On your side

TEST REPORT

FCC SAR Test for certification of A3LSMR820

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-SR-1907-FI003

DATE OF ISSUE
Jul. 26, 2019

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Applicant	SAMSUNG Electronics Co., Ltd 129, Samsung-ro, Yeongtong-gu, Suwon-Si, Gyeonggi-do, 16677 Rep. of Korea
Equipment Type Model Name	Smart watch SM-R820
FCC ID	A3LSMR820
Date of Test	Jul. 11, 2019 ~ Jul. 12, 2019, Jul. 25, 2019
FCC Rule Part(s)	CFR §2.1093

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.

The result shown in this test report refer only to the sample(s) tested unless otherwise stated.

Tested by
Min Young Kim (signature)

Technical Manager
Yun Jeang Heo (signature)

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	Jul. 26, 2019	Initial Release

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1. Test Regulations

The tests were performed according to the following regulations:

Test Standard	IEEE Standard 1528-2013 & KDB procedures
Test Method	- FCC KDB Publication 248227 D01 802.11 Wi-Fi SAR v02r02 - FCC KDB Publication 447498 D01 General SAR Guidance v06 - FCC KDB Publication 690783 D01 SAR Listings on Grants v01r03 - FCC KDB Publication 865664 D01 SAR measurement 100 ㎒ to 6 GHz v01r04 - FCC KDB Publication 865664 D02 SAR Reporting v01r02

2. Test Location

2.1 Test Laboratory

Company Name	HCT Co., Ltd.
Address	74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 KOREA
Telephone	031-645-6300
Fax.	031-645-6401

3. Information of the EUT

3.1 General Information of the EUT

Model Name	SM-R820
Equipment Type	Smart watch
FCC ID	A3LSMR820
Applicant	SAMSUNG Electronics Co., Ltd.

3.2 Attestation of test result of device under test

The Highest Reported SAR (W/Kg)				
Band	Tx. Frequency	Equipment Class	Reported SAR (W/kg)	
			Next-to-Mouth 1g SAR	Extremity (Wrist) 10g SAR
802.11b	2 412 ㎒ ~ 2 472 ㎒	DTS	0.17	0.16
Bluetooth	2 402 ㎒ ~ 2 480 ㎒	DSS	0.12	0.12
Date(s) of Tests:	Jul. 11, 2019 ~ Jul. 12, 2019, Jul. 25, 2019			

4. Device Under Test Description

4.1 DUT specification

Device Wireless specification overview		
Band & Mode	Operating Mode	Tx Frequency
2.4 GHz WLAN	Data	2 412 ㎒~ 2 472 ㎒
Bluetooth / LE 5.0	Data	2 402 ㎒ ~ 2 480 ㎒
NFC	Data	13.56 ㎒

Device Description			
Device Dimension	Diagonal dimension of LCD: 34.5 mm		
Battery Information	Battery Model Name: EB-BR820ABY		
HW version	REV1.0		
SW version :	R820.001		
Device Serial Numbers	Mode		Serial Number
	Aluminum Watch	Bluetooth, WLAN 2.4GHz	R3AM600C0KN
	Stainless Watch	Bluetooth, WLAN 2.4GHz	R3AM6012GKH

4.2 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.

4.2.1 Maximum WLAN Power

Mode / Band			Modulated Average (dBm)		
Mode	Channel		802.11b	802.11g	802.11n
2.4 GHz WIFI	Ch.1 ~ Ch.11	Maximum	18	16.5	15
		Nominal	17	15.5	14
	Ch.12	Maximum	13	13	13
		Nominal	12	12	12
	Ch.13	Maximum	7.5	7.5	7.5
		Nominal	6.5	6.5	6.5

4.2.2 Bluetooth Power

Mode / Band		Modulated Average (dBm)
Bluetooth BR	Maximum	16.5
	Nominal	15.5
Bluetooth LE EDR	Maximum	10.3
	Nominal	9.3
Bluetooth LE	Maximum	9.3
	Nominal	8.3

4.3 DUT Antenna Locations

A diagram showing the location of the DUT antenna can be found in SAR_Setup_Photos.

4.4 Near Field Communications (NFC) Antenna

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

4.5 SAR Test Considerations

4.5.1 Bluetooth LE

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

$$\frac{MaxPowerofChannel(mW)}{TestSeparationDistance(mm)} * \sqrt{Frequency(GHz)} \leq 3.0(1g\ \ SAR), 7.5(10g\ \ SAR)$$

Mode		Frequency	Maximum Allowed Power	Separation Distance	≤ 3.0	≤ 7.5
		[MHz]	[mW]	[mm]	1-g SAR	10-g SAR
Bluetooth LE	Head SAR	2 480	8	10	1.3	
	Extremity SAR			5		2.5

Based on the maximum conducted power of Bluetooth LE and antenna to use separation distance, Bluetooth LE SAR was not required [(8/10)*√2.480] = 1.3 ≤ 3.0 for 1-g SAR, [(8/5)*√2.480] = 2.5 ≤ 7.5 for 10-g SAR.

The Reported SAR for WLAN and Bluetooth

The Reported SAR = The Measured SAR *-$\frac{Maximum\ \ tune-up\ \ (mW)}{Measured\ \ Conducted\ \ Power(mW)}$ * Duty factor

4.6 SAR Summation Scenario

Path 1

The Transmission path

This device contains one transmitter that cannot operate simultaneously,

Simultaneous Transmission Scenarios	
Applicable Combination	Body
2.4 GHz WiFi Antenna + 2.4 GHz Bluetooth	NO

1. 2.4 GHz WLAN and BT modes cannot transmit simultaneously.

5. 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/m³)

E = Total RMS electric field strength (V/m)

NOTE: The primary factors that control rate of energy absorption were found to be the wavelength of the incident field in 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.

6. Description of test equipment

6.1 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.

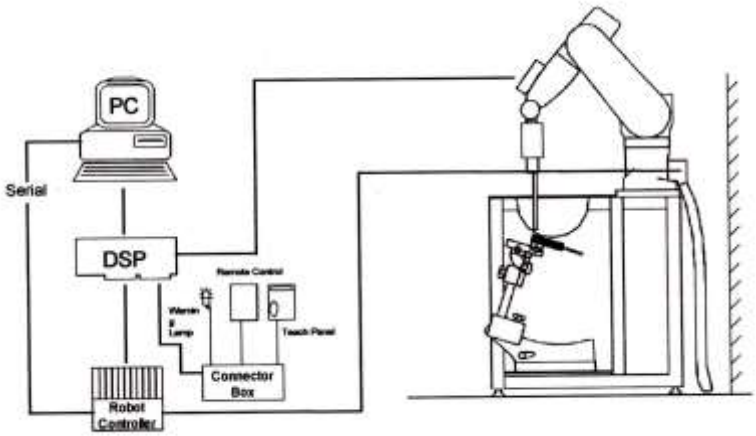


Figure 2. HCT SAR Lab. Test Measurement Set-up

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.

7. 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.

			≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5±1 mm	$^1/_2 \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			30°±1°	20°±1°
Maximum area scan Spatial resolution: Δx_{Area}, Δy_{Area}			≤ 2 GHz: ≤15 mm 2-3 GHz: ≤12 mm	3-4 GHz: ≤12 mm 4-6 GHz: ≤10 mm
			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.	
Maximum zoom scan Spatial resolution: Δx_{zoom}, Δy_{zoom}			≤ 2 GHz: ≤8mm 2-3 GHz: ≤5mm*	3-4 GHz: ≤5 mm* 4-6 GHz: ≤4 mm*
Maximum zoom scan Spatial resolution normal to phantom surface	uniform grid: $\Delta z_{zoom}(n)$		≤ 5 mm	3-4 GHz: ≤4 mm 4-5 GHz: ≤3 mm 5-6 GHz: ≤2 mm
	graded grid	$\Delta z_{zoom}(1)$: between 1st two Points closest to phantom surface	≤ 4 mm	3-4 GHz: ≤3 mm 4-5 GHz: ≤2.5 mm 5-6 GHz: ≤2 mm
		$\Delta z_{zoom}(n>1)$: between subsequent Points	$\leq 1.5 \cdot \Delta z_{zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3-4 GHz: ≥28 mm 4-5 GHz: ≥25 mm 5-6 GHz: ≥22 mm

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.

8. Description of Test Position

8.1 Wrist watch and wrist-worn transmitters

8.1.1 Device Holder

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

8.1.2 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.

8.1.3 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.

9. RF Exposure Limits

HUMAN EXPOSURE	UNCONTROLLED ENVIRONMENT General Population (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT Occupational (W/kg) or (mW/g)
SPATIAL PEAK SAR * (Brain)	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.

10. FCC SAR General Measurement Procedures

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

10.1 Measured and Reported SAR

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

10.2 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.

10.2.1 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.

10.2.2 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.

10.2.3 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.

11. Output Power Specifications

11.1 WIFI Conducted Power measurement method

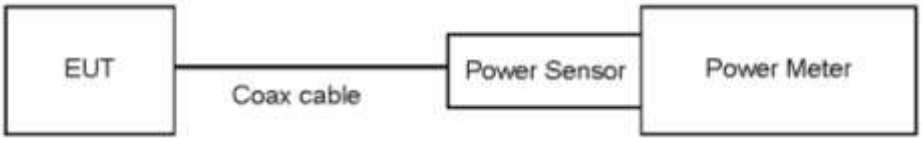
Un-Licensed bands (DTS Band)

Test Description	Test Procedure Used
Conducted Output Power	- KDB 558074 v05 - Section 8.3.2.3 - ANSI 63.10-2013 - Section 11.9.2.3

Test Procedure

1. Measure the duty cycle.
2. Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
3. Add 10 log (1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

Test setup



11.1.1 IEEE 802.11 (2.4 GHz) Maximum Conducted Power

Mode	Frequency [MHz]	Channel	IEEE 802.11 (2.4 GHz) Average RF Conducted Power [dBm]
802.11b	2 412	1	17.00
	2 437	6	17.23
	2 462	11	17.73
	2 467	12	10.71
	2 472	13	5.16
802.11g	2 412	1	14.28
	2 437	6	14.08
	2 462	11	14.01
	2 467	12	11.15
	2 472	13	5.83
802.11n (HT20)	2 412	1	13.18
	2 437	6	13.19
	2 462	11	12.95
	2 467	12	11.05
	2 472	13	5.70

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.

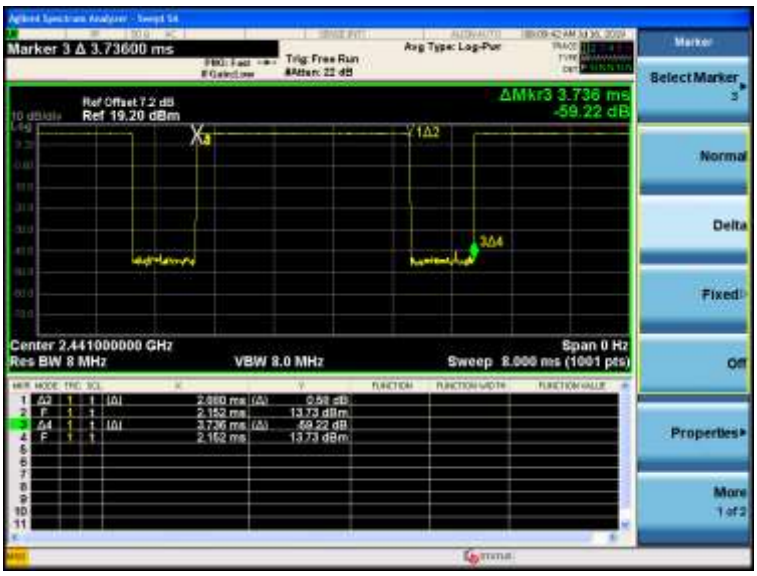
Test Configuration

11.2 Bluetooth Conducted Power

The Burst averaged-conducted power

Mode	Channel	Bluetooth Power [dBm]
DH5	0	15.28
	39	15.36
	78	14.61
2-DH5	0	8.14
	39	8.23
	78	7.99
3-DH5	0	8.19
	39	8.33
	78	8.07

Per October 2016 TCB Workshop Notes:
When call box and Bluetooth protocol are used for Bluetooth 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) =(2.880/3.736) = 0.771 (DH5)

Duty factor= 1/Duty cycle : 1.297

12. System Verification

12.1 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
07/11/2019	20.9	2450H	2400	1.728	39.546	1.756	39.290	-1.59%	0.65%
			2450	1.796	39.399	1.800	39.200	-0.22%	0.51%
			2500	1.848	39.218	1.855	39.140	-0.38%	0.20%
07/25/2019	21.1	2450H	2400	1.728	39.546	1.756	39.290	-1.59%	0.65%
			2450	1.796	39.399	1.800	39.200	-0.22%	0.51%
			2500	1.848	39.218	1.855	39.140	-0.38%	0.20%

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
07/12/2019	20.6	2450B	2400	1.890	52.784	1.902	52.770	-0.63%	0.03%
			2450	1.949	52.622	1.950	52.700	-0.05%	-0.15%
			2500	2.007	52.543	2.021	52.640	-0.69%	-0.18%
07/25/2019	21.1	2450B	2400	1.890	52.784	1.902	52.770	-0.63%	0.03%
			2450	1.949	52.622	1.950	52.700	-0.05%	-0.15%
			2500	2.007	52.543	2.021	52.640	-0.69%	-0.18%

12.2 System Verification

System Verification Results – 1g SAR

* Input Power: 50 mW

Freq. [MHz]	Date	Probe (S/N)	Dipole (S/N)	Liquid	Amb. Temp. [°C]	Liquid Temp. [°C]	1 W Target SAR_{1g} (SPEAG) [W/kg]	50mW Measured SAR_{1g} [W/kg]	1 W Normalized SAR_{1g} [W/kg]	Deviation [%]	Limit [%]
2 450	07/11/2019	3863	743	Head	21.2	20.9	51.8	2.68	53.0	+ 2.32	± 10
2 450	07/25/2019	3968	743	Head	21.4	21.1	51.8	2.68	53.6	+ 3.47	± 10

System Verification Results – 10 SAR

* Input Power: 50 mW

Freq. [MHz]	Date	Probe (S/N)	Dipole (S/N)	Liquid	Amb. Temp. [°C]	Liquid Temp. [°C]	1 W Target SAR_{10g} (SPEAG) [W/kg]	50mW Measured SAR_{10g} [W/kg]	1 W Normalized SAR_{10g} [W/kg]	Deviation [%]	Limit [%]
2 450	07/12/2019	3863	743	Body	20.9	20.6	23.4	1.15	23.0	- 1.71	± 10
2 450	07/25/2019	3968	743	Body	21.4	21.1	23.4	1.17	23.4	+ 0.00	± 10

12.3 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 equipment.
- 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.

13. SAR Test Data Summary

13.1 Standalone Face SAR Results (Aluminum material)

2.4 GHz WLAN Head SAR (Next-to-Mouth)															
Frequency		Mode	Band width (MHz)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Duty Cycle	Distance (mm)	Meas. 1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Reported SAR (W/kg)	Plot No.
MHz	Ch.														
2 462	11	802.11b	22	1	18.0	17.73	-0.10	Front	98.8	10	0.139	1.064	1.012	0.150	1
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population										Head 1.6 W/kg Averaged over 1 gram					

DSS Tethering SAR (Next-to-Mouth)												
Frequency		Mode	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Distance (mm)	Meas. SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Reported SAR (W/kg)	Plot No.
MHz	Ch.											
2 441	39	Bluetooth DH5	16.5	15.36	0.14	Front	10	0.049	1.300	1.297	0.083	2
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram					

13.2 Standalone Extremity SAR Results (Aluminum material)

2.4 GHz WLAN Extremity SAR															
Frequency		Mode	Band width (MHz)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Duty Cycle	Distance (mm)	Meas. 10g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Reported SAR (W/kg)	Plot No.
MHz	Ch.														
2 462	11	802.11b	22	1	18.0	17.73	0.14	Back	98.8	0	0.148	1.064	1.012	0.159	3
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak(Hands / Feet / Ankle / Wrist) Uncontrolled Exposure/ General Population										Extremity SAR 4.0 W/kg Averaged over 10 gram					

DSS SAR												
Frequency		Mode	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Distance (mm)	Meas. 10g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Reported SAR (W/kg)	Plot No.
MHz	Ch.											
2 441	39	Bluetooth DH5	16.5	15.36	0.14	Back	0	0.059	1.300	1.297	0.099	4
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak(Hands / Feet / Ankle / Wrist) Uncontrolled Exposure/ General Population							Extremity SAR 4.0 W/kg Averaged over 10 gram					

13.3 Standalone Face SAR Results (Stainless material)

2.4 GHz WLAN Head SAR (Next-to-Mouth)															
Frequency		Mode	Band width (MHz)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Duty Cycle	Distance (mm)	Meas. 1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Reported SAR (W/kg)	Plot No.
MHz	Ch.														
2 462	11	802.11b	22	1	18.0	17.73	-0.09	Front	98.8	10	0.158	1.064	1.012	0.170	5
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population										Head 1.6 W/kg Averaged over 1 gram					

DSS SAR (Next-to-Mouth)												
Frequency		Mode	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Distance (mm)	Meas. SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Reported SAR (W/kg)	Plot No.
MHz	Ch.											
2 441	39	Bluetooth DH5	16.5	15.36	0.03	Front	10	0.073	1.300	1.297	0.123	6
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram					

13.4 Standalone Extremity SAR Results (Stainless material)

2.4 GHz WLAN Extremity SAR															
Frequency		Mode	Band width (MHz)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Duty Cycle	Distance (mm)	Meas. 10g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Reported SAR (W/kg)	Plot No.
MHz	Ch.														
2 462	11	802.11b	22	1	18.0	17.73	0.13	Back	98.8	0	0.143	1.064	1.012	0.154	7
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak(Hands / Feet / Ankle / Wrist) Uncontrolled Exposure/ General Population										Extremity SAR 4.0 W/kg Averaged over 10 gram					

DSS SAR												
Frequency		Mode	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Distance (mm)	Meas. 10g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Reported SAR (W/kg)	Plot No.
MHz	Ch.											
2 441	39	Bluetooth DH5	16.5	15.36	0.19	Back	0	0.073	1.300	1.297	0.123	8
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak(Hands / Feet / Ankle / Wrist) Uncontrolled Exposure/ General Population							Extremity SAR 4.0 W/kg Averaged over 10 gram					

13.5 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in FCC KDB Publication.
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. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB 447498 D01v06.
6. Per FCC KDB 865664 D01v01r04, variability SAR measurement were not performed when the measured SAR results for a frequency band were greater than or equal to 0.8 W/kg for 1g SAR and >2 for 10g SAR Please see Section 14 for variability analysis. the maximum tune-up tolerance limit.
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 ≤ 0.8 W/kg for 1g SAR/ ≤ 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.

WLAN Notes:

1. Per KDB 2482227 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.11.2. for the time-domain plot and calculation for duty factor of the device.

14. SAR Measurement Variability and Uncertainty

In accordance with KDB procedure 865664 D01v01r04 SAR measurement 100 ㎒ to 6 GHz, SAR additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

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

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg for 1g SAR or < 2.0 W/kg for 10g SAR; steps 2) through 4) do not apply.

2) When the original highest measured 1g SAR is ≥ 0.80 W/kg or 10g SAR ≥ 2.0W/kg, repeat that measurement once.

3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg for 1g SAR or ≥ 3.625 W/kg for 10g SAR (~ 10% from the 1-g SAR limit).

4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥1.5 W/kg for 1g SAR or ≥3.75 W/kg for 10g SAR and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

15. Measurement Uncertainty

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

16. SAR Test Equipment

Manufacturer	Type / Model	S/N	Calib. Date	Calib.Interval	Calib.Due
SPEAG	SAM Phantom	-	N/A	N/A	N/A
SPEAG	Triple Modular Phantom	-	N/A	N/A	N/A
HP	SAR System Control PC	-	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	F11/5K3RA1/C/01	N/A	N/A	N/A
Staubli	TX90 XLspeag	F11/5K3RA1/A/01	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	S-1203 0309	N/A	N/A	N/A
SPEAG	DAE3	504	02/22/2019	Annual	02/22/2020
SPEAG	DAE3	466	08/22/2018	Annual	08/22/2019
SPEAG	E-Field Probe EX3DV4	3863	05/15/2019	Annual	05/15/2020
SPEAG	E-Field Probe EX3DV4	3968	09/25/2018	Annual	09/25/2019
SPEAG	Dipole D2450V2	743	01/28/2019	Annual	01/28/2020
Agilent	Power Meter N1911A	MY45101406	09/06/2018	Annual	09/06/2019
Agilent	Power Sensor N1921A	MY55220026	09/06/2018	Annual	09/06/2019
Agilent	Power Meter E4419B	MY40511244	05/08/2019	Annual	05/08/2020
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	1031	04/16/2019	Annual	04/16/2020
Agilent	Signal Generator N5182A	MY47070230	05/08/2019	Annual	05/08/2020
Agilent	11636B/Power Divider	58698	02/28/2019	Annual	03/06/2020
TESTO	175-H1/Thermometer	40331949309	01/29/2019	Annual	01/29/2020
EMPOWER	RF Power Amplifier	1084	07/03/2019	Annual	07/03/2020
MICRO LAB	LP Filter / LA-30N	-	10/11/2018	Annual	10/11/2019
WEINSCHEL	30dB Attenuator	CE6106	11/20/2018	Annual	11/20/2019
Apitech	Attenuator (3dB) 18B-03	1	06/04/2019	Annual	06/04/2020
Agilent	Attenuator (20dB) 33340C	1642	05/08/2019	Annual	05/08/2020
Agilent	Directional Bridge	3140A03878	06/12/2019	Annual	06/12/2020
Agilent	MXA Signal Analyzer N9020A	MY50510407	10/31/2018	Annual	10/31/2019
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.

