74	16.15		80.0	
10655-AAD	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	3.84	64.80	16.30	2.23	80.0	± 9.6 %
		Y	3.79	65.13	16.10		80.0	
		Z	3.76	64.68	16.20		80.0	
10658-AAA	Pulse Waveform (200Hz, 10%)	X	4.64	72.37	13.55	10.00	50.0	± 9.6 %
		Y	3.94	70.35	12.12		50.0	
		Z	3.87	70.02	12.55		50.0	
10659-AAA	Pulse Waveform (200Hz, 20%)	X	5.15	75.45	13.36	6.99	60.0	± 9.6 %
		Y	7.32	78.11	13.80		60.0	
		Z	2.43	68.56	10.74		60.0	

10660-AAA	Pulse Waveform (200Hz, 40%)	X	1.22	66.15	8.39	3.98	80.0	± 9.6 %
		Y	100.00	99.93	16.14		80.0	
		Z	0.57	61.12	5.87		80.0	
10661-AAA	Pulse Waveform (200Hz, 60%)	X	0.28	60.00	4.15	2.22	100.0	± 9.6 %
		Y	100.00	104.01	16.88		100.0	
		Z	0.27	60.00	3.62		100.0	
10662-AAA	Pulse Waveform (200Hz, 80%)	X	3.28	320.06	49.16	0.97	120.0	± 9.6 %
		Y	100.00	121.64	24.36		120.0	
		Z	0.85	198.47	10.44		120.0	

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

Calibration Laboratory of
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Accreditation No.: SCS 0108

Client **HCT (Dymstec)** Certificate No: **EX3-3863_Apr18**

CALIBRATION CERTIFICATE

Object EX3DV4 - SN:3863

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

Calibration date: April 25, 2018

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-18 (No. 217-02672/02673)	Apr-19
Power sensor NRP-Z91	SN: 103244	04-Apr-18 (No. 217-02672)	Apr-19
Power sensor NRP-Z91	SN: 103245	04-Apr-18 (No. 217-02673)	Apr-19
Reference 20 dB Attenuator	SN: S5277 (20x)	04-Apr-18 (No. 217-02682)	Apr-19
Reference Probe ES3DV2	SN: 3013	30-Dec-17 (No. ES3-3013_Dec17)	Dec-18
DAE4	SN: 660	21-Dec-17 (No. DAE4-660_Dec17)	Dec-18
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: MY41496087	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-16)	In house check: Jun-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-17)	In house check: Oct-18

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

Issued: April 26, 2018

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

결재	담당자	확인자
	2018. 05. 11 GW 강태준	2018. 5. 11 팀장 허용정

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

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

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

Probe EX3DV4

SN:3863

Manufactured: February 2, 2012
Calibrated: April 25, 2018

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3863

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.35	0.34	0.45	± 10.1 %
DCP (mV)[B]	99.7	103.9	103.3	

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	151.1	±3.5 %
		Y	0.0	0.0	1.0		153.4	
		Z	0.0	0.0	1.0		149.6	

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	35.70	266.3	35.57	18.74	0.500	5.000	0.445	0.515	1.000
Y	23.67	174.6	34.99	6.322	0.441	5.000	1.481	0.043	1.003
Z	41.62	317.3	36.81	8.754	0.711	5.047	0.519	0.469	1.008

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.

EX3DV4– SN:3863 April 25, 2018

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3863

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)
150	52.3	0.76	12.22	12.22	12.22	0.00	1.00	± 13.3 %
450	43.5	0.87	10.92	10.92	10.92	0.14	1.20	± 13.3 %
750	41.9	0.89	10.20	10.20	10.20	0.61	0.80	± 12.0 %
835	41.5	0.90	9.95	9.95	9.95	0.50	0.80	± 12.0 %
900	41.5	0.97	9.67	9.67	9.67	0.32	1.07	± 12.0 %
1450	40.5	1.20	8.78	8.78	8.78	0.34	0.80	± 12.0 %
1750	40.1	1.37	8.45	8.45	8.45	0.42	0.80	± 12.0 %
1900	40.0	1.40	8.19	8.19	8.19	0.36	0.80	± 12.0 %
2300	39.5	1.67	7.77	7.77	7.77	0.34	0.86	± 12.0 %
2450	39.2	1.80	7.62	7.62	7.62	0.36	0.85	± 12.0 %
2600	39.0	1.96	7.19	7.19	7.19	0.36	0.93	± 12.0 %
5250	35.9	4.71	5.04	5.04	5.04	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.68	4.68	4.68	0.40	1.80	± 13.1 %
5750	35.4	5.22	5.08	5.08	5.08	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.