17. 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.

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Attachment 1. – SAR Test Plots

Test Laboratory: HCT CO., LTD
EUT Type: Smart watch
Liquid Temperature: 20.9 °C
Ambient Temperature: 21.2 °C
Test Date: 07/11/2019
Plot No.: 1

DUT: SM-R820

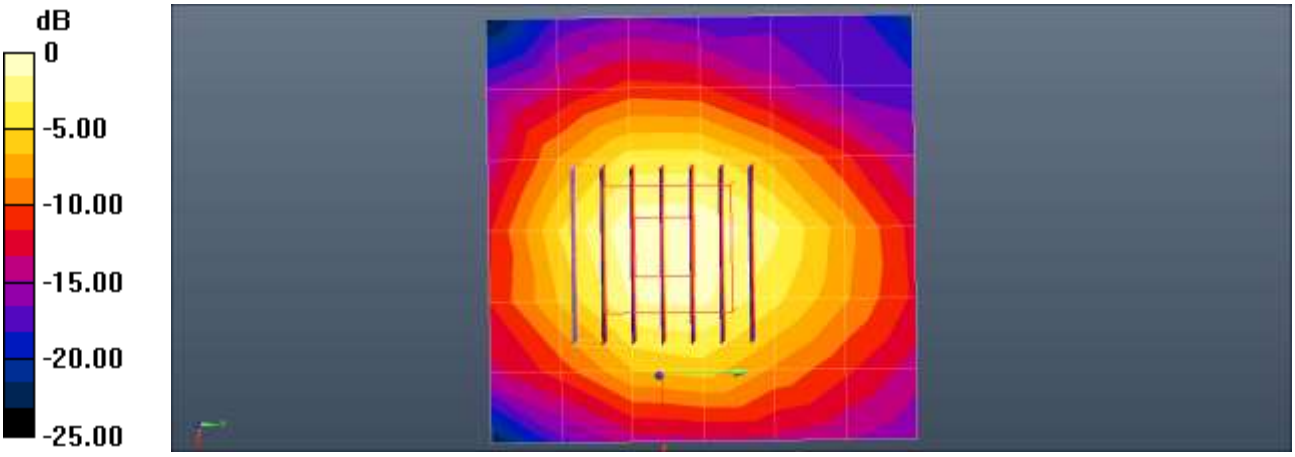
Communication System: UID 0, 2450 MHz FCC (0); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.805 S/m; ε_r = 39.338; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(7.61, 7.61, 7.61); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.8 (8);

802.11b Next-to-Mouth 1Mbps 11ch Aluminum material /Area Scan (7x7x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.200 W/kg

802.11b Next-to-Mouth 1Mbps 11ch Aluminum material /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.22 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.253 W/kg
SAR(1 g) = 0.139 W/kg; SAR(10 g) = 0.068 W/kg
Maximum value of SAR (measured) = 0.212 W/kg



0 dB = 0.212 W/kg = −6.74 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Smart watch
Liquid Temperature: 21.1 °C
Ambient Temperature: 21.4 °C
Test Date: 07/25/2019
Plot No.: 2

DUT: SM-R820

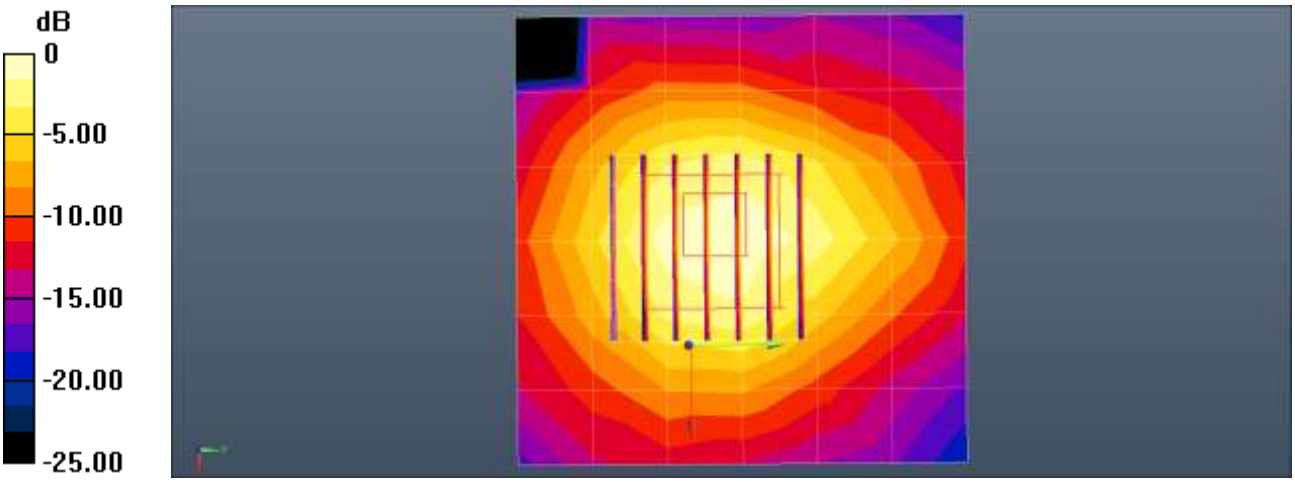
Communication System: UID 0, Bluetooth (0); Frequency: 2441 MHz;Duty Cycle: 1:1.297
Medium parameters used (interpolated): f = 2441 MHz; σ = 1.782 S/m; ε_r = 39.395; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.52, 7.52, 7.52); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2018-08-22
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.8 (8);

Bluetooth Next-to-Mouth DH5 39ch Aluminum material /Area Scan (7x7x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.0704 W/kg

Bluetooth Next-to-Mouth DH5 39ch Aluminum material /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.458 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.0880 W/kg
SAR(1 g) = 0.049 W/kg; SAR(10 g) = 0.024 W/kg
Maximum value of SAR (measured) = 0.0735 W/kg



0 dB = 0.0735 W/kg = −11.34 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Smart watch
Liquid Temperature: 20.6 °C
Ambient Temperature: 20.9 °C
Test Date: 07/12/2019
Plot No.: 3

DUT: SM-R820

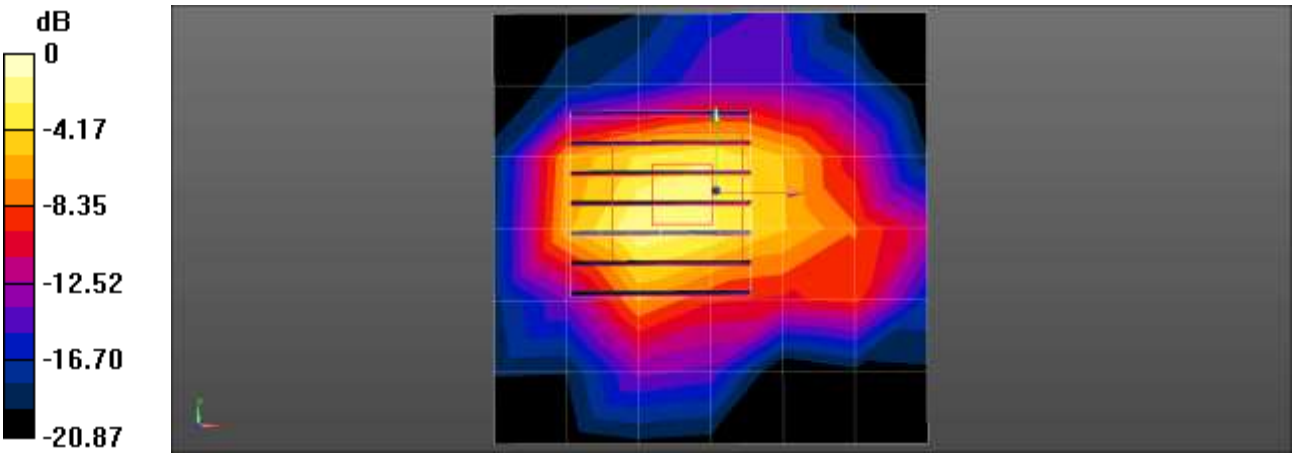
Communication System: UID 0, 2450 MHz FCC (0); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.959 S/m; ε_r = 52.613; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(7.74, 7.74, 7.74); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

802.11b Extremity SAR 1Mbps 11ch Aluminum material /Area Scan (7x7x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.473 W/kg

802.11b Extremity SAR 1Mbps 11ch Aluminum material /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.03 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.969 W/kg
SAR(1 g) = 0.352 W/kg; SAR(10 g) = 0.148 W/kg
Maximum value of SAR (measured) = 0.658 W/kg



0 dB = 0.658 W/kg = −1.82 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Smart watch
Liquid Temperature:	21.1 °C
Ambient Temperature:	21.4 °C
Test Date:	07/25/2019
Plot No.:	4

DUT: SM-R820

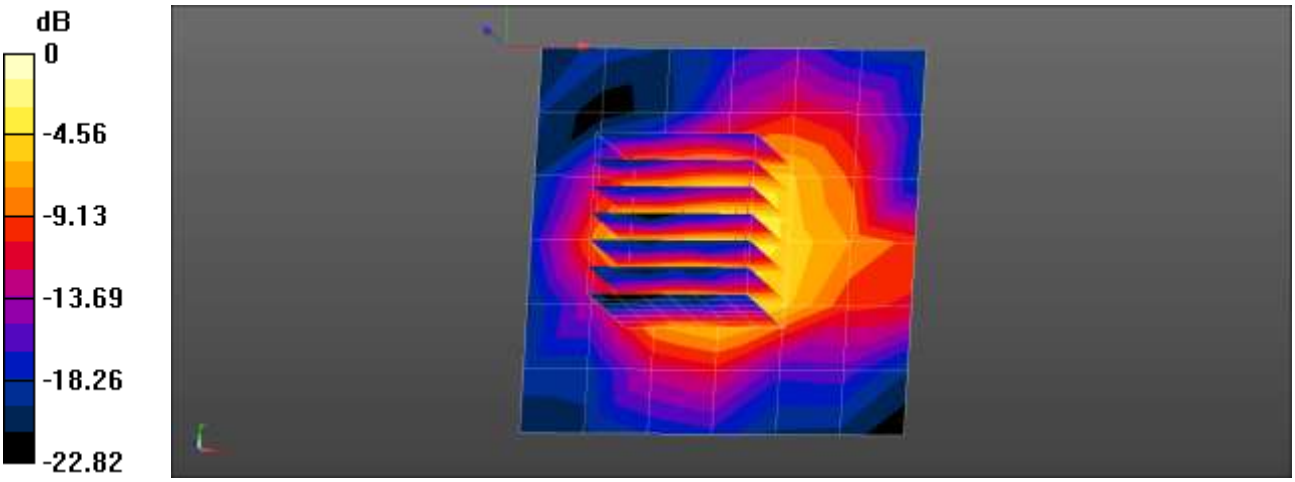
Communication System: UID 0, Bluetooth (0); Frequency: 2441 MHz;Duty Cycle: 1:1.297
Medium parameters used (interpolated): f = 2441 MHz; σ = 1.936 S/m; ε_r = 52.646; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.54, 7.54, 7.54); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2018-08-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

Bluetooth Extremity SAR DH5 39ch Aluminum material /Area Scan (7x7x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.247 W/kg

Bluetooth Extremity SAR DH5 39ch Aluminum material /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.64 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.399 W/kg
SAR(1 g) = 0.139 W/kg; SAR(10 g) = 0.059 W/kg
Maximum value of SAR (measured) = 0.264 W/kg



0 dB = 0.247 W/kg = −6.08 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Smart watch
Liquid Temperature:	20.9 °C
Ambient Temperature:	21.2 °C
Test Date:	07/11/2019
Plot No.:	5

DUT: SM-R820

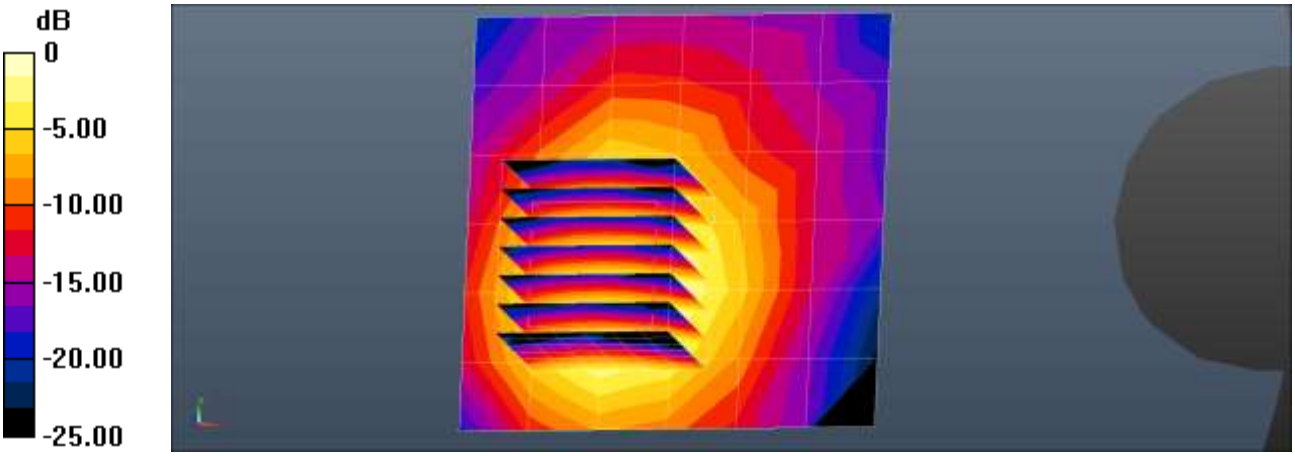
Communication System: UID 0, 2450 MHz FCC (0); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.805 S/m; ε_r = 39.338; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(7.61, 7.61, 7.61); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.8 (8);

802.11b Next-to-Mouth 1Mbps 11ch Stainless material /Area Scan (7x7x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.242 W/kg

802.11b Next-to-Mouth 1Mbps 11ch Stainless material /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.630 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.286 W/kg
SAR(1 g) = 0.158 W/kg; SAR(10 g) = 0.077 W/kg
Maximum value of SAR (measured) = 0.239 W/kg



0 dB = 0.239 W/kg = −6.22 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Smart watch
Liquid Temperature:	21.1 °C
Ambient Temperature:	21.4 °C
Test Date:	07/25/2019
Plot No.:	6

DUT: SM-R820

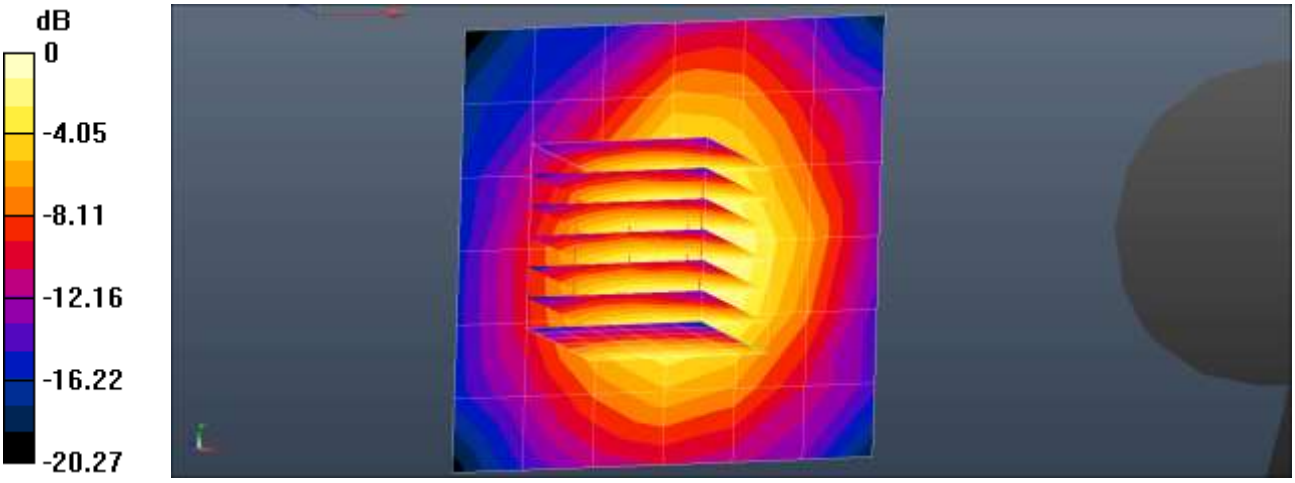
Communication System: UID 0, Bluetooth (0); Frequency: 2441 MHz;Duty Cycle: 1:1.297
Medium parameters used (interpolated): f = 2441 MHz; σ = 1.782 S/m; ε_r = 39.395; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.52, 7.52, 7.52); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2018-08-22
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.8 (8);

Bluetooth Next-to-Mouth DH5 39ch Stainless/Area Scan (7x7x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.109 W/kg

Bluetooth Next-to-Mouth DH5 39ch Stainless/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.065 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.130 W/kg
SAR(1 g) = 0.073 W/kg; SAR(10 g) = 0.038 W/kg
Maximum value of SAR (measured) = 0.107 W/kg



0 dB = 0.109 W/kg = −9.62 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Smart watch
Liquid Temperature:	20.6 °C
Ambient Temperature:	20.9 °C
Test Date:	07/12/2019
Plot No.:	7

DUT: SM-R820

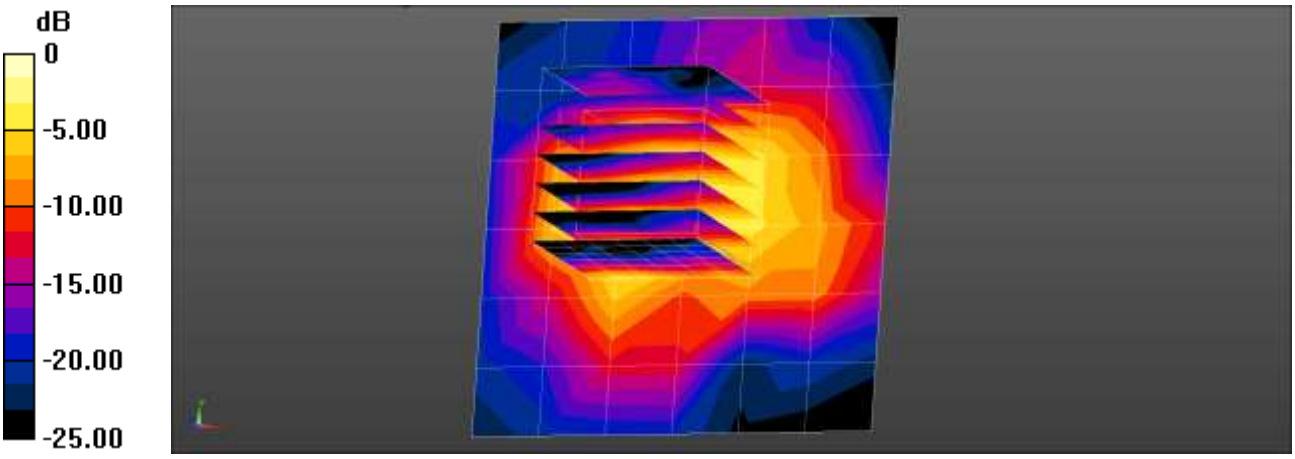
Communication System: UID 0, 2450 MHz FCC (0); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.959 S/m; ε_r = 52.613; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(7.74, 7.74, 7.74); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

802.11b Extremity SAR 1Mbps 11ch Stainless material /Area Scan (7x7x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.397 W/kg

802.11b Extremity SAR 1Mbps 11ch Stainless material /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.88 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.919 W/kg
SAR(1 g) = 0.351 W/kg; SAR(10 g) = 0.143 W/kg
Maximum value of SAR (measured) = 0.641 W/kg



0 dB = 0.641 W/kg = −1.93 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Smart watch
Liquid Temperature:	21.1 °C
Ambient Temperature:	21.4 °C
Test Date:	07/25/2019
Plot No.:	8

DUT: SM-R820

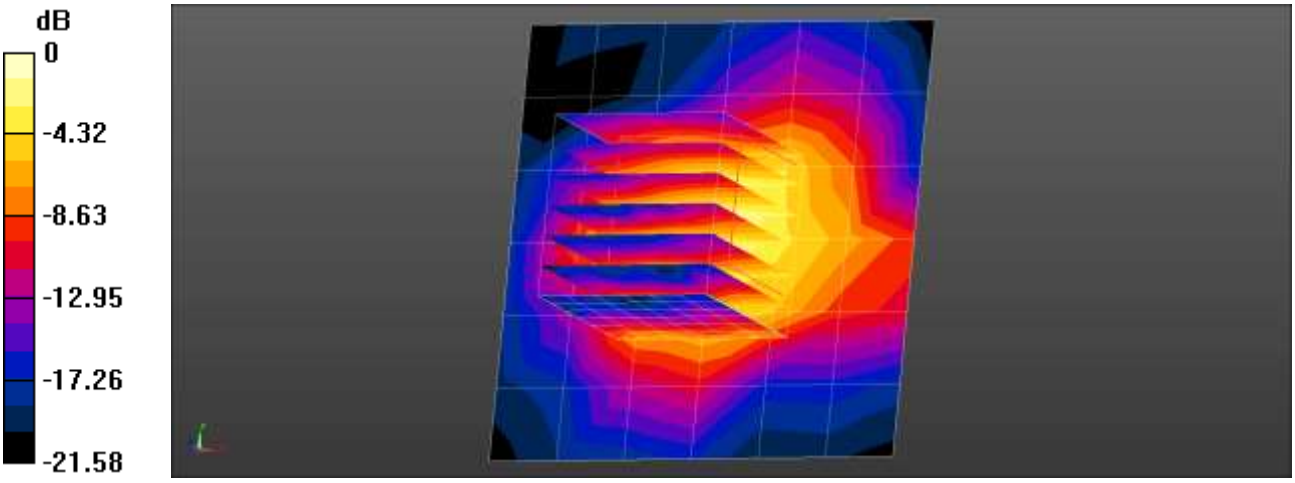
Communication System: UID 0, Bluetooth (0); Frequency: 2441 MHz;Duty Cycle: 1:1.297
Medium parameters used (interpolated): f = 2441 MHz; σ = 1.936 S/m; ε_r = 52.646; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.54, 7.54, 7.54); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2018-08-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

Bluetooth Extremity SAR DH5 39ch Stainless/Area Scan (7x7x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.295 W/kg

Bluetooth Extremity SAR DH5 39ch Stainless/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.79 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.422 W/kg
SAR(1 g) = 0.170 W/kg; SAR(10 g) = 0.073 W/kg
Maximum value of SAR (measured) = 0.290 W/kg



0 dB = 0.295 W/kg = −5.30 dBW/kg

Attachment 2. – Dipole Verification Plots

■ Verification Data (2 450 MHz Head)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.9 °C
Test Date:	07/11/2019

DUT: Dipole 2450 MHz; Type: D2450V2

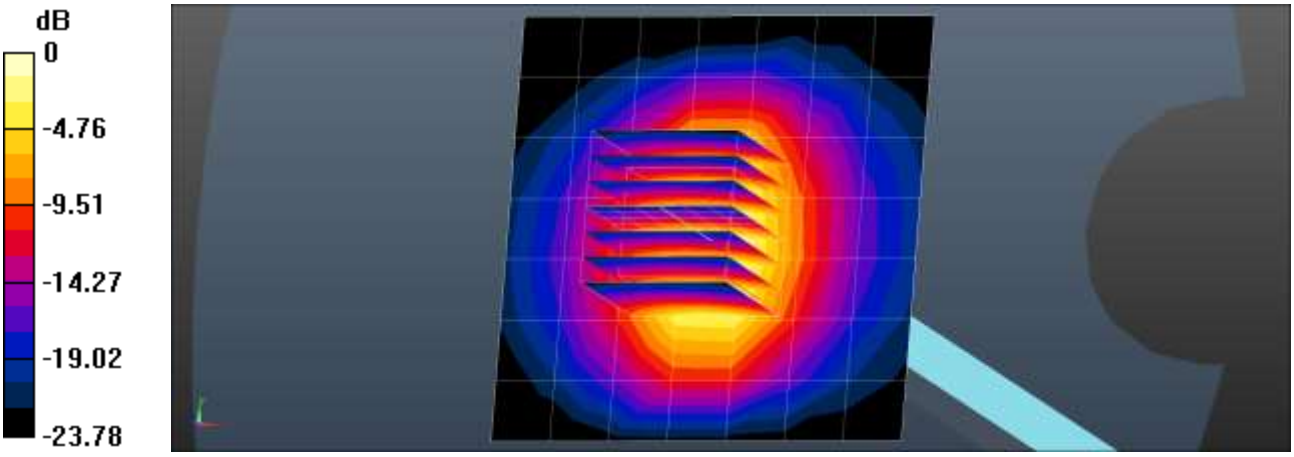
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.796 S/m; ε_r = 39.399; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(7.61, 7.61, 7.61); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/2 450 MHz Head Verification/Area Scan (8x8x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 3.40 W/kg

Dipole/2 450 MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.51 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 5.91 W/kg
SAR(1 g) = 2.65 W/kg; SAR(10 g) = 1.2 W/kg
Maximum value of SAR (measured) = 4.64 W/kg



0 dB = 4.64 W/kg = 6.67 dBW/kg

■ Verification Data (2 450 ㎒ Head)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.1 ℃
Test Date:	07/25/2019

DUT: Dipole 2450 MHz; Type: D2450V2

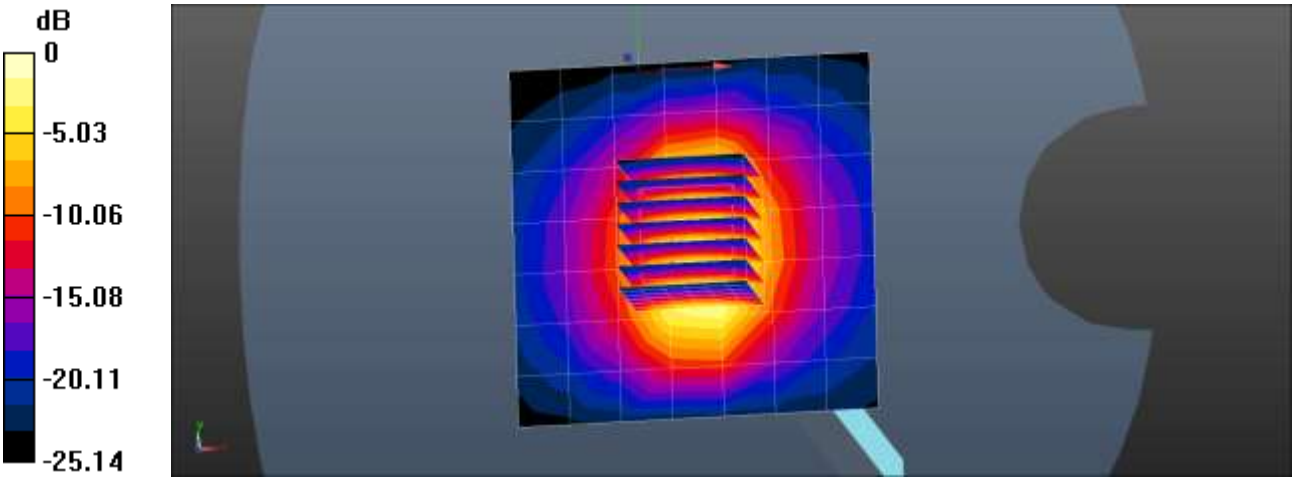
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.796 S/m; ε_r = 39.399; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.52, 7.52, 7.52); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2018-08-22
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/2 450 MHz Head Verification/Area Scan (8x8x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 3.55 W/kg

Dipole/2 450 MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.08 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 6.13 W/kg
SAR(1 g) = 2.68 W/kg; SAR(10 g) = 1.2 W/kg
Maximum value of SAR (measured) = 4.73 W/kg



0 dB = 3.55 W/kg = 5.50 dBW/kg

■ Verification Data (2 450 MHz Body)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.6 °C
Test Date:	07/12/2019

DUT: Dipole 2450 MHz; Type: D2450V2

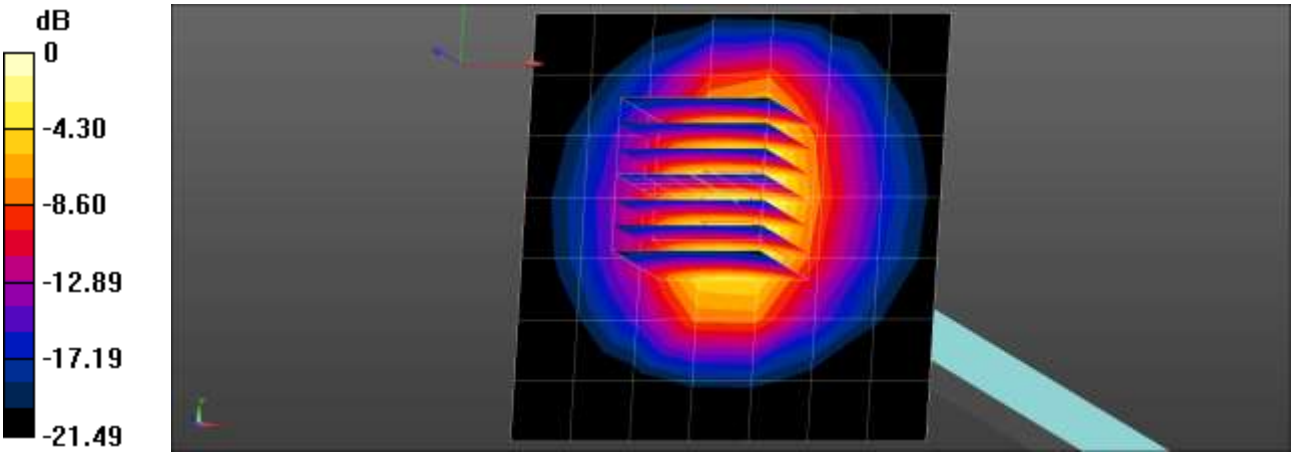
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.949 S/m; ε_r = 52.622; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(7.74, 7.74, 7.74); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/2450 MHz Body Verification/Area Scan (8x8x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 2.66 W/kg

Dipole/2450 MHz Body Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 39.93 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 5.18 W/kg
SAR(1 g) = 2.48 W/kg; SAR(10 g) = 1.15 W/kg
Maximum value of SAR (measured) = 3.30 W/kg



0 dB = 3.30 W/kg = 5.19 dBW/kg

■ Verification Data (2 450 ㎒ Body)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.1 ℃
Test Date:	07/25/2019

DUT: Dipole 2450 MHz; Type: D2450V2

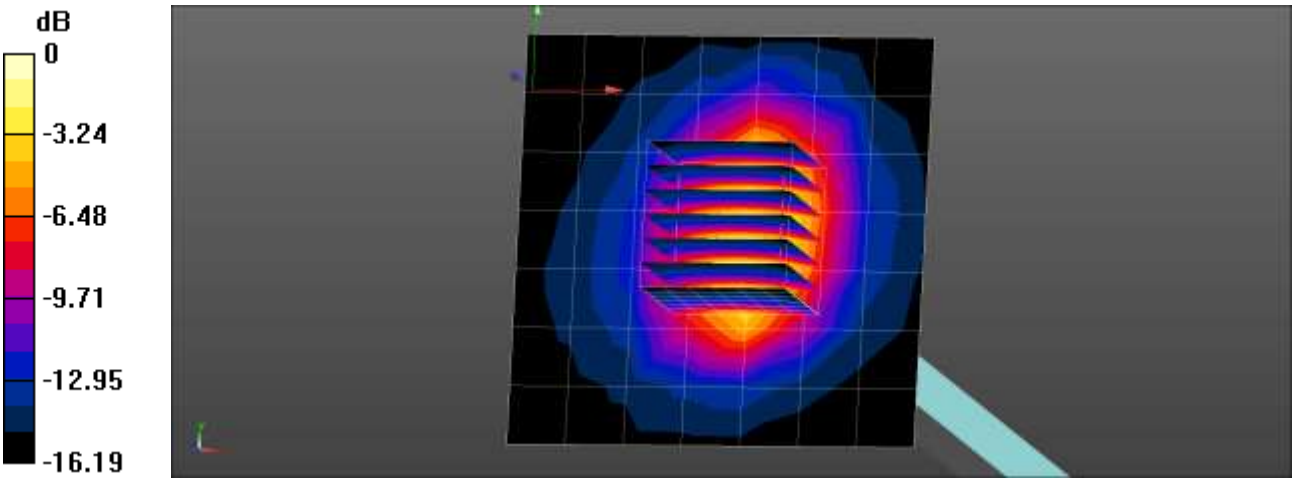
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.949 S/m; ε_r = 52.622; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.54, 7.54, 7.54); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2018-08-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/2450MHz Body Verification/Area Scan (8x8x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 3.28 W/kg

Dipole/2450MHz Body Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 36.49 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 5.44 W/kg
SAR(1 g) = 2.57 W/kg; SAR(10 g) = 1.17 W/kg
Maximum value of SAR (measured) = 3.39 W/kg



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

Attachment 3. – SAR Tissue Characterization

The brain and muscle mixtures consist of a viscous gel using hydrox-ethyl cellulose (HEC) gelling agent and saline solution (see Table 3.1). Preservation with a bacteriacide is added and visual inspection is made to make sure air bubbles are not trapped during the mixing process. The mixture is calibrated to obtain proper dielectric constant (permittivity) and conductivity of the desired tissue. The mixture characterizations used for the brain and muscle tissue simulating liquids are according to the data by C. Gabriel and G. Harts grove.

Ingredients (% by weight)	Frequency (㎒)	
	2 450 – 2 700	
Tissue Type	Head	Body
Water	71.88	73.2
Salt (NaCl)	0.16	0.1
Sugar	0.0	0.0
HEC	0.0	0.0
Bactericide	0.0	0.0
Triton X-100	19.97	0.0
DGBE	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
1	3863	EX3DV4	Head	2450	743	2019-05-27	39.4	1.81	PASS	PASS	PASS	OFDM	N/A	PASS
9	3968	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	2450	743	2019-05-27	52.8	1.94	PASS	PASS	PASS	OFDM	N/A	PASS
9	3968	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

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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: **EX3-3968_Sep18**

결재	담당자	확인자
직위/성명	SW / [illegible]	GT / [illegible]
일자	2018 / 10.05	2018 / 10.05

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN:3968

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: September 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-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:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: September 27, 2018

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

Certificate No: EX3-3968_Sep18 Page 1 of 39

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

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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:3968

Manufactured:	September 30, 2013
Repaired:	September 13, 2018
Calibrated:	September 25, 2018

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3968

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.56	0.57	0.56	± 10.1 %
DCP (mV)[B]	98.0	99.0	97.6	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	171.6	±2.7 %
		Y	0.0	0.0	1.0		161.6	
		Z	0.0	0.0	1.0		178.8	

Note: For details on UID parameters see Appendix.

Sensor Model Parameters

	C1 fF	C2 fF	α V^{-1}	T1 $ms.V^{-2}$	T2 $ms.V^{-1}$	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
X	46.84	361.8	37.71	11.82	0.384	5.084	0.048	0.556	1.008
Y	48.24	363.7	36.17	17.75	0.176	5.100	1.558	0.280	1.009
Z	45.97	356.8	37.98	12.75	0.415	5.100	0.000	0.555	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.

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3968

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)
600	42.7	0.88	10.56	10.56	10.56	0.09	1.20	± 13.3 %
750	41.9	0.89	10.04	10.04	10.04	0.34	1.05	± 12.0 %
835	41.5	0.90	9.86	9.86	9.86	0.47	0.84	± 12.0 %
900	41.5	0.97	9.70	9.70	9.70	0.41	0.89	± 12.0 %
1450	40.5	1.20	8.51	8.51	8.51	0.30	0.88	± 12.0 %
1750	40.1	1.37	8.57	8.57	8.57	0.31	0.90	± 12.0 %
1900	40.0	1.40	8.19	8.19	8.19	0.37	0.90	± 12.0 %
2450	39.2	1.80	7.52	7.52	7.52	0.33	0.97	± 12.0 %
2600	39.0	1.96	7.37	7.37	7.37	0.39	0.93	± 12.0 %
3500	37.9	2.91	7.11	7.11	7.11	0.23	1.20	± 13.1 %
5250	35.9	4.71	5.52	5.52	5.52	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.78	4.78	4.78	0.40	1.80	± 13.1 %
5750	35.4	5.22	4.94	4.94	4.94	0.40	1.80	± 13.1 %

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

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

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3968

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)
600	56.1	0.95	10.50	10.50	10.50	0.10	1.20	± 13.3 %
750	55.5	0.96	10.07	10.07	10.07	0.49	0.80	± 12.0 %
835	55.2	0.97	9.86	9.86	9.86	0.49	0.82	± 12.0 %
1750	53.4	1.49	8.19	8.19	8.19	0.36	0.92	± 12.0 %
1900	53.3	1.52	7.76	7.76	7.76	0.39	0.92	± 12.0 %
2450	52.7	1.95	7.54	7.54	7.54	0.35	0.95	± 12.0 %
2600	52.5	2.16	7.50	7.50	7.50	0.33	1.05	± 12.0 %
3500	51.3	3.31	7.00	7.00	7.00	0.25	1.20	± 13.1 %
5250	48.9	5.36	4.98	4.98	4.98	0.50	1.90	± 13.1 %
5600	48.5	5.77	4.28	4.28	4.28	0.50	1.90	± 13.1 %
5750	48.3	5.94	4.49	4.49	4.49	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.

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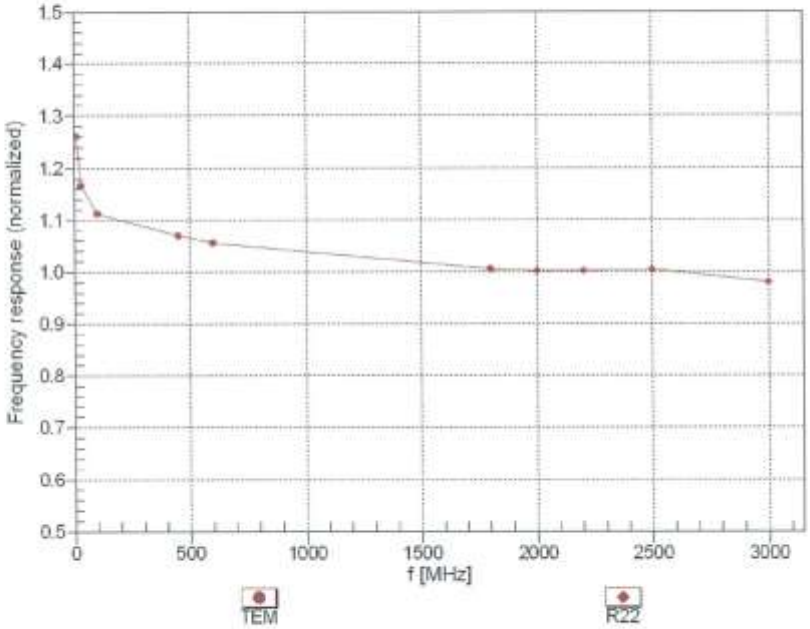
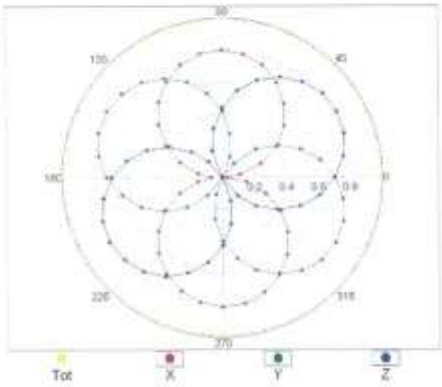
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



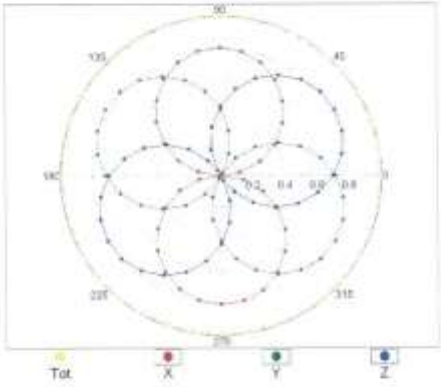
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

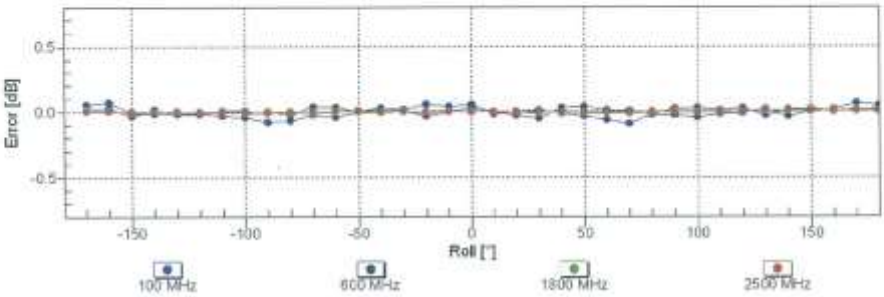
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



f=1800 MHz,R22





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

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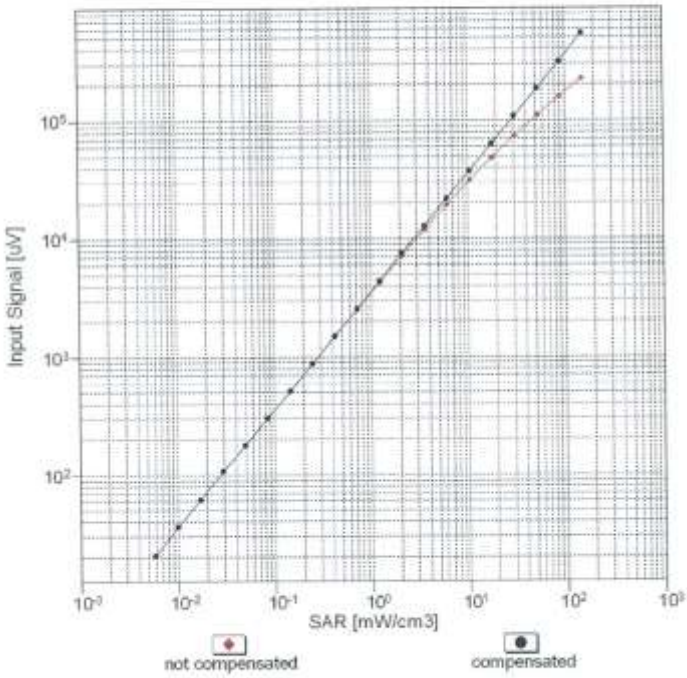
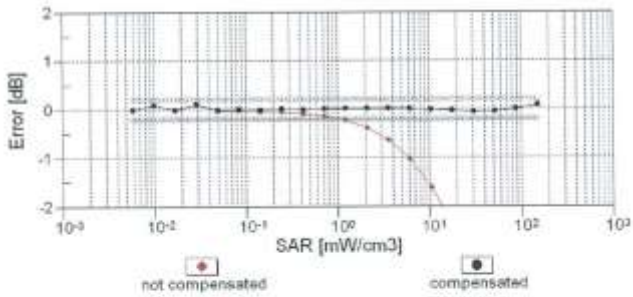
Dynamic Range f(SAR$_{head}$)
(TEM cell , f_{eval}= 1900 MHz)