EX3DV4– SN:3863 April 25, 2018

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3863

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)
150	61.9	0.80	11.86	11.86	11.86	0.00	1.00	± 13.3 %
450	56.7	0.94	10.78	10.78	10.78	0.08	1.20	± 13.3 %
750	55.5	0.96	10.02	10.02	10.02	0.37	0.89	± 12.0 %
835	55.2	0.97	9.66	9.66	9.66	0.42	0.91	± 12.0 %
1750	53.4	1.49	8.18	8.18	8.18	0.40	0.80	± 12.0 %
1900	53.3	1.52	7.84	7.84	7.84	0.34	0.80	± 12.0 %
2300	52.9	1.81	7.68	7.68	7.68	0.29	0.90	± 12.0 %
2450	52.7	1.95	7.48	7.48	7.48	0.27	0.97	± 12.0 %
2600	52.5	2.16	7.27	7.27	7.27	0.17	1.05	± 12.0 %
5250	48.9	5.36	4.41	4.41	4.41	0.50	1.90	± 13.1 %
5600	48.5	5.77	3.88	3.88	3.88	0.50	1.90	± 13.1 %
5750	48.3	5.94	4.21	4.21	4.21	0.50	1.90	± 13.1 %

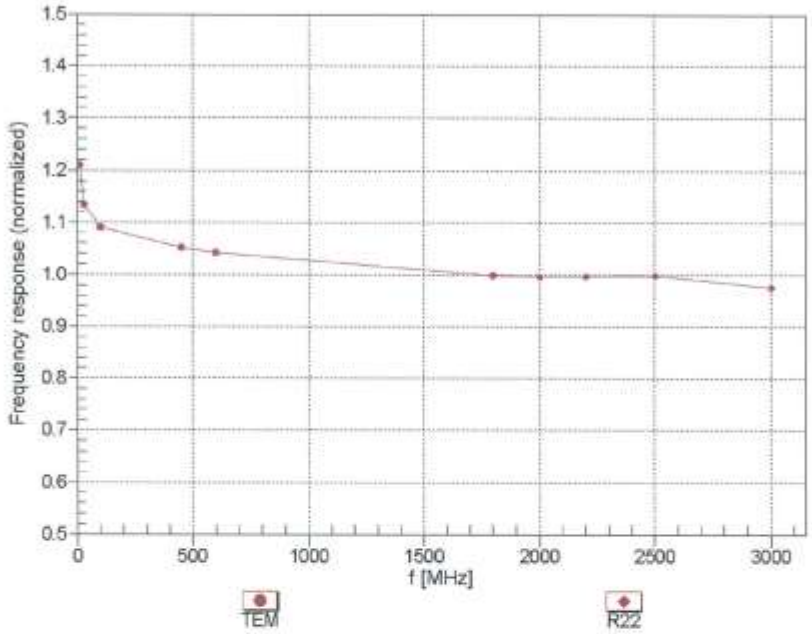
[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz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