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

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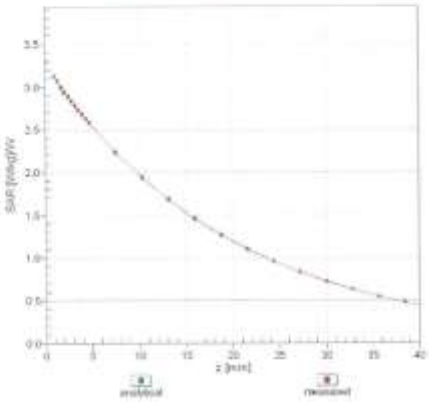
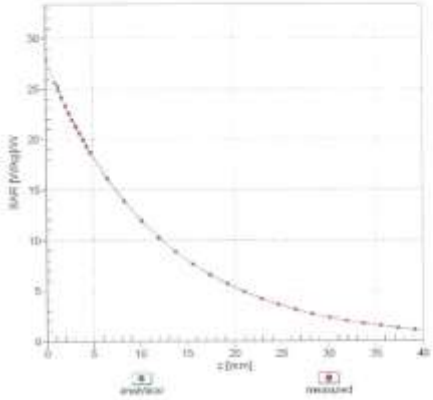
Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

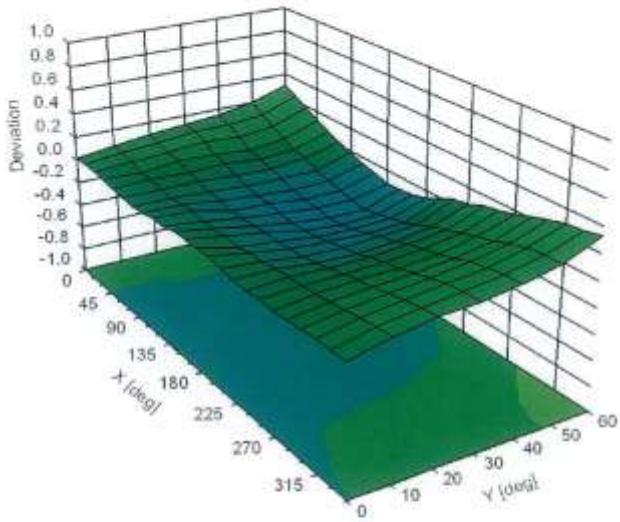


f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



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

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3968

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	89.8
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

Appendix: Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√µV	C	D dB	VR mV	Max Unc[E] (k=2)
0	CW	X	0.00	0.00	1.00	0.00	171.6	± 2.7 %
		Y	0.00	0.00	1.00		161.8	
		Z	0.00	0.00	1.00		178.8	
10010-CAA	SAR Validation (Square, 100ms, 10ms)	X	2.04	65.17	9.68	10.00	20.0	± 9.6 %
		Y	8.18	79.85	15.61		20.0	
		Z	2.07	65.29	9.80		20.0	
10011-CAB	UMTS-FDD (WCDMA)	X	0.90	65.65	13.92	0.00	150.0	± 9.6 %
		Y	1.01	66.71	14.83		150.0	
		Z	0.85	64.91	13.28		150.0	
10012-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	1.09	63.09	14.68	0.41	150.0	± 9.6 %
		Y	1.18	63.85	15.22		150.0	
		Z	1.07	62.88	14.43		150.0	
10013-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	X	4.82	66.49	17.05	1.46	150.0	± 9.6 %
		Y	4.90	66.72	17.19		150.0	
		Z	4.80	66.47	17.03		150.0	
10021-DAC	GSM-FDD (TDMA, GMSK)	X	100.00	112.95	26.54	9.39	50.0	± 9.6 %
		Y	100.00	116.78	28.34		50.0	
		Z	100.00	113.62	26.91		50.0	
10023-DAC	GPRS-FDD (TDMA, GMSK, TN 0)	X	100.00	112.47	26.37	9.57	50.0	± 9.6 %
		Y	100.00	116.29	28.16		50.0	
		Z	100.00	113.15	26.74		50.0	
10024-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	100.00	112.42	25.25	6.56	60.0	± 9.6 %
		Y	100.00	116.67	27.49		60.0	
		Z	100.00	112.63	25.42		60.0	
10025-DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	X	4.17	71.31	27.26	12.57	50.0	± 9.6 %
		Y	18.57	125.03	51.51		50.0	
		Z	4.56	74.25	28.97		50.0	
10026-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	X	8.55	91.99	33.25	9.56	60.0	± 9.6 %
		Y	17.88	112.30	40.96		60.0	
		Z	9.37	94.40	34.22		60.0	
10027-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	100.00	112.80	24.64	4.80	80.0	± 9.6 %
		Y	100.00	118.20	27.50		80.0	
		Z	100.00	112.38	24.54		80.0	
10028-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	X	100.00	113.26	24.14	3.55	100.0	± 9.6 %
		Y	100.00	120.76	27.96		100.0	
		Z	100.00	111.87	23.62		100.0	
10029-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	X	5.36	80.78	27.54	7.80	80.0	± 9.6 %
		Y	8.03	90.56	31.77		80.0	
		Z	5.68	82.14	28.14		80.0	
10030-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	X	100.00	110.54	23.97	5.30	70.0	± 9.6 %
		Y	100.00	115.44	26.56		70.0	
		Z	100.00	110.48	24.01		70.0	
10031-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	X	100.00	102.53	18.42	1.88	100.0	± 9.6 %
		Y	100.00	120.75	26.58		100.0	
		Z	100.00	98.98	17.01		100.0	

10032-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	X	100.00	94.07	14.33	1.17	100.0	± 9.6 %
		Y	100.00	127.26	28.22		100.0	
		Z	0.19	60.00	4.45		100.0	
10033-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	X	33.86	113.15	30.86	5.30	70.0	± 9.6 %
		Y	100.00	131.70	35.94		70.0	
		Z	47.35	117.79	31.89		70.0	
10034-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	X	3.06	78.07	18.40	1.88	100.0	± 9.6 %
		Y	5.91	87.15	22.07		100.0	
		Z	3.00	77.34	17.88		100.0	
10035-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	X	1.81	71.83	15.59	1.17	100.0	± 9.6 %
		Y	2.81	77.49	18.37		100.0	
		Z	1.71	70.83	14.89		100.0	
10036-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	X	85.81	128.27	34.60	5.30	70.0	± 9.6 %
		Y	100.00	132.16	36.15		70.0	
		Z	100.00	129.96	34.84		70.0	
10037-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	X	2.81	77.00	17.98	1.88	100.0	± 9.6 %
		Y	5.36	85.87	21.63		100.0	
		Z	2.75	76.32	17.47		100.0	
10038-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	X	1.83	72.24	15.88	1.17	100.0	± 9.6 %
		Y	2.84	77.93	18.66		100.0	
		Z	1.73	71.23	15.18		100.0	
10039-CAB	CDMA2000 (1xRTT, RC1)	X	1.37	68.10	13.32	0.00	150.0	± 9.6 %
		Y	1.65	70.32	14.90		150.0	
		Z	1.20	66.45	12.23		150.0	
10042-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	X	100.00	108.41	23.72	7.78	50.0	± 9.6 %
		Y	100.00	112.64	25.84		50.0	
		Z	100.00	108.62	23.87		50.0	
10044-CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	X	0.05	120.80	5.80	0.00	150.0	± 9.6 %
		Y	0.00	95.70	1.57		150.0	
		Z	0.08	122.23	6.34		150.0	
10048-CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	X	100.00	109.98	26.73	13.80	25.0	± 9.6 %
		Y	100.00	116.82	29.41		25.0	
		Z	100.00	111.08	27.25		25.0	
10049-CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	X	100.00	111.11	26.09	10.79	40.0	± 9.6 %
		Y	100.00	114.75	27.66		40.0	
		Z	100.00	111.84	26.47		40.0	
10056-CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	X	100.00	124.74	33.65	9.03	50.0	± 9.6 %
		Y	100.00	127.81	35.22		50.0	
		Z	100.00	124.78	33.70		50.0	
10058-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	X	4.18	75.71	24.53	6.55	100.0	± 9.6 %
		Y	5.57	81.92	27.38		100.0	
		Z	4.36	76.62	24.94		100.0	
10059-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	X	1.12	64.15	15.32	0.61	110.0	± 9.6 %
		Y	1.24	65.19	16.01		110.0	
		Z	1.10	63.98	15.09		110.0	
10060-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	X	17.73	112.41	29.57	1.30	110.0	± 9.6 %
		Y	100.00	139.22	36.38		110.0	
		Z	18.16	111.27	28.85		110.0	

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10061-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	X	2.73	80.78	22.58	2.04	110.0	± 9.6 %
		Y	4.63	89.02	25.72		110.0	
		Z	2.93	81.74	22.80		110.0	
10062-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	X	4.61	66.43	16.43	0.49	100.0	± 9.6 %
		Y	4.69	66.64	16.54		100.0	
		Z	4.58	66.37	16.37		100.0	
10063-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	X	4.63	66.53	16.53	0.72	100.0	± 9.6 %
		Y	4.71	66.75	16.66		100.0	
		Z	4.60	66.48	16.48		100.0	
10064-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	X	4.92	66.82	16.78	0.86	100.0	± 9.6 %
		Y	5.01	67.04	16.90		100.0	
		Z	4.89	66.77	16.74		100.0	
10065-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	X	4.78	66.71	16.89	1.21	100.0	± 9.6 %
		Y	4.88	66.96	17.03		100.0	
		Z	4.76	66.68	16.86		100.0	
10066-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	X	4.80	66.75	17.07	1.46	100.0	± 9.6 %
		Y	4.90	67.00	17.22		100.0	
		Z	4.78	66.72	17.05		100.0	
10067-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	X	5.09	66.94	17.54	2.04	100.0	± 9.6 %
		Y	5.19	67.20	17.70		100.0	
		Z	5.08	66.95	17.54		100.0	
10068-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	X	5.14	66.99	17.78	2.55	100.0	± 9.6 %
		Y	5.25	67.29	17.97		100.0	
		Z	5.13	67.00	17.79		100.0	
10069-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	X	5.22	66.99	17.97	2.67	100.0	± 9.6 %
		Y	5.33	67.29	18.16		100.0	
		Z	5.21	67.02	17.99		100.0	
10071-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	X	4.91	66.58	17.37	1.99	100.0	± 9.6 %
		Y	5.00	66.84	17.53		100.0	
		Z	4.90	66.59	17.37		100.0	
10072-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	X	4.88	66.90	17.60	2.30	100.0	± 9.6 %
		Y	4.99	67.19	17.78		100.0	
		Z	4.87	66.92	17.60		100.0	
10073-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	X	4.94	67.06	17.93	2.83	100.0	± 9.6 %
		Y	5.05	67.38	18.14		100.0	
		Z	4.94	67.10	17.96		100.0	
10074-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	X	4.92	66.94	18.08	3.30	100.0	± 9.6 %
		Y	5.03	67.28	18.32		100.0	
		Z	4.92	67.00	18.13		100.0	
10075-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	X	4.95	67.05	18.41	3.82	90.0	± 9.6 %
		Y	5.07	67.43	18.68		90.0	
		Z	4.96	67.12	18.46		90.0	
10076-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	X	4.96	66.81	18.52	4.15	90.0	± 9.6 %
		Y	5.07	67.20	18.79		90.0	
		Z	4.97	66.91	18.59		90.0	
10077-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	X	4.98	66.88	18.61	4.30	90.0	± 9.6 %
		Y	5.09	67.26	18.89		90.0	
		Z	4.99	66.97	18.68		90.0	

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10081-CAB	CDMA2000 (1xRTT, RC3)	X	0.67	63.43	10.45	0.00	150.0	± 9.6 %
		Y	0.80	65.03	12.00		150.0	
		Z	0.60	62.42	9.53		150.0	
10082-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	X	0.74	60.59	4.32	4.77	80.0	± 9.6 %
		Y	0.77	60.00	4.71		80.0	
		Z	0.68	60.00	4.18		80.0	
10090-DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	X	100.00	112.51	25.31	6.56	60.0	± 9.6 %
		Y	100.00	116.70	27.52		60.0	
		Z	100.00	112.75	25.49		60.0	
10097-CAB	UMTS-FDD (HSDPA)	X	1.70	66.59	14.87	0.00	150.0	± 9.6 %
		Y	1.80	67.17	15.37		150.0	
		Z	1.64	66.09	14.46		150.0	
10098-CAB	UMTS-FDD (HSUPA, Subtest 2)	X	1.66	66.53	14.83	0.00	150.0	± 9.6 %
		Y	1.76	67.13	15.34		150.0	
		Z	1.60	66.03	14.41		150.0	
10099-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	X	8.62	92.18	33.31	9.56	60.0	± 9.6 %
		Y	18.17	112.67	41.07		60.0	
		Z	9.46	94.60	34.29		60.0	
10100-CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	2.94	69.26	16.08	0.00	150.0	± 9.6 %
		Y	3.08	69.91	16.47		150.0	
		Z	2.86	68.79	15.77		150.0	
10101-CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	3.13	66.93	15.58	0.00	150.0	± 9.6 %
		Y	3.23	67.31	15.81		150.0	
		Z	3.08	66.69	15.39		150.0	
10102-CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	3.24	66.93	15.69	0.00	150.0	± 9.6 %
		Y	3.33	67.27	15.89		150.0	
		Z	3.19	66.70	15.51		150.0	
10103-CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	5.89	75.24	20.52	3.98	65.0	± 9.6 %
		Y	7.02	77.93	21.63		65.0	
		Z	6.16	76.00	20.83		65.0	
10104-CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	5.91	73.19	20.43	3.98	65.0	± 9.6 %
		Y	6.81	75.57	21.49		65.0	
		Z	5.99	73.46	20.55		65.0	
10105-CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	5.43	71.36	19.90	3.98	65.0	± 9.6 %
		Y	6.17	73.49	20.88		65.0	
		Z	5.70	72.30	20.34		65.0	
10108-CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	2.57	68.54	15.90	0.00	150.0	± 9.6 %
		Y	2.69	69.13	16.28		150.0	
		Z	2.49	68.09	15.58		150.0	
10109-CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	2.78	66.74	15.42	0.00	150.0	± 9.6 %
		Y	2.88	67.12	15.68		150.0	
		Z	2.73	66.46	15.20		150.0	
10110-CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	2.06	67.61	15.42	0.00	150.0	± 9.6 %
		Y	2.19	68.23	15.87		150.0	
		Z	1.99	67.12	15.05		150.0	
10111-CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	2.47	67.39	15.56	0.00	150.0	± 9.6 %
		Y	2.57	67.74	15.85		150.0	
		Z	2.40	66.99	15.24		150.0	

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10112-CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	2.91	66.77	15.51	0.00	150.0	± 9.6 %
		Y	3.00	67.11	15.74		150.0	
		Z	2.85	66.51	15.30		150.0	
10113-CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	2.63	67.58	15.73	0.00	150.0	± 9.6 %
		Y	2.72	67.88	15.98		150.0	
		Z	2.56	67.21	15.43		150.0	
10114-CAC	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	X	5.07	66.97	16.35	0.00	150.0	± 9.6 %
		Y	5.13	67.11	16.40		150.0	
		Z	5.04	66.87	16.27		150.0	
10115-CAC	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	X	5.36	67.10	16.43	0.00	150.0	± 9.6 %
		Y	5.42	67.26	16.48		150.0	
		Z	5.32	67.00	16.35		150.0	
10116-CAC	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	X	5.17	67.15	16.36	0.00	150.0	± 9.6 %
		Y	5.22	67.31	16.42		150.0	
		Z	5.13	67.04	16.28		150.0	
10117-CAC	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	5.03	66.79	16.28	0.00	150.0	± 9.6 %
		Y	5.09	66.97	16.34		150.0	
		Z	4.99	66.69	16.20		150.0	
10118-CAC	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	X	5.45	67.34	16.56	0.00	150.0	± 9.6 %
		Y	5.50	67.47	16.60		150.0	
		Z	5.41	67.24	16.48		150.0	
10119-CAC	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	X	5.15	67.11	16.36	0.00	150.0	± 9.6 %
		Y	5.20	67.25	16.40		150.0	
		Z	5.11	67.02	16.28		150.0	
10140-CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	3.27	66.94	15.61	0.00	150.0	± 9.6 %
		Y	3.37	67.29	15.82		150.0	
		Z	3.22	66.71	15.43		150.0	
10141-CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	3.40	67.07	15.80	0.00	150.0	± 9.6 %
		Y	3.49	67.38	15.98		150.0	
		Z	3.35	66.84	15.63		150.0	
10142-CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	1.82	67.38	14.89	0.00	150.0	± 9.6 %
		Y	1.95	68.11	15.47		150.0	
		Z	1.74	66.77	14.42		150.0	
10143-CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	2.29	67.77	15.00	0.00	150.0	± 9.6 %
		Y	2.41	68.29	15.47		150.0	
		Z	2.19	67.17	14.54		150.0	
10144-CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	2.09	65.65	13.45	0.00	150.0	± 9.6 %
		Y	2.22	66.30	14.02		150.0	
		Z	2.01	65.21	13.07		150.0	
10145-CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	1.02	63.04	10.13	0.00	150.0	± 9.6 %
		Y	1.19	64.55	11.49		150.0	
		Z	0.94	62.23	9.40		150.0	
10146-CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	1.64	64.33	10.46	0.00	150.0	± 9.6 %
		Y	2.25	67.70	12.40		150.0	
		Z	1.61	64.22	10.34		150.0	
10147-CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	1.83	65.63	11.25	0.00	150.0	± 9.6 %
		Y	2.75	70.16	13.64		150.0	
		Z	1.80	65.52	11.13		150.0	

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10149-CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	2.79	66.80	15.47	0.00	150.0	± 9.6 %
		Y	2.89	67.17	15.72		150.0	
		Z	2.74	66.52	15.25		150.0	
10150-CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	2.92	66.82	15.55	0.00	150.0	± 9.6 %
		Y	3.01	67.16	15.77		150.0	
		Z	2.86	66.56	15.34		150.0	
10151-CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	6.38	78.39	21.90	3.98	65.0	± 9.6 %
		Y	7.96	81.84	23.27		65.0	
		Z	6.55	78.84	22.07		65.0	
10152-CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	5.44	73.19	20.13	3.98	65.0	± 9.6 %
		Y	6.39	75.81	21.33		65.0	
		Z	5.54	73.50	20.26		65.0	
10153-CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	5.81	74.18	20.94	3.98	65.0	± 9.6 %
		Y	6.76	76.68	22.05		65.0	
		Z	5.90	74.49	21.07		65.0	
10154-CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	2.10	67.98	15.66	0.00	150.0	± 9.6 %
		Y	2.23	68.58	16.10		150.0	
		Z	2.03	67.46	15.28		150.0	
10155-CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	2.48	67.41	15.58	0.00	150.0	± 9.6 %
		Y	2.58	67.75	15.87		150.0	
		Z	2.41	67.01	15.26		150.0	
10156-CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	1.65	67.22	14.50	0.00	150.0	± 9.6 %
		Y	1.79	68.09	15.21		150.0	
		Z	1.56	66.49	13.94		150.0	
10157-CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	1.89	65.92	13.28	0.00	150.0	± 9.6 %
		Y	2.04	66.73	13.98		150.0	
		Z	1.81	65.34	12.80		150.0	
10158-CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	2.63	67.65	15.78	0.00	150.0	± 9.6 %
		Y	2.73	67.93	16.02		150.0	
		Z	2.56	67.26	15.47		150.0	
10159-CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	1.99	66.31	13.54	0.00	150.0	± 9.6 %
		Y	2.14	67.12	14.23		150.0	
		Z	1.89	65.68	13.04		150.0	
10160-CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	2.62	67.95	15.84	0.00	150.0	± 9.6 %
		Y	2.71	68.30	16.11		150.0	
		Z	2.56	67.61	15.57		150.0	
10161-CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	2.81	66.75	15.45	0.00	150.0	± 9.6 %
		Y	2.91	67.09	15.69		150.0	
		Z	2.75	66.47	15.23		150.0	
10162-CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	2.92	66.92	15.58	0.00	150.0	± 9.6 %
		Y	3.01	67.23	15.81		150.0	
		Z	2.86	66.66	15.36		150.0	
10166-CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	3.47	69.06	18.90	3.01	150.0	± 9.6 %
		Y	3.75	70.40	19.62		150.0	
		Z	3.46	69.17	19.02		150.0	
10167-CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	4.19	71.60	19.20	3.01	150.0	± 9.6 %
		Y	4.88	74.37	20.47		150.0	
		Z	4.17	71.73	19.32		150.0	