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

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

EX3DV4- SN:3863 April 25, 2018

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

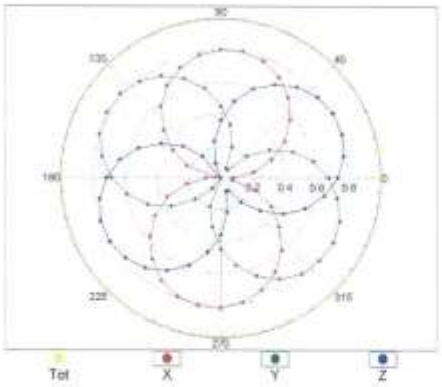


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

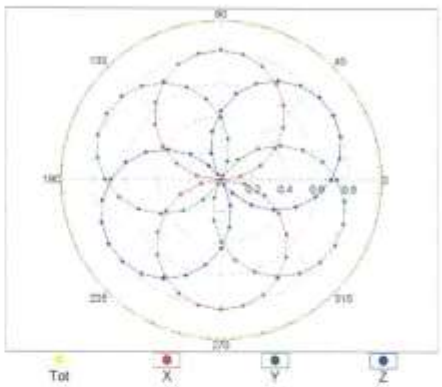
EX3DV4– SN:3863 April 25, 2018

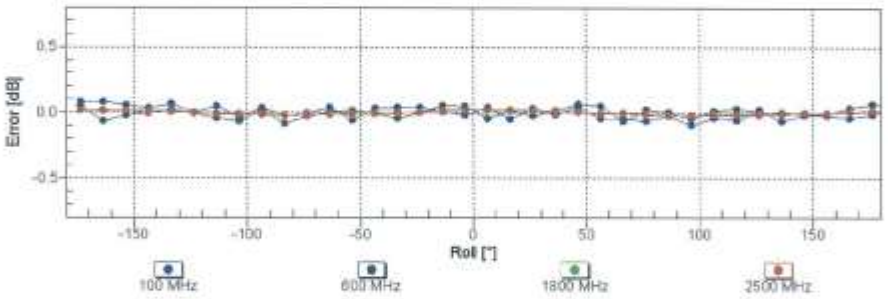
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



f=1800 MHz,R22

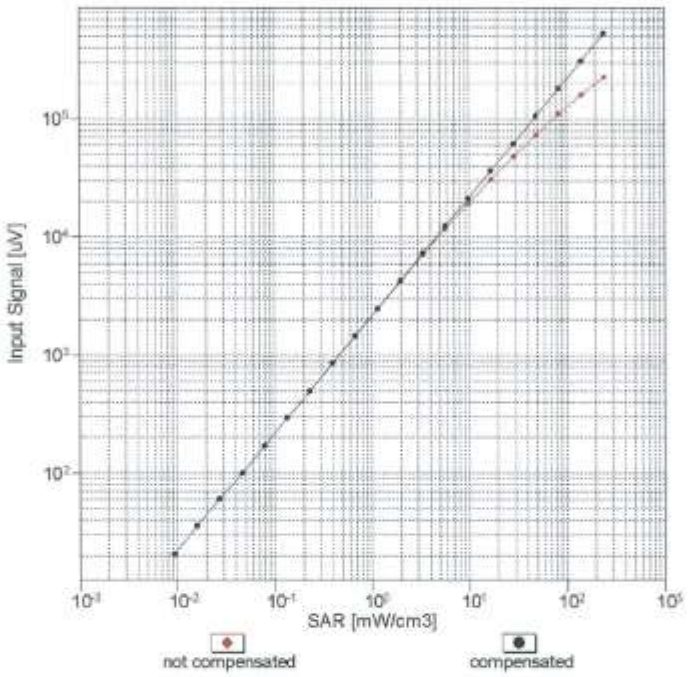


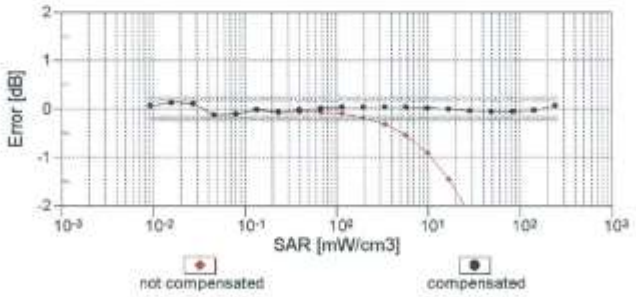


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

EX3DV4– SN:3863 April 25, 2018

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



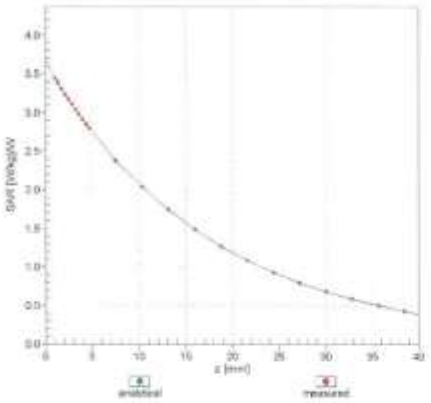


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

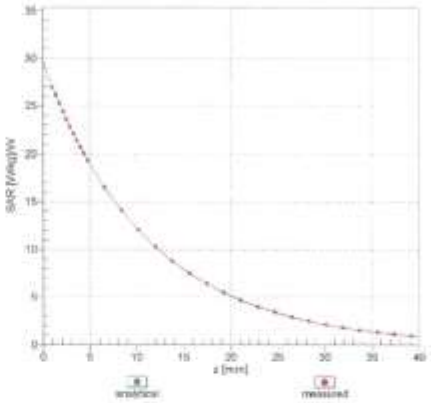
EX3DV4– SN:3863 April 25, 2018

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

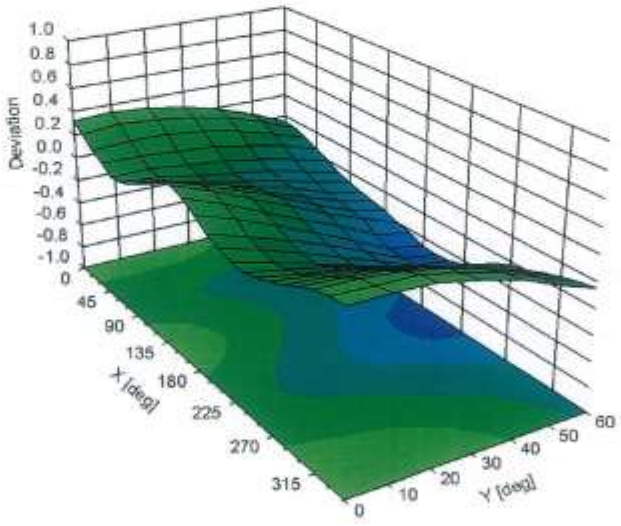


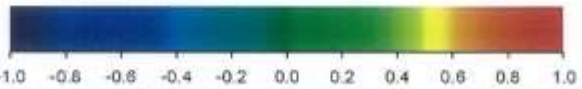
f = 1900 MHz,WGLS R22 (H_convF)



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:3863

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	106.5
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

EX3DV4– SN:3863 April 25, 2018

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	151.1	± 3.5 %
		Y	0.00	0.00	1.00		153.4	
		Z	0.00	0.00	1.00		149.6	
10010-CAA	SAR Validation (Square, 100ms, 10ms)	X	11.00	70.00	30.00	10.00	20.0	± 9.6 %
		Y	1.74	62.86	8.09		20.0	
		Z	2.07	64.28	9.36		20.0	
10011-CAB	UMTS-FDD (WCDMA)	X	0.92	66.96	14.69	0.00	150.0	± 9.6 %
		Y	1.23	73.72	17.72		150.0	
		Z	0.82	64.81	13.15		150.0	
10012-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	1.13	63.96	15.00	0.41	150.0	± 9.6 %
		Y	1.12	65.21	15.97		150.0	
		Z	1.04	62.64	14.13		150.0	
10013-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	X	4.66	66.70	16.87	1.46	150.0	± 9.6 %
		Y	4.41	67.26	17.07		150.0	
		Z	4.70	66.40	16.80		150.0	
10021-DAC	GSM-FDD (TDMA, GMSK)	X	9.09	79.88	16.40	9.39	50.0	± 9.6 %
		Y	45.23	97.58	21.17		50.0	
		Z	100.00	110.54	25.67		50.0	
10023-DAC	GPRS-FDD (TDMA, GMSK, TN 0)	X	6.78	76.49	15.24	9.57	50.0	± 9.6 %
		Y	9.44	80.59	16.39		50.0	
		Z	67.36	105.58	24.50		50.0	
10024-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	11.10	81.88	15.87	6.56	60.0	± 9.6 %
		Y	100.00	103.67	20.95		60.0	
		Z	100.00	108.28	23.45		60.0	
10025-DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	X	3.31	63.37	21.37	12.57	50.0	± 9.6 %
		Y	4.23	71.81	26.71		50.0	
		Z	3.77	66.74	23.69		50.0	
10026-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	X	9.84	92.28	31.76	9.56	60.0	± 9.6 %
		Y	5.95	83.99	29.74		60.0	
		Z	7.19	86.26	30.24		60.0	
10027-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	100.00	101.03	19.83	4.80	80.0	± 9.6 %
		Y	100.00	103.59	20.13		80.0	
		Z	100.00	106.91	22.02		80.0	
10028-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	X	100.00	100.43	19.05	3.55	100.0	± 9.6 %
		Y	100.00	104.67	19.92		100.0	
		Z	100.00	105.33	20.65		100.0	
10029-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	X	6.41	82.79	27.10	7.80	80.0	± 9.6 %
		Y	4.05	75.66	25.13		80.0	
		Z	4.75	77.36	25.50		80.0	
10030-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	X	5.28	74.89	13.09	5.30	70.0	± 9.6 %
		Y	100.00	100.23	18.93		70.0	
		Z	100.00	105.72	21.80		70.0	
10031-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	X	4.88	76.31	11.58	1.88	100.0	± 9.6 %
		Y	0.28	61.23	5.16		100.0	
		Z	0.39	62.06	6.02		100.0	