10168-CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	4.66	73.93	20.59	3.01	150.0	± 9.6 %
		Y	5.47	76.81	21.82		150.0	
		Z	4.64	74.07	20.71		150.0	
10169-CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	2.85	68.15	18.49	3.01	150.0	± 9.6 %
		Y	3.24	70.73	19.81		150.0	
		Z	2.83	68.15	18.57		150.0	
10170-CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	3.77	73.38	20.58	3.01	150.0	± 9.6 %
		Y	5.05	79.05	22.92		150.0	
		Z	3.72	73.34	20.65		150.0	
10171-AAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	3.13	69.50	17.87	3.01	150.0	± 9.6 %
		Y	3.98	74.01	19.90		150.0	
		Z	3.11	69.53	17.97		150.0	
10172-CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	6.35	87.03	27.58	6.02	65.0	± 9.6 %
		Y	15.94	106.71	34.46		65.0	
		Z	8.03	92.20	29.65		65.0	
10173-CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	14.65	99.05	29.57	6.02	65.0	± 9.6 %
		Y	100.00	134.50	39.08		65.0	
		Z	17.81	103.32	31.13		65.0	
10174-CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	10.22	91.37	26.56	6.02	65.0	± 9.6 %
		Y	100.00	131.83	37.69		65.0	
		Z	13.56	96.88	28.56		65.0	
10175-CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	2.82	67.86	18.25	3.01	150.0	± 9.6 %
		Y	3.20	70.41	19.56		150.0	
		Z	2.80	67.86	18.33		150.0	
10176-CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	3.78	73.40	20.59	3.01	150.0	± 9.6 %
		Y	5.06	79.08	22.94		150.0	
		Z	3.73	73.36	20.66		150.0	
10177-CAI	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	2.84	68.00	18.34	3.01	150.0	± 9.6 %
		Y	3.22	70.56	19.65		150.0	
		Z	2.82	68.00	18.42		150.0	
10178-CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	3.75	73.20	20.48	3.01	150.0	± 9.6 %
		Y	5.00	78.82	22.81		150.0	
		Z	3.70	73.17	20.56		150.0	
10179-CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	3.42	71.31	19.09	3.01	150.0	± 9.6 %
		Y	4.47	76.39	21.27		150.0	
		Z	3.39	71.32	19.18		150.0	
10180-CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	3.13	69.44	17.83	3.01	150.0	± 9.6 %
		Y	3.97	73.93	19.85		150.0	
		Z	3.10	69.48	17.93		150.0	
10181-CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	2.84	67.98	18.33	3.01	150.0	± 9.6 %
		Y	3.22	70.55	19.65		150.0	
		Z	2.82	67.98	18.41		150.0	
10182-CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	3.74	73.18	20.47	3.01	150.0	± 9.6 %
		Y	4.99	78.80	22.80		150.0	
		Z	3.69	73.15	20.55		150.0	
10183-AAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	3.12	69.42	17.82	3.01	150.0	± 9.6 %
		Y	3.96	73.90	19.84		150.0	
		Z	3.10	69.45	17.92		150.0	

10184-CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	2.85	68.02	18.35	3.01	150.0	± 9.6 %
		Y	3.23	70.59	19.67		150.0	
		Z	2.83	68.02	18.43		150.0	
10185-CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	3.76	73.25	20.51	3.01	150.0	± 9.6 %
		Y	5.02	78.88	22.84		150.0	
		Z	3.71	73.22	20.58		150.0	
10186-AAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	3.14	69.48	17.85	3.01	150.0	± 9.6 %
		Y	3.98	73.98	19.87		150.0	
		Z	3.11	69.52	17.95		150.0	
10187-CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	2.86	68.08	18.42	3.01	150.0	± 9.6 %
		Y	3.24	70.65	19.73		150.0	
		Z	2.84	68.08	18.50		150.0	
10188-CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	3.87	73.87	20.88	3.01	150.0	± 9.6 %
		Y	5.21	79.68	23.25		150.0	
		Z	3.82	73.81	20.94		150.0	
10189-AAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	3.20	69.87	18.12	3.01	150.0	± 9.6 %
		Y	4.09	74.49	20.17		150.0	
		Z	3.17	69.90	18.22		150.0	
10193-CAC	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	X	4.45	66.33	15.99	0.00	150.0	± 9.6 %
		Y	4.52	66.51	16.09		150.0	
		Z	4.41	66.22	15.89		150.0	
10194-CAC	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	X	4.62	66.63	16.12	0.00	150.0	± 9.6 %
		Y	4.69	66.83	16.21		150.0	
		Z	4.57	66.52	16.03		150.0	
10195-CAC	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	X	4.66	66.67	16.14	0.00	150.0	± 9.6 %
		Y	4.73	66.86	16.23		150.0	
		Z	4.61	66.56	16.05		150.0	
10196-CAC	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	4.45	66.38	16.01	0.00	150.0	± 9.6 %
		Y	4.52	66.57	16.10		150.0	
		Z	4.41	66.27	15.91		150.0	
10197-CAC	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	X	4.63	66.65	16.13	0.00	150.0	± 9.6 %
		Y	4.71	66.85	16.22		150.0	
		Z	4.59	66.54	16.04		150.0	
10198-CAC	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	X	4.66	66.68	16.15	0.00	150.0	± 9.6 %
		Y	4.74	66.88	16.24		150.0	
		Z	4.62	66.57	16.06		150.0	
10219-CAC	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	X	4.40	66.39	15.96	0.00	150.0	± 9.6 %
		Y	4.47	66.58	16.06		150.0	
		Z	4.36	66.27	15.86		150.0	
10220-CAC	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	X	4.62	66.62	16.12	0.00	150.0	± 9.6 %
		Y	4.70	66.82	16.21		150.0	
		Z	4.58	66.51	16.03		150.0	
10221-CAC	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	X	4.67	66.62	16.14	0.00	150.0	± 9.6 %
		Y	4.74	66.81	16.23		150.0	
		Z	4.63	66.51	16.05		150.0	
10222-CAC	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	X	5.01	66.80	16.27	0.00	150.0	± 9.6 %
		Y	5.07	66.99	16.34		150.0	
		Z	4.97	66.70	16.19		150.0	

10223-CAC	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	X	5.33	67.09	16.44	0.00	150.0	± 9.6 %
		Y	5.37	67.19	16.47		150.0	
		Z	5.29	67.02	16.38		150.0	
10224-CAC	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	X	5.05	66.91	16.25	0.00	150.0	± 9.6 %
		Y	5.11	67.09	16.32		150.0	
		Z	5.01	66.81	16.17		150.0	
10225-CAB	UMTS-FDD (HSPA+)	X	2.70	65.61	14.92	0.00	150.0	± 9.6 %
		Y	2.79	65.91	15.17		150.0	
		Z	2.65	65.38	14.70		150.0	
10226-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	15.91	100.71	30.17	6.02	65.0	± 9.6 %
		Y	100.00	134.76	39.24		65.0	
		Z	19.48	105.15	31.77		65.0	
10227-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	15.46	98.54	28.84	6.02	65.0	± 9.6 %
		Y	100.00	131.75	37.69		65.0	
		Z	19.14	103.03	30.45		65.0	
10228-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	8.70	93.83	30.04	6.02	65.0	± 9.6 %
		Y	31.18	120.91	38.54		65.0	
		Z	9.84	96.88	31.33		65.0	
10229-CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	14.77	99.16	29.61	6.02	65.0	± 9.6 %
		Y	100.00	134.48	39.08		65.0	
		Z	17.95	103.43	31.17		65.0	
10230-CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	14.28	97.04	28.30	6.02	65.0	± 9.6 %
		Y	100.00	131.57	37.58		65.0	
		Z	17.53	101.34	29.87		65.0	
10231-CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	8.28	92.74	29.58	6.02	65.0	± 9.6 %
		Y	28.48	118.85	37.89		65.0	
		Z	9.33	95.69	30.85		65.0	
10232-CAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	14.74	99.14	29.60	6.02	65.0	± 9.6 %
		Y	100.00	134.50	39.08		65.0	
		Z	17.92	103.41	31.17		65.0	
10233-CAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	14.24	97.01	28.29	6.02	65.0	± 9.6 %
		Y	100.00	131.59	37.58		65.0	
		Z	17.48	101.31	29.86		65.0	
10234-CAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	7.96	91.78	29.14	6.02	65.0	± 9.6 %
		Y	26.39	116.98	37.24		65.0	
		Z	8.95	94.67	30.39		65.0	
10235-CAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	14.77	99.20	29.62	6.02	65.0	± 9.6 %
		Y	100.00	134.52	39.09		65.0	
		Z	17.96	103.48	31.19		65.0	
10236-CAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	14.45	97.22	28.35	6.02	65.0	± 9.6 %
		Y	100.00	131.52	37.55		65.0	
		Z	17.77	101.56	29.93		65.0	
10237-CAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	8.29	92.81	29.61	6.02	65.0	± 9.6 %
		Y	28.81	119.14	37.97		65.0	
		Z	9.36	95.78	30.89		65.0	
10238-CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	14.71	99.12	29.60	6.02	65.0	± 9.6 %
		Y	100.00	134.52	39.09		65.0	
		Z	17.88	103.39	31.16		65.0	

10239-CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	14.19	96.97	28.28	6.02	65.0	± 9.6 %
		Y	100.00	131.62	37.59		65.0	
		Z	17.42	101.27	29.85		65.0	
10240-CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	8.26	92.76	29.59	6.02	65.0	± 9.6 %
		Y	28.65	119.04	37.94		65.0	
		Z	9.32	95.73	30.87		65.0	
10241-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	7.59	80.37	25.35	6.98	65.0	± 9.6 %
		Y	10.04	86.74	28.12		65.0	
		Z	7.85	81.34	25.88		65.0	
10242-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	6.75	77.85	24.21	6.98	65.0	± 9.6 %
		Y	8.43	82.90	26.54		65.0	
		Z	7.30	79.75	25.14		65.0	
10243-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	5.48	74.42	23.60	6.98	65.0	± 9.6 %
		Y	6.39	77.98	25.46		65.0	
		Z	5.87	76.16	24.52		65.0	
10244-CAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	5.71	76.00	18.70	3.98	65.0	± 9.6 %
		Y	8.34	81.60	21.07		65.0	
		Z	6.18	77.32	19.29		65.0	
10245-CAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	5.52	75.19	18.30	3.98	65.0	± 9.6 %
		Y	7.93	80.50	20.60		65.0	
		Z	5.92	76.37	18.84		65.0	
10246-CAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	5.55	79.41	20.24	3.98	65.0	± 9.6 %
		Y	8.48	85.64	22.77		65.0	
		Z	5.70	79.66	20.24		65.0	
10247-CAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	4.73	73.67	18.61	3.98	65.0	± 9.6 %
		Y	5.88	76.83	20.12		65.0	
		Z	4.80	73.85	18.62		65.0	
10248-CAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	4.69	72.99	18.29	3.98	65.0	± 9.6 %
		Y	5.79	76.03	19.77		65.0	
		Z	4.76	73.16	18.29		65.0	
10249-CAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	6.83	83.08	22.65	3.98	65.0	± 9.6 %
		Y	10.11	89.16	24.96		65.0	
		Z	7.14	83.71	22.81		65.0	
10250-CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	5.54	75.91	21.31	3.98	65.0	± 9.6 %
		Y	6.67	78.81	22.56		65.0	
		Z	5.66	76.27	21.42		65.0	
10251-CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	5.27	73.65	19.94	3.98	65.0	± 9.6 %
		Y	6.28	76.41	21.21		65.0	
		Z	5.36	73.96	20.04		65.0	
10252-CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	6.69	81.76	23.20	3.98	65.0	± 9.6 %
		Y	9.02	86.54	25.02		65.0	
		Z	6.96	82.43	23.43		65.0	
10253-CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	5.33	72.65	19.87	3.98	65.0	± 9.6 %
		Y	6.21	75.13	21.03		65.0	
		Z	5.42	72.95	19.99		65.0	
10254-CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	5.67	73.57	20.59	3.98	65.0	± 9.6 %
		Y	6.57	75.98	21.69		65.0	
		Z	5.76	73.88	20.72		65.0	

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10255-CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	6.02	77.53	21.77	3.98	65.0	± 9.6 %
		Y	7.45	80.90	23.15		65.0	
		Z	6.18	78.00	21.96		65.0	
10256-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	4.22	71.25	15.55	3.98	65.0	± 9.6 %
		Y	6.28	76.68	18.08		65.0	
		Z	4.50	72.23	16.02		65.0	
10257-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	4.05	70.31	15.02	3.98	65.0	± 9.6 %
		Y	5.87	75.29	17.42		65.0	
		Z	4.28	71.12	15.42		65.0	
10258-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	3.88	73.49	16.91	3.98	65.0	± 9.6 %
		Y	5.91	79.26	19.55		65.0	
		Z	3.89	73.38	16.75		65.0	
10259-CAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	5.06	74.57	19.62	3.98	65.0	± 9.6 %
		Y	6.21	77.60	21.01		65.0	
		Z	5.16	74.84	19.67		65.0	
10260-CAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	5.08	74.24	19.47	3.98	65.0	± 9.6 %
		Y	6.18	77.16	20.83		65.0	
		Z	5.17	74.49	19.52		65.0	
10261-CAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	6.31	81.37	22.47	3.98	65.0	± 9.6 %
		Y	8.82	86.60	24.51		65.0	
		Z	6.58	82.00	22.65		65.0	
10262-CAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	5.53	75.85	21.26	3.98	65.0	± 9.6 %
		Y	6.66	78.76	22.52		65.0	
		Z	5.64	76.21	21.38		65.0	
10263-CAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	5.26	73.62	19.93	3.98	65.0	± 9.6 %
		Y	6.27	76.38	21.20		65.0	
		Z	5.35	73.94	20.03		65.0	
10264-CAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	6.61	81.54	23.09	3.98	65.0	± 9.6 %
		Y	8.92	86.30	24.91		65.0	
		Z	6.88	82.20	23.32		65.0	
10265-CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	5.44	73.20	20.14	3.98	65.0	± 9.6 %
		Y	6.39	75.80	21.33		65.0	
		Z	5.53	73.50	20.27		65.0	
10266-CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	5.80	74.17	20.93	3.98	65.0	± 9.6 %
		Y	6.76	76.67	22.04		65.0	
		Z	5.90	74.48	21.06		65.0	
10267-CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	6.37	78.34	21.88	3.98	65.0	± 9.6 %
		Y	7.94	81.79	23.25		65.0	
		Z	6.54	78.79	22.05		65.0	
10268-CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	6.05	73.02	20.46	3.98	65.0	± 9.6 %
		Y	6.91	75.24	21.46		65.0	
		Z	6.13	73.28	20.58		65.0	
10269-CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	6.03	72.59	20.31	3.98	65.0	± 9.6 %
		Y	6.85	74.73	21.29		65.0	
		Z	6.11	72.84	20.43		65.0	
10270-CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	6.16	75.30	20.76	3.98	65.0	± 9.6 %
		Y	7.23	77.79	21.80		65.0	
		Z	6.27	75.60	20.89		65.0	

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10274-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	X	2.48	65.89	14.77	0.00	150.0	± 9.6 %
		Y	2.57	66.26	15.08		150.0	
		Z	2.43	65.63	14.53		150.0	
10275-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	X	1.46	66.57	14.58	0.00	150.0	± 9.6 %
		Y	1.58	67.38	15.22		150.0	
		Z	1.40	65.98	14.11		150.0	
10277-CAA	PHS (QPSK)	X	1.89	60.99	6.60	9.03	50.0	± 9.6 %
		Y	2.04	61.80	7.27		50.0	
		Z	1.93	61.08	6.68		50.0	
10278-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	X	5.01	74.12	16.13	9.03	50.0	± 9.6 %
		Y	10.14	84.97	20.68		50.0	
		Z	5.05	74.09	16.12		50.0	
10279-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	X	5.19	74.51	16.36	9.03	50.0	± 9.6 %
		Y	10.43	85.32	20.88		50.0	
		Z	5.22	74.48	16.34		50.0	
10290-AAB	CDMA2000, RC1, SO55, Full Rate	X	1.14	65.76	11.93	0.00	150.0	± 9.6 %
		Y	1.35	67.60	13.38		150.0	
		Z	1.03	64.58	11.03		150.0	
10291-AAB	CDMA2000, RC3, SO55, Full Rate	X	0.66	63.28	10.35	0.00	150.0	± 9.6 %
		Y	0.78	64.84	11.89		150.0	
		Z	0.59	62.30	9.44		150.0	
10292-AAB	CDMA2000, RC3, SO32, Full Rate	X	0.77	65.89	12.06	0.00	150.0	± 9.6 %
		Y	0.96	68.30	13.99		150.0	
		Z	0.66	64.23	10.80		150.0	
10293-AAB	CDMA2000, RC3, SO3, Full Rate	X	1.08	70.27	14.58	0.00	150.0	± 9.6 %
		Y	1.37	73.27	16.65		150.0	
		Z	0.87	67.38	12.83		150.0	
10295-AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	X	12.10	90.80	25.88	9.03	50.0	± 9.6 %
		Y	14.51	95.81	28.29		50.0	
		Z	13.51	92.56	26.41		50.0	
10297-AAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	2.58	68.64	15.97	0.00	150.0	± 9.6 %
		Y	2.70	69.22	16.34		150.0	
		Z	2.50	68.17	15.65		150.0	
10298-AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	1.33	65.58	12.57	0.00	150.0	± 9.6 %
		Y	1.50	66.86	13.65		150.0	
		Z	1.23	64.69	11.86		150.0	
10299-AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	2.27	67.72	13.20	0.00	150.0	± 9.6 %
		Y	3.10	71.52	15.11		150.0	
		Z	2.26	67.85	13.23		150.0	
10300-AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	1.77	63.95	10.61	0.00	150.0	± 9.6 %
		Y	2.17	66.08	11.91		150.0	
		Z	1.74	63.91	10.54		150.0	
10301-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	X	4.74	65.53	17.46	4.17	50.0	± 9.6 %
		Y	4.92	66.12	17.84		50.0	
		Z	4.67	65.40	17.36		50.0	
10302-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)	X	5.15	65.82	17.99	4.96	50.0	± 9.6 %
		Y	5.33	66.49	18.44		50.0	
		Z	5.17	65.97	18.01		50.0	

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10303-AAA	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	X	4.90	65.45	17.81	4.96	50.0	± 9.6 %
		Y	5.08	66.14	18.28		50.0	
		Z	4.92	65.62	17.83		50.0	
10304-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	X	4.71	65.31	17.29	4.17	50.0	± 9.6 %
		Y	4.88	65.94	17.70		50.0	
		Z	4.72	65.44	17.29		50.0	
10305-AAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	X	4.32	67.25	19.33	6.02	35.0	± 9.6 %
		Y	4.49	67.99	19.97		35.0	
		Z	4.43	67.86	19.55		35.0	
10306-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)	X	4.65	66.33	18.99	6.02	35.0	± 9.6 %
		Y	4.80	66.94	19.51		35.0	
		Z	4.71	66.75	19.14		35.0	
10307-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)	X	4.54	66.47	18.94	6.02	35.0	± 9.6 %
		Y	4.70	67.11	19.48		35.0	
		Z	4.61	66.90	19.09		35.0	
10308-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	X	4.52	66.66	19.07	6.02	35.0	± 9.6 %
		Y	4.68	67.33	19.63		35.0	
		Z	4.59	67.13	19.24		35.0	
10309-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)	X	4.70	66.54	19.13	6.02	35.0	± 9.6 %
		Y	4.86	67.20	19.68		35.0	
		Z	4.77	66.96	19.29		35.0	
10310-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)	X	4.60	66.38	18.96	6.02	35.0	± 9.6 %
		Y	4.75	67.00	19.48		35.0	
		Z	4.66	66.81	19.12		35.0	
10311-AAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	2.92	67.94	15.67	0.00	150.0	± 9.6 %
		Y	3.06	68.53	16.01		150.0	
		Z	2.84	67.50	15.38		150.0	
10313-AAA	iDEN 1:3	X	3.59	74.52	16.76	6.99	70.0	± 9.6 %
		Y	7.81	84.35	20.54		70.0	
		Z	3.75	74.74	16.77		70.0	
10314-AAA	iDEN 1:6	X	6.18	85.62	23.85	10.00	30.0	± 9.6 %
		Y	11.31	96.43	27.87		30.0	
		Z	6.24	85.41	23.69		30.0	
10315-AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	X	1.00	62.92	14.51	0.17	150.0	± 9.6 %
		Y	1.08	63.58	15.01		150.0	
		Z	0.98	62.64	14.20		150.0	
10316-AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	X	4.51	66.40	16.17	0.17	150.0	± 9.6 %
		Y	4.59	66.62	16.28		150.0	
		Z	4.47	66.32	16.09		150.0	
10317-AAC	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	X	4.51	66.40	16.17	0.17	150.0	± 9.6 %
		Y	4.59	66.62	16.28		150.0	
		Z	4.47	66.32	16.09		150.0	
10400-AAD	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)	X	4.61	66.69	16.12	0.00	150.0	± 9.6 %
		Y	4.69	66.90	16.22		150.0	
		Z	4.56	66.58	16.02		150.0	
10401-AAD	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)	X	5.36	67.03	16.39	0.00	150.0	± 9.6 %
		Y	5.40	67.13	16.42		150.0	
		Z	5.33	66.97	16.33		150.0	