EX3DV4– SN:3863 April 25, 2018

10032-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	X	99.99	93.80	14.65	1.17	100.0	± 9.6 %
		Y	0.14	60.00	3.64		100.0	
		Z	0.18	60.00	3.83		100.0	
10033-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	X	6.63	80.89	18.62	5.30	70.0	± 9.6 %
		Y	3.59	74.26	15.11		70.0	
		Z	6.50	84.64	21.35		70.0	
10034-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	X	2.35	71.30	13.76	1.88	100.0	± 9.6 %
		Y	0.91	63.27	8.38		100.0	
		Z	1.79	70.18	14.28		100.0	
10035-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	X	1.70	69.13	12.72	1.17	100.0	± 9.6 %
		Y	0.67	61.91	7.34		100.0	
		Z	1.29	67.25	12.66		100.0	
10036-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	X	8.29	83.97	19.70	5.30	70.0	± 9.6 %
		Y	4.28	76.54	16.01		70.0	
		Z	8.57	88.94	22.82		70.0	
10037-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	X	2.17	70.51	13.42	1.88	100.0	± 9.6 %
		Y	0.85	62.76	8.13		100.0	
		Z	1.68	69.54	13.98		100.0	
10038-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	X	1.73	69.53	13.00	1.17	100.0	± 9.6 %
		Y	0.68	62.14	7.59		100.0	
		Z	1.29	67.51	12.89		100.0	
10039-CAB	CDMA2000 (1xRTT, RC1)	X	1.20	68.00	12.32	0.00	150.0	± 9.6 %
		Y	0.40	60.00	5.73		150.0	
		Z	1.08	65.78	11.49		150.0	
10042-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	X	3.96	71.13	12.28	7.78	50.0	± 9.6 %
		Y	4.33	73.40	12.83		50.0	
		Z	20.63	89.92	18.82		50.0	
10044-CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	X	0.03	118.44	11.49	0.00	150.0	± 9.6 %
		Y	0.03	123.41	0.47		150.0	
		Z	0.10	121.86	6.25		150.0	
10048-CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	X	4.53	70.04	14.07	13.80	25.0	± 9.6 %
		Y	4.85	69.08	13.50		25.0	
		Z	9.31	78.44	18.09		25.0	
10049-CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	X	5.00	72.36	13.87	10.79	40.0	± 9.6 %
		Y	4.95	72.19	13.60		40.0	
		Z	10.49	82.35	18.31		40.0	
10056-CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	X	9.88	83.19	19.98	9.03	50.0	± 9.6 %
		Y	7.80	79.96	18.01		50.0	
		Z	13.55	90.17	23.36		50.0	
10058-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	X	4.96	77.96	24.46	6.55	100.0	± 9.6 %
		Y	3.33	72.13	22.83		100.0	
		Z	3.78	73.24	22.95		100.0	
10059-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	X	1.19	65.20	15.58	0.61	110.0	± 9.6 %
		Y	1.14	66.22	16.48		110.0	
		Z	1.06	63.47	14.60		110.0	
10060-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	X	18.28	106.21	26.40	1.30	110.0	± 9.6 %
		Y	100.00	142.43	36.78		110.0	
		Z	2.88	84.70	20.89		110.0	