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10402-AAD	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)	X	5.57	67.19	16.33	0.00	150.0	± 9.6 %
		Y	5.64	67.39	16.40		150.0	
		Z	5.53	67.09	16.25		150.0	
10403-AAB	CDMA2000 (1xEV-DO, Rev. 0)	X	1.14	65.76	11.93	0.00	115.0	± 9.6 %
		Y	1.35	67.60	13.38		115.0	
		Z	1.03	64.58	11.03		115.0	
10404-AAB	CDMA2000 (1xEV-DO, Rev. A)	X	1.14	65.76	11.93	0.00	115.0	± 9.6 %
		Y	1.35	67.60	13.38		115.0	
		Z	1.03	64.58	11.03		115.0	
10406-AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	X	18.73	99.86	25.25	0.00	100.0	± 9.6 %
		Y	100.00	118.69	29.03		100.0	
		Z	26.61	105.17	26.73		100.0	
10410-AAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9, Subframe Conf=4)	X	100.00	125.74	31.85	3.23	80.0	± 9.6 %
		Y	100.00	125.21	31.87		80.0	
		Z	100.00	127.36	32.62		80.0	
10415-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	X	0.94	62.19	13.93	0.00	150.0	± 9.6 %
		Y	1.01	62.70	14.36		150.0	
		Z	0.91	61.87	13.58		150.0	
10416-AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	X	4.45	66.36	16.06	0.00	150.0	± 9.6 %
		Y	4.52	66.55	16.15		150.0	
		Z	4.41	66.26	15.97		150.0	
10417-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	X	4.45	66.36	16.06	0.00	150.0	± 9.6 %
		Y	4.52	66.55	16.15		150.0	
		Z	4.41	66.26	15.97		150.0	
10418-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preambule)	X	4.44	66.52	16.08	0.00	150.0	± 9.6 %
		Y	4.51	66.71	16.17		150.0	
		Z	4.40	66.41	15.98		150.0	
10419-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preambule)	X	4.46	66.47	16.08	0.00	150.0	± 9.6 %
		Y	4.53	66.66	16.17		150.0	
		Z	4.42	66.36	15.99		150.0	
10422-AAB	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	X	4.58	66.48	16.11	0.00	150.0	± 9.6 %
		Y	4.65	66.66	16.19		150.0	
		Z	4.54	66.37	16.01		150.0	
10423-AAB	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	X	4.74	66.78	16.22	0.00	150.0	± 9.6 %
		Y	4.82	66.98	16.31		150.0	
		Z	4.69	66.67	16.12		150.0	
10424-AAB	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	X	4.66	66.73	16.19	0.00	150.0	± 9.6 %
		Y	4.74	66.93	16.28		150.0	
		Z	4.62	66.62	16.09		150.0	
10425-AAB	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	X	5.28	67.10	16.42	0.00	150.0	± 9.6 %
		Y	5.34	67.25	16.47		150.0	
		Z	5.24	66.99	16.34		150.0	
10426-AAB	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	X	5.31	67.19	16.46	0.00	150.0	± 9.6 %
		Y	5.35	67.26	16.48		150.0	
		Z	5.27	67.10	16.39		150.0	

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10427-AAB	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	X	5.31	67.11	16.42	0.00	150.0	± 9.6 %
		Y	5.36	67.25	16.47		150.0	
		Z	5.27	67.02	16.35		150.0	
10430-AAD	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	X	4.13	70.48	17.90	0.00	150.0	± 9.6 %
		Y	4.14	70.12	17.76		150.0	
		Z	4.04	70.12	17.62		150.0	
10431-AAD	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	X	4.11	66.86	15.99	0.00	150.0	± 9.6 %
		Y	4.20	67.07	16.12		150.0	
		Z	4.06	66.72	15.86		150.0	
10432-AAC	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	X	4.42	66.76	16.11	0.00	150.0	± 9.6 %
		Y	4.50	66.96	16.22		150.0	
		Z	4.37	66.64	16.00		150.0	
10433-AAC	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	X	4.67	66.76	16.21	0.00	150.0	± 9.6 %
		Y	4.75	66.96	16.30		150.0	
		Z	4.63	66.65	16.11		150.0	
10434-AAA	W-CDMA (BS Test Model 1, 64 DPCH)	X	4.21	71.23	17.77	0.00	150.0	± 9.6 %
		Y	4.20	70.85	17.67		150.0	
		Z	4.08	70.76	17.43		150.0	
10435-AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	125.51	31.74	3.23	80.0	± 9.6 %
		Y	100.00	124.99	31.77		80.0	
		Z	100.00	127.13	32.51		80.0	
10447-AAD	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.37	66.69	15.12	0.00	150.0	± 9.6 %
		Y	3.48	67.00	15.38		150.0	
		Z	3.30	66.46	14.90		150.0	
10448-AAD	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%)	X	3.95	66.63	15.84	0.00	150.0	± 9.6 %
		Y	4.04	66.85	15.98		150.0	
		Z	3.90	66.49	15.71		150.0	
10449-AAC	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%)	X	4.24	66.58	16.00	0.00	150.0	± 9.6 %
		Y	4.31	66.78	16.11		150.0	
		Z	4.19	66.45	15.89		150.0	
10450-AAC	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.44	66.52	16.05	0.00	150.0	± 9.6 %
		Y	4.51	66.72	16.15		150.0	
		Z	4.40	66.40	15.95		150.0	
10451-AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	X	3.23	66.72	14.62	0.00	150.0	± 9.6 %
		Y	3.36	67.12	14.96		150.0	
		Z	3.16	66.43	14.35		150.0	
10456-AAB	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)	X	6.17	67.68	16.60	0.00	150.0	± 9.6 %
		Y	6.21	67.80	16.63		150.0	
		Z	6.14	67.60	16.55		150.0	
10457-AAA	UMTS-FDD (DC-HSDPA)	X	3.73	65.01	15.76	0.00	150.0	± 9.6 %
		Y	3.79	65.20	15.86		150.0	
		Z	3.69	64.91	15.66		150.0	
10458-AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	X	3.82	70.31	17.01	0.00	150.0	± 9.6 %
		Y	3.87	70.19	17.09		150.0	
		Z	3.70	69.82	16.64		150.0	
10459-AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	X	5.02	68.38	18.06	0.00	150.0	± 9.6 %
		Y	5.01	68.01	17.87		150.0	
		Z	4.90	68.02	17.80		150.0	

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10460-AAA	UMTS-FDD (WCDMA, AMR)	X	0.77	66.07	14.49	0.00	150.0	± 9.6 %
		Y	0.87	67.17	15.47		150.0	
		Z	0.71	65.16	13.72		150.0	
10461-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	129.90	33.85	3.29	80.0	± 9.6 %
		Y	100.00	132.00	35.01		80.0	
		Z	100.00	132.22	34.92		80.0	
10462-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.87	74.90	15.08	3.23	80.0	± 9.6 %
		Y	100.00	108.52	24.03		80.0	
		Z	38.61	99.17	22.00		80.0	
10463-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.47	64.49	10.53	3.23	80.0	± 9.6 %
		Y	18.61	88.22	18.26		80.0	
		Z	2.38	69.36	12.68		80.0	
10464-AAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	126.98	32.32	3.23	80.0	± 9.6 %
		Y	100.00	129.46	33.65		80.0	
		Z	100.00	129.44	33.45		80.0	
10465-AAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.64	70.91	13.61	3.23	80.0	± 9.6 %
		Y	100.00	107.75	23.67		80.0	
		Z	9.59	84.57	18.17		80.0	
10466-AAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.32	63.40	9.99	3.23	80.0	± 9.6 %
		Y	7.36	79.35	15.77		80.0	
		Z	1.85	66.87	11.66		80.0	
10467-AAE	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	127.32	32.47	3.23	80.0	± 9.6 %
		Y	100.00	129.78	33.79		80.0	
		Z	100.00	129.78	33.60		80.0	
10468-AAE	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.89	71.87	13.98	3.23	80.0	± 9.6 %
		Y	100.00	108.00	23.78		80.0	
		Z	12.94	87.74	19.07		80.0	
10469-AAE	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.32	63.43	10.00	3.23	80.0	± 9.6 %
		Y	7.57	79.64	15.85		80.0	
		Z	1.86	66.94	11.68		80.0	
10470-AAE	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	127.35	32.48	3.23	80.0	± 9.6 %
		Y	100.00	129.83	33.80		80.0	
		Z	100.00	129.83	33.61		80.0	
10471-AAE	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.85	71.73	13.91	3.23	80.0	± 9.6 %
		Y	100.00	107.91	23.73		80.0	
		Z	12.63	87.45	18.98		80.0	
10472-AAE	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.31	63.37	9.96	3.23	80.0	± 9.6 %
		Y	7.42	79.41	15.76		80.0	
		Z	1.85	66.84	11.63		80.0	
10473-AAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	127.31	32.46	3.23	80.0	± 9.6 %
		Y	100.00	129.79	33.78		80.0	
		Z	100.00	129.79	33.59		80.0	
10474-AAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.82	71.64	13.88	3.23	80.0	± 9.6 %
		Y	100.00	107.92	23.73		80.0	
		Z	12.30	87.19	18.91		80.0	
10475-AAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.31	63.34	9.94	3.23	80.0	± 9.6 %
		Y	7.28	79.25	15.72		80.0	
		Z	1.83	66.79	11.61		80.0	

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10477-AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.62	70.87	13.57	3.23	80.0	± 9.6 %
		Y	100.00	107.68	23.62		80.0	
		Z	9.80	84.77	18.21		80.0	
10478-AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.30	63.28	9.91	3.23	80.0	± 9.6 %
		Y	7.06	78.93	15.61		80.0	
		Z	1.82	66.68	11.55		80.0	
10479-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	9.70	91.06	24.81	3.23	80.0	± 9.6 %
		Y	17.04	100.06	27.83		80.0	
		Z	16.10	99.35	27.41		80.0	
10480-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	8.70	83.60	20.39	3.23	80.0	± 9.6 %
		Y	25.58	98.26	24.94		80.0	
		Z	14.49	90.66	22.64		80.0	
10481-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	6.35	78.71	18.36	3.23	80.0	± 9.6 %
		Y	16.87	91.50	22.61		80.0	
		Z	9.60	84.24	20.25		80.0	
10482-AAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.65	70.99	16.26	2.23	80.0	± 9.6 %
		Y	3.76	75.55	18.44		80.0	
		Z	2.58	70.58	15.95		80.0	
10483-AAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.26	73.54	16.84	2.23	80.0	± 9.6 %
		Y	6.80	79.82	19.49		80.0	
		Z	5.19	76.27	17.90		80.0	
10484-AAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.91	72.14	16.30	2.23	80.0	± 9.6 %
		Y	5.99	77.84	18.79		80.0	
		Z	4.59	74.40	17.21		80.0	
10485-AAE	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.05	72.90	18.14	2.23	80.0	± 9.6 %
		Y	3.95	76.31	19.73		80.0	
		Z	3.06	72.88	18.03		80.0	
10486-AAE	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.92	68.63	15.74	2.23	80.0	± 9.6 %
		Y	3.52	70.98	17.01		80.0	
		Z	2.89	68.46	15.56		80.0	
10487-AAE	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.91	68.22	15.54	2.23	80.0	± 9.6 %
		Y	3.49	70.47	16.77		80.0	
		Z	2.88	68.04	15.36		80.0	
10488-AAE	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.32	71.98	18.56	2.23	80.0	± 9.6 %
		Y	3.99	74.45	19.69		80.0	
		Z	3.34	72.06	18.55		80.0	
10489-AAE	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.25	68.48	17.05	2.23	80.0	± 9.6 %
		Y	3.66	69.98	17.82		80.0	
		Z	3.25	68.52	17.02		80.0	
10490-AAE	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.34	68.33	17.00	2.23	80.0	± 9.6 %
		Y	3.74	69.75	17.74		80.0	
		Z	3.34	68.37	16.96		80.0	
10491-AAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.55	70.45	18.07	2.23	80.0	± 9.6 %
		Y	4.09	72.36	18.94		80.0	
		Z	3.56	70.52	18.06		80.0	
10492-AAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.60	67.75	17.07	2.23	80.0	± 9.6 %
		Y	3.96	69.00	17.69		80.0	
		Z	3.61	67.80	17.06		80.0	

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10493-AAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.67	67.64	17.03	2.23	80.0	± 9.6 %
		Y	4.02	68.84	17.63		80.0	
		Z	3.67	67.68	17.02		80.0	
10494-AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.85	71.95	18.54	2.23	80.0	± 9.6 %
		Y	4.51	74.15	19.51		80.0	
		Z	3.86	71.99	18.52		80.0	
10495-AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.63	68.11	17.26	2.23	80.0	± 9.6 %
		Y	4.00	69.41	17.90		80.0	
		Z	3.63	68.15	17.26		80.0	
10496-AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.71	67.85	17.19	2.23	80.0	± 9.6 %
		Y	4.07	69.08	17.79		80.0	
		Z	3.71	67.90	17.18		80.0	
10497-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	1.75	65.66	12.81	2.23	80.0	± 9.6 %
		Y	2.70	70.76	15.51		80.0	
		Z	1.67	64.98	12.32		80.0	
10498-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.38	60.53	9.12	2.23	80.0	± 9.6 %
		Y	1.84	63.33	11.05		80.0	
		Z	1.32	60.12	8.74		80.0	
10499-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.34	60.07	8.72	2.23	80.0	± 9.6 %
		Y	1.76	62.61	10.54		80.0	
		Z	1.33	60.00	8.53		80.0	
10500-AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.11	72.23	18.21	2.23	80.0	± 9.6 %
		Y	3.87	75.11	19.56		80.0	
		Z	3.13	72.29	18.15		80.0	
10501-AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.08	68.70	16.31	2.23	80.0	± 9.6 %
		Y	3.59	70.61	17.33		80.0	
		Z	3.07	68.64	16.19		80.0	
10502-AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.14	68.55	16.17	2.23	80.0	± 9.6 %
		Y	3.64	70.41	17.18		80.0	
		Z	3.12	68.48	16.06		80.0	
10503-AAE	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.27	71.77	18.46	2.23	80.0	± 9.6 %
		Y	3.94	74.25	19.60		80.0	
		Z	3.29	71.86	18.45		80.0	
10504-AAE	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.23	68.38	17.00	2.23	80.0	± 9.6 %
		Y	3.64	69.90	17.77		80.0	
		Z	3.24	68.42	16.96		80.0	
10505-AAE	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.32	68.23	16.94	2.23	80.0	± 9.6 %
		Y	3.72	69.67	17.68		80.0	
		Z	3.33	68.27	16.91		80.0	
10506-AAE	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.82	71.80	18.46	2.23	80.0	± 9.6 %
		Y	4.46	74.01	19.44		80.0	
		Z	3.83	71.85	18.45		80.0	
10507-AAE	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.61	68.04	17.23	2.23	80.0	± 9.6 %
		Y	3.99	69.36	17.87		80.0	
		Z	3.62	68.09	17.22		80.0	

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10508-AAE	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.70	67.79	17.14	2.23	80.0	± 9.6 %
		Y	4.06	69.02	17.75		80.0	
		Z	3.70	67.83	17.14		80.0	
10509-AAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.16	70.56	17.95	2.23	80.0	± 9.6 %
		Y	4.71	72.27	18.72		80.0	
		Z	4.16	70.57	17.93		80.0	
10510-AAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.10	67.80	17.22	2.23	80.0	± 9.6 %
		Y	4.46	68.96	17.77		80.0	
		Z	4.10	67.83	17.22		80.0	
10511-AAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.15	67.56	17.16	2.23	80.0	± 9.6 %
		Y	4.50	68.67	17.69		80.0	
		Z	4.16	67.60	17.16		80.0	
10512-AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.33	72.08	18.43	2.23	80.0	± 9.6 %
		Y	5.03	74.19	19.34		80.0	
		Z	4.34	72.08	18.40		80.0	
10513-AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.98	68.03	17.32	2.23	80.0	± 9.6 %
		Y	4.35	69.28	17.91		80.0	
		Z	3.99	68.06	17.32		80.0	
10514-AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.01	67.63	17.20	2.23	80.0	± 9.6 %
		Y	4.36	68.80	17.75		80.0	
		Z	4.01	67.66	17.20		80.0	
10515-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	X	0.90	62.32	13.94	0.00	150.0	± 9.6 %
		Y	0.97	62.85	14.40		150.0	
		Z	0.87	61.98	13.57		150.0	
10516-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	X	0.47	67.11	14.64	0.00	150.0	± 9.6 %
		Y	0.56	68.58	16.14		150.0	
		Z	0.42	65.78	13.44		150.0	
10517-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	X	0.73	63.74	14.17	0.00	150.0	± 9.6 %
		Y	0.81	64.51	14.86		150.0	
		Z	0.70	63.20	13.62		150.0	
10518-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	X	4.44	66.44	16.04	0.00	150.0	± 9.6 %
		Y	4.52	66.63	16.13		150.0	
		Z	4.40	66.33	15.94		150.0	
10519-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	X	4.62	66.67	16.16	0.00	150.0	± 9.6 %
		Y	4.70	66.86	16.25		150.0	
		Z	4.58	66.56	16.06		150.0	
10520-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	X	4.47	66.61	16.07	0.00	150.0	± 9.6 %
		Y	4.55	66.81	16.17		150.0	
		Z	4.43	66.49	15.97		150.0	
10521-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	X	4.40	66.59	16.05	0.00	150.0	± 9.6 %
		Y	4.48	66.80	16.15		150.0	
		Z	4.36	66.47	15.94		150.0	
10522-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	X	4.47	66.71	16.15	0.00	150.0	± 9.6 %
		Y	4.54	66.90	16.24		150.0	
		Z	4.42	66.60	16.05		150.0	

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10523-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	X	4.35	66.57	15.99	0.00	150.0	± 9.6 %
		Y	4.43	66.77	16.09		150.0	
		Z	4.31	66.45	15.89		150.0	
10524-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	X	4.41	66.62	16.11	0.00	150.0	± 9.6 %
		Y	4.49	66.82	16.21		150.0	
		Z	4.36	66.51	16.01		150.0	
10525-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	X	4.40	65.67	15.71	0.00	150.0	± 9.6 %
		Y	4.48	65.87	15.80		150.0	
		Z	4.36	65.55	15.61		150.0	
10526-AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)	X	4.56	66.02	15.85	0.00	150.0	± 9.6 %
		Y	4.64	66.23	15.94		150.0	
		Z	4.51	65.90	15.75		150.0	
10527-AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)	X	4.48	65.97	15.78	0.00	150.0	± 9.6 %
		Y	4.56	66.18	15.88		150.0	
		Z	4.44	65.85	15.68		150.0	
10528-AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)	X	4.50	65.99	15.81	0.00	150.0	± 9.6 %
		Y	4.58	66.20	15.91		150.0	
		Z	4.45	65.86	15.71		150.0	
10529-AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)	X	4.50	65.99	15.81	0.00	150.0	± 9.6 %
		Y	4.58	66.20	15.91		150.0	
		Z	4.45	65.86	15.71		150.0	
10531-AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)	X	4.48	66.07	15.82	0.00	150.0	± 9.6 %
		Y	4.56	66.29	15.92		150.0	
		Z	4.43	65.94	15.71		150.0	
10532-AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)	X	4.35	65.92	15.74	0.00	150.0	± 9.6 %
		Y	4.43	66.14	15.85		150.0	
		Z	4.30	65.78	15.63		150.0	
10533-AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)	X	4.51	66.04	15.81	0.00	150.0	± 9.6 %
		Y	4.59	66.25	15.90		150.0	
		Z	4.46	65.92	15.70		150.0	
10534-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	X	5.05	66.12	15.91	0.00	150.0	± 9.6 %
		Y	5.11	66.31	15.98		150.0	
		Z	5.01	66.01	15.83		150.0	
10535-AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)	X	5.12	66.32	16.01	0.00	150.0	± 9.6 %
		Y	5.18	66.49	16.07		150.0	
		Z	5.08	66.22	15.92		150.0	
10536-AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)	X	4.99	66.25	15.95	0.00	150.0	± 9.6 %
		Y	5.05	66.44	16.02		150.0	
		Z	4.95	66.14	15.86		150.0	
10537-AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)	X	5.04	66.22	15.94	0.00	150.0	± 9.6 %
		Y	5.11	66.41	16.01		150.0	
		Z	5.00	66.11	15.85		150.0	
10538-AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)	X	5.13	66.24	15.99	0.00	150.0	± 9.6 %
		Y	5.20	66.43	16.06		150.0	
		Z	5.09	66.13	15.90		150.0	
10540-AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)	X	5.07	66.28	16.02	0.00	150.0	± 9.6 %
		Y	5.13	66.45	16.08		150.0	
		Z	5.03	66.16	15.93		150.0	