EX3DV4– SN:3863 April 25, 2018

10061-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	X	3.45	81.46	21.39	2.04	110.0	± 9.6 %
		Y	2.51	81.17	22.36		110.0	
		Z	1.97	74.69	19.49		110.0	
10062-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	X	4.45	66.68	16.34	0.49	100.0	± 9.6 %
		Y	4.22	67.27	16.54		100.0	
		Z	4.49	66.34	16.21		100.0	
10063-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	X	4.47	66.76	16.42	0.72	100.0	± 9.6 %
		Y	4.23	67.37	16.64		100.0	
		Z	4.51	66.43	16.31		100.0	
10064-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	X	4.71	66.95	16.61	0.86	100.0	± 9.6 %
		Y	4.42	67.49	16.78		100.0	
		Z	4.77	66.69	16.54		100.0	
10065-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	X	4.59	66.82	16.68	1.21	100.0	± 9.6 %
		Y	4.30	67.26	16.81		100.0	
		Z	4.65	66.56	16.62		100.0	
10066-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	X	4.60	66.82	16.82	1.46	100.0	± 9.6 %
		Y	4.29	67.17	16.89		100.0	
		Z	4.66	66.58	16.78		100.0	
10067-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	X	4.89	67.08	17.27	2.04	100.0	± 9.6 %
		Y	4.52	67.29	17.26		100.0	
		Z	4.96	66.83	17.27		100.0	
10068-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	X	4.93	67.01	17.42	2.55	100.0	± 9.6 %
		Y	4.61	67.41	17.54		100.0	
		Z	5.00	66.81	17.45		100.0	
10069-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	X	4.99	67.04	17.61	2.67	100.0	± 9.6 %
		Y	4.63	67.31	17.64		100.0	
		Z	5.07	66.84	17.65		100.0	
10071-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	X	4.76	66.78	17.15	1.99	100.0	± 9.6 %
		Y	4.51	67.31	17.34		100.0	
		Z	4.79	66.48	17.11		100.0	
10072-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	X	4.72	67.04	17.33	2.30	100.0	± 9.6 %
		Y	4.43	67.41	17.46		100.0	
		Z	4.76	66.75	17.30		100.0	
10073-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	X	4.80	67.25	17.65	2.83	100.0	± 9.6 %
		Y	4.51	67.66	17.82		100.0	
		Z	4.82	66.92	17.62		100.0	
10074-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	X	4.81	67.22	17.80	3.30	100.0	± 9.6 %
		Y	4.56	67.77	18.04		100.0	
		Z	4.81	66.83	17.77		100.0	
10075-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	X	4.84	67.27	18.05	3.82	90.0	± 9.6 %
		Y	4.60	67.82	18.29		90.0	
		Z	4.85	66.90	18.05		90.0	
10076-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	X	4.88	67.16	18.22	4.15	90.0	± 9.6 %
		Y	4.64	67.67	18.44		90.0	
		Z	4.88	66.75	18.20		90.0	
10077-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	X	4.92	67.26	18.33	4.30	90.0	± 9.6 %
		Y	4.68	67.80	18.58		90.0	
		Z	4.90	66.83	18.30		90.0	

10081-CAB	CDMA2000 (1xRTT, RC3)	X	0.57	63.24	9.45	0.00	150.0	± 9.6 %
		Y	0.29	60.00	5.08		150.0	
		Z	0.55	61.98	8.86		150.0	
10082-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	X	0.85	60.00	4.39	4.77	80.0	± 9.6 %
		Y	0.61	60.00	3.29		80.0	
		Z	0.85	61.10	4.43		80.0	
10090-DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	X	11.01	81.80	15.86	6.56	60.0	± 9.6 %
		Y	100.00	103.71	20.98		60.0	
		Z	100.00	108.37	23.51		60.0	
10097-CAB	UMTS-FDD (HSDPA)	X	1.75	68.14	15.41	0.00	150.0	± 9.6 %
		Y	2.15	73.36	17.10		150.0	
		Z	1.61	66.21	14.35		150.0	
10098-CAB	UMTS-FDD (HSUPA, Subtest 2)	X	1.71	68.07	15.37	0.00	150.0	± 9.6 %
		Y	2.11	73.35	17.12		150.0	
		Z	1.57	66.13	14.31		150.0	
10099-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	X	9.91	92.40	31.80	9.56	60.0	± 9.6 %
		Y	6.00	84.12	29.79		60.0	
		Z	7.24	86.36	30.27		60.0	
10100-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	2.91	69.93	16.52	0.00	150.0	± 9.6 %
		Y	2.94	71.66	17.64		150.0	
		Z	2.79	68.74	15.72		150.0	
10101-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	3.05	67.27	15.75	0.00	150.0	± 9.6 %
		Y	2.96	68.14	16.32		150.0	
		Z	3.02	66.65	15.31		150.0	
10102-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	3.16	67.31	15.88	0.00	150.0	± 9.6 %
		Y	3.06	68.19	16.41		150.0	
		Z	3.13	66.69	15.44		150.0	
10103-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	6.17	75.27	19.83	3.98	65.0	± 9.6 %
		Y	5.02	74.56	20.07		65.0	
		Z	5.58	74.23	19.78		65.0	
10104-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	6.38	74.05	20.09	3.98	65.0	± 9.6 %
		Y	4.96	71.85	19.45		65.0	
		Z	5.51	71.89	19.54		65.0	
10105-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	5.67	71.78	19.42	3.98	65.0	± 9.6 %
		Y	4.68	70.50	19.12		65.0	
		Z	5.40	71.34	19.60		65.0	
10108-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	2.50	69.27	16.35	0.00	150.0	± 9.6 %
		Y	2.53	71.57	17.63		150.0	
		Z	2.41	68.02	15.51		150.0	
10109-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	2.70	67.24	15.61	0.00	150.0	± 9.6 %
		Y	2.63	68.68	16.24		150.0	
		Z	2.66	66.45	15.11		150.0	
10110-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	1.99	68.44	15.79	0.00	150.0	± 9.6 %
		Y	2.06	71.55	17.06		150.0	
		Z	1.92	67.04	14.92		150.0	
10111-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	2.45	68.57	15.90	0.00	150.0	± 9.6 %
		Y	2.57	71.53	16.67		150.0	
		Z	2.35	67.12	15.16		150.0	

EX3DV4– SN:3863 April 25, 2018

10112-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	2.83	67.33	15.71	0.00	150.0	± 9.6 %
		Y	2.76	66.82	16.33		150.0	
		Z	2.79	66.53	15.22		150.0	
10113-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	2.60	68.79	16.07	0.00	150.0	± 9.6 %
		Y	2.70	71.55	16.71		150.0	
		Z	2.50	67.36	15.35		150.0	
10114-CAC	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	X	4.91	67.08	16.35	0.00	150.0	± 9.6 %
		Y	4.70	67.41	16.61		150.0	
		Z	4.96	66.85	16.19		150.0	
10115-CAC	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	X	5.16	67.16	16.39	0.00	150.0	± 9.6 %
		Y	4.93	67.53	16.63		150.0	
		Z	5.21	66.93	16.24		150.0	
10116-CAC	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	X	5.00	67.28	16.38	0.00	150.0	± 9.6 %
		Y	4.76	67.61	16.63		150.0	
		Z	5.04	67.03	16.21		150.0	
10117-CAC	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	4.91	67.04	16.35	0.00	150.0	± 9.6 %
		Y	4.68	67.32	16.58		150.0	
		Z	4.93	66.73	16.15		150.0	
10118-CAC	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	X	5.23	67.34	16.49	0.00	150.0	± 9.6 %
		Y	4.94	67.52	16.63		150.0	
		Z	5.30	67.14	16.35		150.0	
10119-CAC	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	X	4.99	67.27	16.39	0.00	150.0	± 9.6 %
		Y	4.77	67.61	16.64		150.0	
		Z	5.03	67.00	16.20		150.0	
10140-CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	3.18	67.31	15.78	0.00	150.0	± 9.6 %
		Y	3.06	68.22	16.30		150.0	
		Z	3.16	66.70	15.36		150.0	
10141-CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	3.31	67.51	16.00	0.00	150.0	± 9.6 %
		Y	3.20	68.53	16.55		150.0	
		Z	3.29	66.86	15.57		150.0	
10142-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	1.75	68.36	15.09	0.00	150.0	± 9.6 %
		Y	1.78	71.06	15.42		150.0	
		Z	1.66	66.67	14.20		150.0	
10143-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	2.25	68.96	15.03	0.00	150.0	± 9.6 %
		Y	1.94	68.81	13.51		150.0	
		Z	2.12	67.21	14.32		150.0	
10144-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	1.90	65.74	12.89	0.00	150.0	± 9.6 %
		Y	1.39	63.90	10.43		150.0	
		Z	1.92	65.05	12.71		150.0	
10145-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	0.74	61.13	7.80	0.00	150.0	± 9.6 %
		Y	0.44	60.00	4.49		150.0	
		Z	0.83	61.47	8.46		150.0	
10146-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	0.98	60.10	6.33	0.00	150.0	± 9.6 %
		Y	0.63	60.00	3.77		150.0	
		Z	1.32	62.30	8.56		150.0	
10147-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	1.02	60.37	6.56	0.00	150.0	± 9.6 %
		Y	0.63	60.00	3.82		150.0	
		Z	1.41	62.99	9.03		150.0	