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10541-AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)	X	5.04	66.12	15.93	0.00	150.0	± 9.6 %
		Y	5.10	66.31	16.01		150.0	
		Z	5.00	66.01	15.85		150.0	
10542-AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)	X	5.19	66.21	16.00	0.00	150.0	± 9.6 %
		Y	5.26	66.39	16.06		150.0	
		Z	5.15	66.10	15.91		150.0	
10543-AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)	X	5.27	66.24	16.04	0.00	150.0	± 9.6 %
		Y	5.33	66.42	16.10		150.0	
		Z	5.22	66.14	15.96		150.0	
10544-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)	X	5.37	66.24	15.92	0.00	150.0	± 9.6 %
		Y	5.43	66.44	15.99		150.0	
		Z	5.33	66.14	15.84		150.0	
10545-AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)	X	5.57	66.70	16.10	0.00	150.0	± 9.6 %
		Y	5.62	66.84	16.14		150.0	
		Z	5.53	66.60	16.03		150.0	
10546-AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)	X	5.43	66.43	15.98	0.00	150.0	± 9.6 %
		Y	5.49	66.63	16.05		150.0	
		Z	5.39	66.32	15.90		150.0	
10547-AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)	X	5.50	66.49	16.00	0.00	150.0	± 9.6 %
		Y	5.56	66.67	16.06		150.0	
		Z	5.46	66.39	15.92		150.0	
10548-AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)	X	5.77	67.48	16.47	0.00	150.0	± 9.6 %
		Y	5.79	67.55	16.48		150.0	
		Z	5.72	67.37	16.39		150.0	
10550-AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)	X	5.47	66.50	16.03	0.00	150.0	± 9.6 %
		Y	5.52	66.66	16.07		150.0	
		Z	5.43	66.41	15.95		150.0	
10551-AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)	X	5.46	66.50	15.99	0.00	150.0	± 9.6 %
		Y	5.52	66.70	16.05		150.0	
		Z	5.42	66.39	15.90		150.0	
10552-AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)	X	5.38	66.30	15.89	0.00	150.0	± 9.6 %
		Y	5.44	66.50	15.96		150.0	
		Z	5.34	66.19	15.81		150.0	
10553-AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)	X	5.46	66.33	15.94	0.00	150.0	± 9.6 %
		Y	5.52	66.54	16.01		150.0	
		Z	5.42	66.22	15.86		150.0	
10554-AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 99pc duty cycle)	X	5.79	66.62	16.02	0.00	150.0	± 9.6 %
		Y	5.84	66.80	16.08		150.0	
		Z	5.75	66.52	15.95		150.0	
10555-AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 99pc duty cycle)	X	5.92	66.94	16.16	0.00	150.0	± 9.6 %
		Y	5.96	67.09	16.20		150.0	
		Z	5.88	66.84	16.08		150.0	
10556-AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 99pc duty cycle)	X	5.94	66.98	16.17	0.00	150.0	± 9.6 %
		Y	5.98	67.14	16.22		150.0	
		Z	5.90	66.88	16.10		150.0	
10557-AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 99pc duty cycle)	X	5.89	66.86	16.13	0.00	150.0	± 9.6 %
		Y	5.95	67.04	16.19		150.0	
		Z	5.86	66.75	16.06		150.0	

10558-AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 99pc duty cycle)	X	5.94	67.02	16.23	0.00	150.0	± 9.6 %
		Y	5.99	67.20	16.29		150.0	
		Z	5.90	66.92	16.15		150.0	
10560-AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 99pc duty cycle)	X	5.93	66.86	16.19	0.00	150.0	± 9.6 %
		Y	5.99	67.06	16.25		150.0	
		Z	5.89	66.76	16.11		150.0	
10561-AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 99pc duty cycle)	X	5.86	66.86	16.22	0.00	150.0	± 9.6 %
		Y	5.91	67.03	16.28		150.0	
		Z	5.83	66.76	16.15		150.0	
10562-AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 99pc duty cycle)	X	5.97	67.20	16.39	0.00	150.0	± 9.6 %
		Y	6.03	67.39	16.46		150.0	
		Z	5.93	67.08	16.31		150.0	
10563-AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 99pc duty cycle)	X	6.12	67.28	16.39	0.00	150.0	± 9.6 %
		Y	6.21	67.56	16.50		150.0	
		Z	6.06	67.12	16.29		150.0	
10564-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	X	4.77	66.53	16.22	0.46	150.0	± 9.6 %
		Y	4.85	66.74	16.33		150.0	
		Z	4.73	66.44	16.14		150.0	
10565-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	X	4.99	66.98	16.54	0.46	150.0	± 9.6 %
		Y	5.07	67.16	16.63		150.0	
		Z	4.95	66.88	16.46		150.0	
10566-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	X	4.83	66.81	16.35	0.46	150.0	± 9.6 %
		Y	4.91	67.02	16.45		150.0	
		Z	4.79	66.71	16.26		150.0	
10567-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	X	4.85	67.20	16.71	0.46	150.0	± 9.6 %
		Y	4.93	67.36	16.77		150.0	
		Z	4.81	67.08	16.61		150.0	
10568-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	X	4.74	66.58	16.12	0.46	150.0	± 9.6 %
		Y	4.83	66.83	16.26		150.0	
		Z	4.70	66.51	16.04		150.0	
10569-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	X	4.82	67.31	16.78	0.46	150.0	± 9.6 %
		Y	4.89	67.45	16.83		150.0	
		Z	4.77	67.20	16.69		150.0	
10570-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	X	4.85	67.15	16.71	0.46	150.0	± 9.6 %
		Y	4.92	67.31	16.77		150.0	
		Z	4.80	67.05	16.62		150.0	
10571-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	X	1.07	63.46	14.88	0.46	130.0	± 9.6 %
		Y	1.18	64.36	15.50		130.0	
		Z	1.05	63.26	14.63		130.0	
10572-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	X	1.08	63.96	15.20	0.46	130.0	± 9.6 %
		Y	1.19	64.89	15.83		130.0	
		Z	1.06	63.74	14.94		130.0	
10573-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	X	1.25	78.23	19.86	0.46	130.0	± 9.6 %
		Y	1.96	84.50	22.78		130.0	
		Z	1.13	76.27	18.64		130.0	
10574-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	X	1.12	68.84	17.70	0.46	130.0	± 9.6 %
		Y	1.27	70.06	18.45		130.0	
		Z	1.08	68.29	17.23		130.0	

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10575-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	X	4.56	66.33	16.28	0.46	130.0	± 9.6 %
		Y	4.64	66.55	16.39		130.0	
		Z	4.52	66.26	16.21		130.0	
10576-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	X	4.58	66.49	16.34	0.46	130.0	± 9.6 %
		Y	4.66	66.70	16.45		130.0	
		Z	4.55	66.42	16.27		130.0	
10577-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	X	4.78	66.79	16.51	0.46	130.0	± 9.6 %
		Y	4.86	66.98	16.62		130.0	
		Z	4.74	66.70	16.44		130.0	
10578-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	X	4.67	66.93	16.61	0.46	130.0	± 9.6 %
		Y	4.75	67.11	16.70		130.0	
		Z	4.64	66.84	16.53		130.0	
10579-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle)	X	4.44	66.18	15.90	0.46	130.0	± 9.6 %
		Y	4.53	66.47	16.06		130.0	
		Z	4.40	66.11	15.83		130.0	
10580-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	X	4.49	66.25	15.93	0.46	130.0	± 9.6 %
		Y	4.58	66.53	16.10		130.0	
		Z	4.45	66.18	15.87		130.0	
10581-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	X	4.57	66.95	16.55	0.46	130.0	± 9.6 %
		Y	4.65	67.15	16.64		130.0	
		Z	4.53	66.86	16.47		130.0	
10582-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	X	4.38	65.95	15.69	0.46	130.0	± 9.6 %
		Y	4.48	66.26	15.88		130.0	
		Z	4.34	65.89	15.62		130.0	
10583-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	X	4.56	66.33	16.28	0.46	130.0	± 9.6 %
		Y	4.64	66.55	16.39		130.0	
		Z	4.52	66.26	16.21		130.0	
10584-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	X	4.58	66.49	16.34	0.46	130.0	± 9.6 %
		Y	4.66	66.70	16.45		130.0	
		Z	4.55	66.42	16.27		130.0	
10585-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	X	4.78	66.79	16.51	0.46	130.0	± 9.6 %
		Y	4.86	66.98	16.62		130.0	
		Z	4.74	66.70	16.44		130.0	
10586-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	X	4.67	66.93	16.61	0.46	130.0	± 9.6 %
		Y	4.75	67.11	16.70		130.0	
		Z	4.64	66.84	16.53		130.0	
10587-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	X	4.44	66.18	15.90	0.46	130.0	± 9.6 %
		Y	4.53	66.47	16.06		130.0	
		Z	4.40	66.11	15.83		130.0	
10588-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	X	4.49	66.25	15.93	0.46	130.0	± 9.6 %
		Y	4.58	66.53	16.10		130.0	
		Z	4.45	66.18	15.87		130.0	
10589-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	X	4.57	66.95	16.55	0.46	130.0	± 9.6 %
		Y	4.65	67.15	16.64		130.0	
		Z	4.53	66.86	16.47		130.0	
10590-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	X	4.38	65.95	15.69	0.46	130.0	± 9.6 %
		Y	4.48	66.26	15.88		130.0	
		Z	4.34	65.89	15.62		130.0	

10591-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	X	4.71	66.40	16.39	0.46	130.0	± 9.6 %
		Y	4.79	66.60	16.49		130.0	
		Z	4.68	66.33	16.32		130.0	
10592-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)	X	4.86	66.73	16.52	0.46	130.0	± 9.6 %
		Y	4.94	66.93	16.62		130.0	
		Z	4.82	66.66	16.45		130.0	
10593-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)	X	4.78	66.63	16.39	0.46	130.0	± 9.6 %
		Y	4.86	66.85	16.50		130.0	
		Z	4.74	66.55	16.32		130.0	
10594-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)	X	4.83	66.80	16.55	0.46	130.0	± 9.6 %
		Y	4.91	67.00	16.65		130.0	
		Z	4.80	66.72	16.48		130.0	
10595-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)	X	4.80	66.75	16.44	0.46	130.0	± 9.6 %
		Y	4.88	66.96	16.55		130.0	
		Z	4.76	66.67	16.38		130.0	
10596-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)	X	4.73	66.74	16.44	0.46	130.0	± 9.6 %
		Y	4.82	66.96	16.56		130.0	
		Z	4.70	66.66	16.38		130.0	
10597-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)	X	4.68	66.63	16.32	0.46	130.0	± 9.6 %
		Y	4.77	66.87	16.44		130.0	
		Z	4.65	66.55	16.25		130.0	
10598-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)	X	4.66	66.85	16.58	0.46	130.0	± 9.6 %
		Y	4.74	67.06	16.68		130.0	
		Z	4.63	66.76	16.50		130.0	
10599-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	5.40	66.99	16.64	0.46	130.0	± 9.6 %
		Y	5.46	67.17	16.72		130.0	
		Z	5.37	66.92	16.59		130.0	
10600-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)	X	5.56	67.50	16.87	0.46	130.0	± 9.6 %
		Y	5.59	67.56	16.89		130.0	
		Z	5.52	67.44	16.82		130.0	
10601-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	X	5.42	67.18	16.73	0.46	130.0	± 9.6 %
		Y	5.48	67.31	16.78		130.0	
		Z	5.39	67.11	16.68		130.0	
10602-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)	X	5.54	67.27	16.69	0.46	130.0	± 9.6 %
		Y	5.58	67.37	16.73		130.0	
		Z	5.51	67.23	16.66		130.0	
10603-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	X	5.60	67.53	16.96	0.46	130.0	± 9.6 %
		Y	5.65	67.64	16.99		130.0	
		Z	5.58	67.49	16.92		130.0	
10604-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	X	5.43	67.06	16.71	0.46	130.0	± 9.6 %
		Y	5.48	67.16	16.74		130.0	
		Z	5.41	67.03	16.68		130.0	
10605-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)	X	5.54	67.37	16.86	0.46	130.0	± 9.6 %
		Y	5.58	67.47	16.90		130.0	
		Z	5.51	67.32	16.82		130.0	
10606-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)	X	5.25	66.58	16.32	0.46	130.0	± 9.6 %
		Y	5.33	66.83	16.44		130.0	
		Z	5.22	66.51	16.27		130.0	

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10607-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	4.55	65.71	16.00	0.46	130.0	± 9.6 %
		Y	4.63	65.91	16.11		130.0	
		Z	4.51	65.62	15.93		130.0	
10608-AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	X	4.72	66.10	16.17	0.46	130.0	± 9.6 %
		Y	4.81	66.31	16.27		130.0	
		Z	4.69	66.01	16.10		130.0	
10609-AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)	X	4.61	65.93	16.00	0.46	130.0	± 9.6 %
		Y	4.70	66.17	16.12		130.0	
		Z	4.58	65.85	15.92		130.0	
10610-AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)	X	4.66	66.10	16.16	0.46	130.0	± 9.6 %
		Y	4.75	66.31	16.27		130.0	
		Z	4.63	66.01	16.09		130.0	
10611-AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)	X	4.58	65.90	16.01	0.46	130.0	± 9.6 %
		Y	4.66	66.13	16.12		130.0	
		Z	4.54	65.81	15.93		130.0	
10612-AAB	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)	X	4.58	66.05	16.05	0.46	130.0	± 9.6 %
		Y	4.67	66.29	16.18		130.0	
		Z	4.55	65.96	15.98		130.0	
10613-AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)	X	4.59	65.92	15.92	0.46	130.0	± 9.6 %
		Y	4.68	66.17	16.06		130.0	
		Z	4.55	65.83	15.85		130.0	
10614-AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)	X	4.53	66.10	16.15	0.46	130.0	± 9.6 %
		Y	4.62	66.32	16.26		130.0	
		Z	4.49	66.00	16.07		130.0	
10615-AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)	X	4.58	65.73	15.78	0.46	130.0	± 9.6 %
		Y	4.67	66.00	15.93		130.0	
		Z	4.54	65.66	15.71		130.0	
10616-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	X	5.21	66.20	16.23	0.46	130.0	± 9.6 %
		Y	5.28	66.39	16.31		130.0	
		Z	5.18	66.12	16.17		130.0	
10617-AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)	X	5.29	66.42	16.31	0.46	130.0	± 9.6 %
		Y	5.34	66.57	16.38		130.0	
		Z	5.26	66.35	16.26		130.0	
10618-AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)	X	5.17	66.40	16.32	0.46	130.0	± 9.6 %
		Y	5.23	66.57	16.38		130.0	
		Z	5.13	66.32	16.26		130.0	
10619-AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)	X	5.18	66.20	16.15	0.46	130.0	± 9.6 %
		Y	5.25	66.39	16.24		130.0	
		Z	5.15	66.12	16.09		130.0	
10620-AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)	X	5.27	66.24	16.22	0.46	130.0	± 9.6 %
		Y	5.34	66.43	16.31		130.0	
		Z	5.24	66.17	16.17		130.0	
10621-AAB	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)	X	5.27	66.37	16.41	0.46	130.0	± 9.6 %
		Y	5.33	66.53	16.46		130.0	
		Z	5.24	66.29	16.35		130.0	
10622-AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)	X	5.29	66.54	16.49	0.46	130.0	± 9.6 %
		Y	5.35	66.70	16.54		130.0	
		Z	5.25	66.46	16.43		130.0	

10623-AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	X	5.16	66.06	16.12	0.46	130.0	± 9.6 %
		Y	5.23	66.26	16.20		130.0	
		Z	5.13	65.98	16.06		130.0	
10624-AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)	X	5.35	66.27	16.29	0.46	130.0	± 9.6 %
		Y	5.42	66.45	16.36		130.0	
		Z	5.32	66.19	16.23		130.0	
10625-AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	X	5.70	67.19	16.80	0.46	130.0	± 9.6 %
		Y	5.76	67.36	16.87		130.0	
		Z	5.65	67.07	16.73		130.0	
10626-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	5.52	66.27	16.20	0.46	130.0	± 9.6 %
		Y	5.57	66.46	16.27		130.0	
		Z	5.49	66.19	16.14		130.0	
10627-AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)	X	5.77	66.91	16.48	0.46	130.0	± 9.6 %
		Y	5.81	67.01	16.51		130.0	
		Z	5.75	66.84	16.43		130.0	
10628-AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)	X	5.54	66.35	16.13	0.46	130.0	± 9.6 %
		Y	5.61	66.56	16.22		130.0	
		Z	5.51	66.27	16.08		130.0	
10629-AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)	X	5.62	66.41	16.16	0.46	130.0	± 9.6 %
		Y	5.68	66.60	16.24		130.0	
		Z	5.59	66.34	16.11		130.0	
10630-AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)	X	6.09	68.03	16.97	0.46	130.0	± 9.6 %
		Y	6.09	68.04	16.96		130.0	
		Z	6.06	67.95	16.91		130.0	
10631-AAB	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)	X	5.94	67.68	16.99	0.46	130.0	± 9.6 %
		Y	5.99	67.81	17.02		130.0	
		Z	5.90	67.57	16.91		130.0	
10632-AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)	X	5.74	66.96	16.65	0.46	130.0	± 9.6 %
		Y	5.77	67.05	16.65		130.0	
		Z	5.71	66.89	16.60		130.0	
10633-AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	X	5.60	66.48	16.23	0.46	130.0	± 9.6 %
		Y	5.67	66.71	16.32		130.0	
		Z	5.56	66.40	16.18		130.0	
10634-AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	X	5.58	66.52	16.31	0.46	130.0	± 9.6 %
		Y	5.65	66.72	16.38		130.0	
		Z	5.55	66.43	16.25		130.0	
10635-AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	X	5.47	65.85	15.71	0.46	130.0	± 9.6 %
		Y	5.54	66.13	15.85		130.0	
		Z	5.43	65.78	15.66		130.0	
10636-AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	X	5.94	66.65	16.30	0.46	130.0	± 9.6 %
		Y	5.99	66.83	16.36		130.0	
		Z	5.91	66.57	16.24		130.0	
10637-AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	X	6.11	67.07	16.49	0.46	130.0	± 9.6 %
		Y	6.14	67.20	16.53		130.0	
		Z	6.08	67.00	16.44		130.0	
10638-AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	X	6.10	67.03	16.45	0.46	130.0	± 9.6 %
		Y	6.14	67.18	16.50		130.0	
		Z	6.07	66.96	16.40		130.0	

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10639-AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 90pc duty cycle)	X	6.07	66.94	16.45	0.46	130.0	± 9.6 %
		Y	6.12	67.13	16.51		130.0	
		Z	6.04	66.86	16.39		130.0	
10640-AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle)	X	6.07	66.95	16.40	0.46	130.0	± 9.6 %
		Y	6.13	67.15	16.48		130.0	
		Z	6.04	66.88	16.34		130.0	
10641-AAC	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle)	X	6.13	66.91	16.40	0.46	130.0	± 9.6 %
		Y	6.17	67.07	16.45		130.0	
		Z	6.11	66.86	16.36		130.0	
10642-AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 90pc duty cycle)	X	6.16	67.11	16.66	0.46	130.0	± 9.6 %
		Y	6.21	67.28	16.71		130.0	
		Z	6.12	67.04	16.61		130.0	
10643-AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle)	X	6.00	66.83	16.42	0.46	130.0	± 9.6 %
		Y	6.05	67.00	16.48		130.0	
		Z	5.98	66.76	16.37		130.0	
10644-AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 90pc duty cycle)	X	6.14	67.25	16.65	0.46	130.0	± 9.6 %
		Y	6.20	67.47	16.74		130.0	
		Z	6.10	67.16	16.59		130.0	
10645-AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	X	6.37	67.57	16.77	0.46	130.0	± 9.6 %
		Y	6.47	67.90	16.92		130.0	
		Z	6.31	67.40	16.68		130.0	
10646-AAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	X	15.25	107.38	37.28	9.30	60.0	± 9.6 %
		Y	82.59	150.95	50.26		60.0	
		Z	18.10	112.25	39.14		60.0	
10647-AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	X	13.17	104.57	36.53	9.30	60.0	± 9.6 %
		Y	57.35	142.83	48.41		60.0	
		Z	15.41	109.07	38.31		60.0	
10648-AAA	CDMA2000 (1x Advanced)	X	0.56	61.68	8.92	0.00	150.0	± 9.6 %
		Y	0.66	62.85	10.29		150.0	
		Z	0.51	60.97	8.15		150.0	
10652-AAD	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.43	66.30	16.29	2.23	80.0	± 9.6 %
		Y	3.69	67.19	16.78		80.0	
		Z	3.42	66.28	16.22		80.0	
10653-AAD	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	X	3.97	65.72	16.50	2.23	80.0	± 9.6 %
		Y	4.20	66.48	16.89		80.0	
		Z	3.96	65.72	16.47		80.0	
10654-AAD	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	X	3.96	65.37	16.51	2.23	80.0	± 9.6 %
		Y	4.17	66.11	16.89		80.0	
		Z	3.96	65.37	16.48		80.0	
10655-AAE	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.02	65.35	16.55	2.23	80.0	± 9.6 %
		Y	4.24	66.10	16.93		80.0	
		Z	4.02	65.35	16.53		80.0	
10658-AAA	Pulse Waveform (200Hz, 10%)	X	100.00	109.96	25.46	10.00	50.0	± 9.6 %
		Y	100.00	113.08	26.90		50.0	
		Z	100.00	110.58	25.80		50.0	
10659-AAA	Pulse Waveform (200Hz, 20%)	X	100.00	108.07	23.54	6.99	60.0	± 9.6 %
		Y	100.00	111.97	25.57		60.0	
		Z	100.00	108.43	23.77		60.0	

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10660-AAA	Pulse Waveform (200Hz, 40%)	X	100.00	106.10	21.40	3.98	80.0	± 9.6 %
		Y	100.00	113.15	24.95		80.0	
		Z	100.00	105.59	21.24		80.0	
10661-AAA	Pulse Waveform (200Hz, 60%)	X	100.00	101.77	18.47	2.22	100.0	± 9.6 %
		Y	100.00	116.26	25.11		100.0	
		Z	100.00	99.43	17.54		100.0	
10662-AAA	Pulse Waveform (200Hz, 80%)	X	0.18	60.00	3.99	0.97	120.0	± 9.6 %
		Y	100.00	121.06	25.41		120.0	
		Z	0.19	60.00	3.60		120.0	
10670-AAA	Bluetooth Low Energy	X	100.00	109.06	21.78	2.19	100.0	± 9.6 %
		Y	100.00	118.52	26.46		100.0	
		Z	100.00	106.33	20.69		100.0	

[8] 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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Engineering AG
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Accreditation No.: **SCS 0108**

Client **HCT (Dymstec)**

Certificate No: **EX3-3863_May19/2**

CALIBRATION CERTIFICATE (Replacement of No: EX3-3863_May19)

Object	EX3DV4 - SN:3863
Calibration procedure(s)	QA CAL-01.v9, QA CAL-12.v9, QA CAL-14.v5, QA CAL-23.v6, QA CAL-25.v7 Calibration procedure for dosimetric E-field probes
Calibration date:	May 15, 2019

결재	담당자	확인자
직위/성명	연구원 박재홍	팀장 조경호
일자	2019.5.27	2019.5.29

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	03-Apr-19 (No. 217-02892/02893)	Apr-20
Power sensor NRP-Z91	SN: 103244	03-Apr-19 (No. 217-02892)	Apr-20
Power sensor NRP-Z91	SN: 103245	03-Apr-19 (No. 217-02893)	Apr-20
Reference 20 dB Attenuator	SN: S5277 (20x)	04-Apr-19 (No. 217-02894)	Apr-20
DAE4	SN: 660	19-Dec-18 (No. DAE4-660_Dec18)	Dec-19
Reference Probe ES3DV2	SN: 3013	31-Dec-18 (No. ES3-3013_Dec18)	Dec-19
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-18)	In house check: Oct-19

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

Issued: May 21, 2019

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

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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).

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

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm (μV/(V/m)^2)[A]	0.35	0.34	0.44	± 10.1 %
DCP (mV)[B]	101.1	97.9	101.4	

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Max dev.	Max Unc[E] (k=2)
0	CW	X	0.00	0.00	1.00	0.00	129.6	± 3.0 %	± 4.7 %
		Y	0.00	0.00	1.00		127.4		
		Z	0.00	0.00	1.00		129.0		
10352-AAA	Pulse Waveform (200Hz, 10%)	X	2.12	63.08	10.10	10.00	60.0	± 2.6 %	± 9.6 %
		Y	3.09	67.34	11.41		60.0		
		Z	14.10	84.50	18.32		60.0		
10353-AAA	Pulse Waveform (200Hz, 20%)	X	2.00	65.33	9.70	6.99	80.0	± 1.8 %	± 9.6 %
		Y	2.54	68.37	10.72		80.0		
		Z	15.00	86.26	17.55		80.0		
10354-AAA	Pulse Waveform (200Hz, 40%)	X	0.67	60.81	6.25	3.98	95.0	± 1.2 %	± 9.6 %
		Y	15.00	82.28	13.36		95.0		
		Z	15.00	85.65	15.48		95.0		
10355-AAA	Pulse Waveform (200Hz, 60%)	X	0.35	60.00	4.43	2.22	120.0	± 1.1 %	± 9.6 %
		Y	15.00	80.39	11.30		120.0		
		Z	0.74	64.76	7.36		120.0		
10387-AAA	QPSK Waveform, 1 MHz	X	0.48	60.00	6.32	0.00	150.0	± 4.5 %	± 9.6 %
		Y	14.57	68.70	0.08		150.0		
		Z	0.53	60.00	6.91		150.0		
10388-AAA	QPSK Waveform, 10 MHz	X	2.02	67.62	15.40	0.00	150.0	± 1.3 %	± 9.6 %
		Y	2.21	70.98	17.49		150.0		
		Z	2.02	66.99	15.02		150.0		
10396-AAA	64-QAM Waveform, 100 kHz	X	2.81	69.79	18.27	3.01	150.0	± 0.7 %	± 9.6 %
		Y	2.69	71.86	19.47		150.0		
		Z	2.76	68.95	17.89		150.0		
10399-AAA	64-QAM Waveform, 40 MHz	X	3.36	66.90	15.62	0.00	150.0	± 2.5 %	± 9.6 %
		Y	3.39	68.02	16.42		150.0		
		Z	3.38	66.69	15.48		150.0		
10414-AAA	WLAN CCDF, 64-QAM, 40MHz	X	4.68	65.56	15.50	0.00	150.0	± 4.6 %	± 9.6 %
		Y	4.52	66.30	15.98		150.0		
		Z	4.74	65.43	15.42		150.0		

Note: For details on UID parameters see Appendix

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

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

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

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	38.1	288.44	36.38	7.54	0.89	4.99	0.61	0.42	1.01
Y	23.2	170.74	34.73	6.56	0.47	4.99	1.70	0.01	1.00
Z	41.5	317.15	37.01	8.52	0.65	5.06	0.30	0.49	1.01

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	105.3
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

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	12.37	12.37	12.37	0.00	1.00	± 13.3 %
450	43.5	0.87	11.01	11.01	11.01	0.14	1.20	± 13.3 %
750	41.9	0.89	10.16	10.16	10.16	0.42	0.96	± 12.0 %
835	41.5	0.90	9.82	9.82	9.82	0.47	0.84	± 12.0 %
900	41.5	0.97	9.70	9.70	9.70	0.48	0.80	± 12.0 %
1750	40.1	1.37	8.50	8.50	8.50	0.32	0.86	± 12.0 %
1900	40.0	1.40	8.17	8.17	8.17	0.28	0.85	± 12.0 %
2000	40.0	1.40	8.12	8.12	8.12	0.35	0.85	± 12.0 %
2300	39.5	1.67	7.85	7.85	7.85	0.29	0.86	± 12.0 %
2450	39.2	1.80	7.61	7.61	7.61	0.41	0.88	± 12.0 %
2600	39.0	1.96	7.32	7.32	7.32	0.34	0.90	± 12.0 %
3900	37.5	3.32	6.64	6.64	6.64	0.40	1.60	± 12.0 %
4100	37.2	3.53	6.30	6.30	6.30	0.40	1.60	± 13.1 %
4600	36.7	4.04	5.93	5.93	5.93	0.40	1.70	± 13.1 %
4800	36.4	4.25	5.67	5.67	5.67	0.40	1.80	± 13.1 %
5250	35.9	4.71	5.09	5.09	5.09	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.69	4.69	4.69	0.40	1.80	± 13.1 %
5750	35.4	5.22	4.99	4.99	4.99	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. Validity of ConvF assessed at 6 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. Above 5 GHz frequency validity can be extended to ± 110 MHz.

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

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN: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	11.79	11.79	11.79	0.00	1.00	± 13.3 %
450	56.7	0.94	10.92	10.92	10.92	0.09	1.20	± 13.3 %
750	55.5	0.96	9.88	9.88	9.88	0.29	1.14	± 12.0 %
835	55.2	0.97	9.72	9.72	9.72	0.46	0.83	± 12.0 %
1750	53.4	1.49	8.23	8.23	8.23	0.35	0.85	± 12.0 %
1900	53.3	1.52	7.99	7.99	7.99	0.33	0.88	± 12.0 %
2300	52.9	1.81	7.87	7.87	7.87	0.36	0.87	± 12.0 %
2450	52.7	1.95	7.74	7.74	7.74	0.32	0.94	± 12.0 %
2600	52.5	2.16	7.34	7.34	7.34	0.25	0.98	± 12.0 %
5250	48.9	5.36	4.40	4.40	4.40	0.50	1.90	± 13.1 %
5600	48.5	5.77	3.94	3.94	3.94	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. Validity of ConvF assessed at 6 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. 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.

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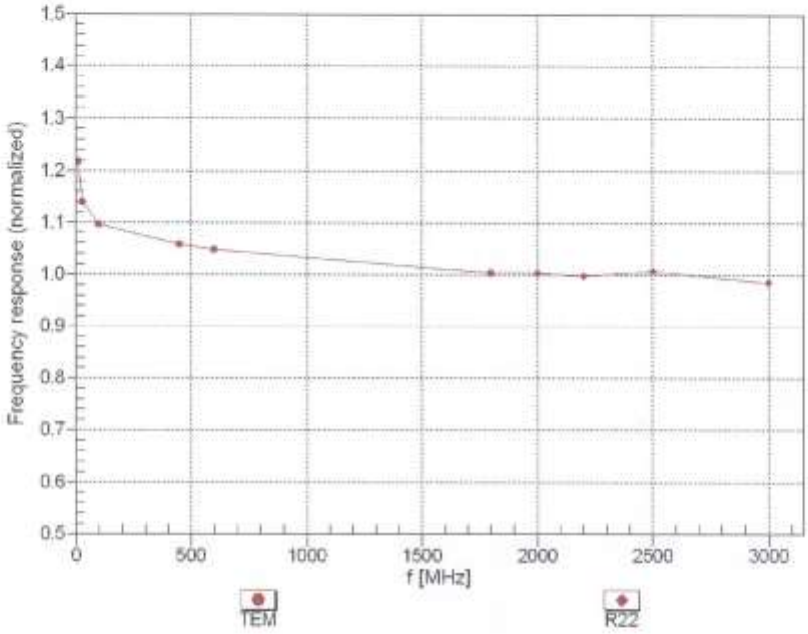
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



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

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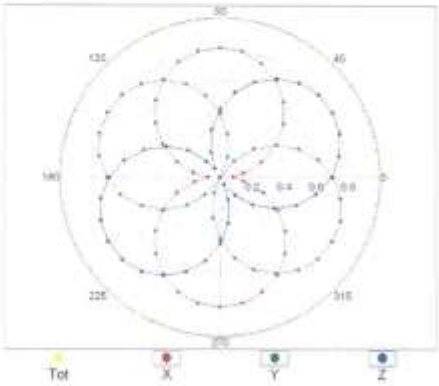
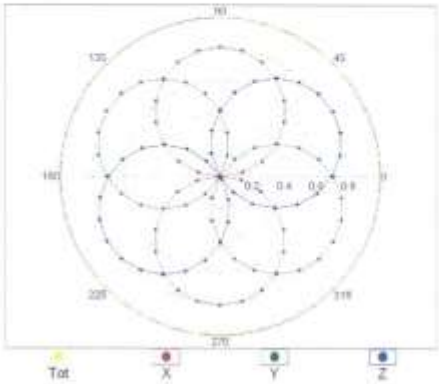
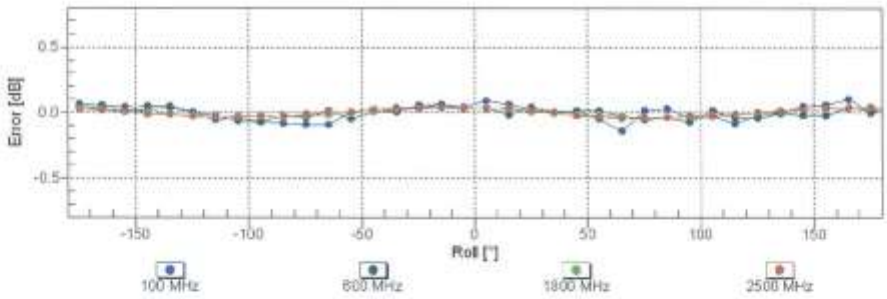
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



f=1800 MHz,R22





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

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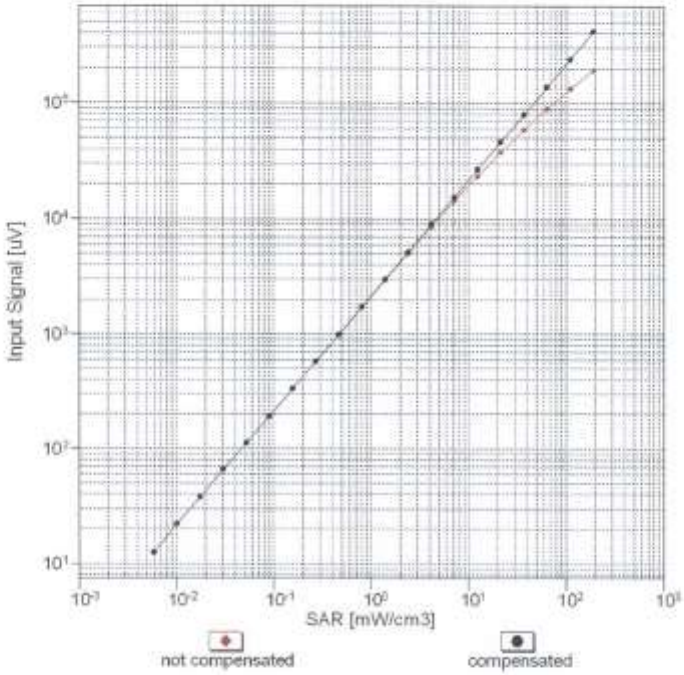
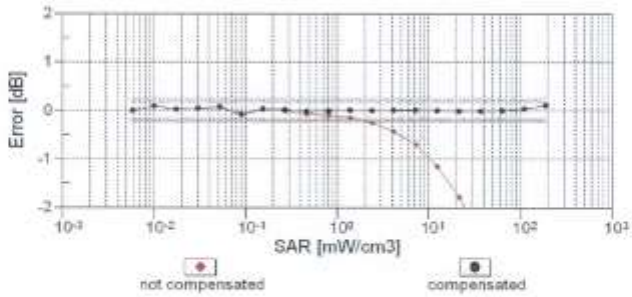
Dynamic Range f(SAR$_{head}$)
(TEM cell , f_{eval}= 1900 MHz)





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

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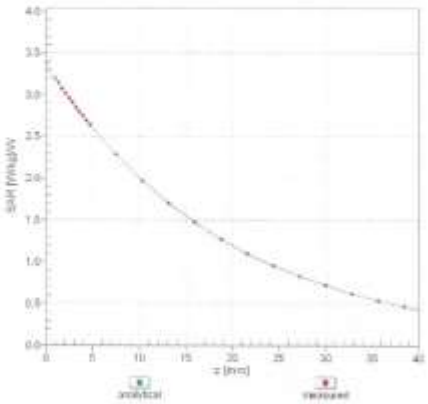
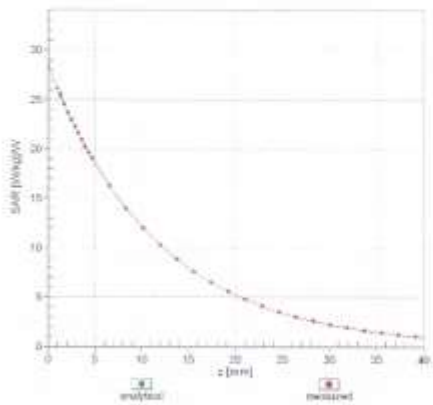
Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

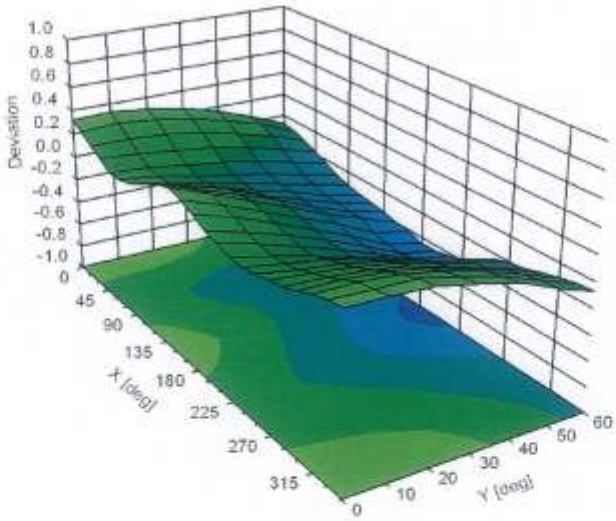


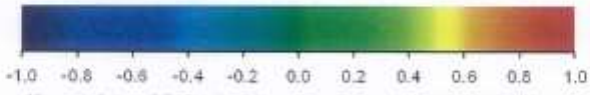
f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





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

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Appendix: Modulation Calibration Parameters

UID	Rev	Communication System Name	Group	PAR (dB)	Unc[E] (k=2)
0		CW	CW	0.00	± 4.7 %
10010	CAA	SAR Validation (Square, 100ms, 10ms)	Test	10.00	± 9.6 %
10011	CAB	UMTS-FDD (WCDMA)	WCDMA	2.91	± 9.6 %
10012	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	WLAN	1.87	± 9.6 %
10013	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	WLAN	9.46	± 9.6 %
10021	DAC	GSM-FDD (TDMA, GMSK)	GSM	9.39	± 9.6 %
10023	DAC	GPRS-FDD (TDMA, GMSK, TN 0)	GSM	9.57	± 9.6 %
10024	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	GSM	6.56	± 9.6 %
10025	DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	GSM	12.62	± 9.6 %
10026	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	GSM	9.55	± 9.6 %
10027	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	GSM	4.80	± 9.6 %
10028	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	GSM	3.55	± 9.6 %
10029	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	GSM	7.78	± 9.6 %
10030	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	Bluetooth	5.30	± 9.6 %
10031	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	Bluetooth	1.87	± 9.6 %
10032	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	Bluetooth	1.16	± 9.6 %
10033	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	Bluetooth	7.74	± 9.6 %
10034	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	Bluetooth	4.53	± 9.6 %
10035	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	Bluetooth	3.83	± 9.6 %
10036	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	Bluetooth	8.01	± 9.6 %
10037	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	Bluetooth	4.77	± 9.6 %
10038	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	Bluetooth	4.10	± 9.6 %
10039	CAB	CDMA2000 (1xRTT, RC1)	CDMA2000	4.57	± 9.6 %
10042	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	AMPS	7.78	± 9.6 %
10044	CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	AMPS	0.00	± 9.6 %
10048	CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	DECT	13.80	± 9.6 %
10049	CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	DECT	10.79	± 9.6 %
10056	CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	TD-SCDMA	11.01	± 9.6 %
10058	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	GSM	6.52	± 9.6 %
10059	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	WLAN	2.12	± 9.6 %
10060	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	WLAN	2.83	± 9.6 %
10061	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	WLAN	3.60	± 9.6 %
10062	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	WLAN	8.68	± 9.6 %
10063	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	WLAN	8.63	± 9.6 %
10064	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	WLAN	9.09	± 9.6 %
10065	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	WLAN	9.00	± 9.6 %
10066	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	WLAN	9.38	± 9.6 %
10067	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	WLAN	10.12	± 9.6 %
10068	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	WLAN	10.24	± 9.6 %
10069	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	WLAN	10.56	± 9.6 %
10071	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	WLAN	9.83	± 9.6 %
10072	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	WLAN	9.62	± 9.6 %
10073	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	WLAN	9.94	± 9.6 %
10074	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	WLAN	10.30	± 9.6 %
10075	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	WLAN	10.77	± 9.6 %
10076	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	WLAN	10.94	± 9.6 %
10077	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	WLAN	11.00	± 9.6 %
10081	CAB	CDMA2000 (1xRTT, RC3)	CDMA2000	3.97	± 9.6 %
10082	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	AMPS	4.77	± 9.6 %
10090	DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	GSM	6.56	± 9.6 %
10097	CAB	UMTS-FDD (HSDPA)	WCDMA	3.98	± 9.6 %
10098	CAB	UMTS-FDD (HSUPA, Subtest 2)	WCDMA	3.98	± 9.6 %
10099	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	GSM	9.55	± 9.6 %
10100	CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-FDD	5.67	± 9.6 %
10101	CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	± 9.6 %
10102	CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10103	CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
10104	CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-TDD	9.97	± 9.6 %
10105	CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-TDD	10.01	± 9.6 %
10108	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-FDD	5.80	± 9.6 %

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10109	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10110	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-FDD	5.75	± 9.6 %
10111	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-FDD	6.44	± 9.6 %
10112	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-FDD	6.59	± 9.6 %
10113	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-FDD	6.62	± 9.6 %
10114	CAC	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	WLAN	8.10	± 9.6 %
10115	CAC	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	WLAN	8.46	± 9.6 %
10116	CAC	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	WLAN	8.15	± 9.6 %
10117	CAC	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	WLAN	8.07	± 9.6 %
10118	CAC	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	WLAN	8.59	± 9.6 %
10119	CAC	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	WLAN	8.13	± 9.6 %
10140	CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10141	CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-FDD	6.53	± 9.6 %
10142	CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10143	CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-FDD	6.35	± 9.6 %
10144	CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-FDD	6.65	± 9.6 %
10145	CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-FDD	5.76	± 9.6 %
10146	CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.41	± 9.6 %
10147	CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.72	± 9.6 %
10149	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	± 9.6 %
10150	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10151	CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-TDD	9.28	± 9.6 %
10152	CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-TDD	9.92	± 9.6 %
10153	CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-TDD	10.05	± 9.6 %
10154	CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-FDD	5.75	± 9.6 %
10155	CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10156	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-FDD	5.79	± 9.6 %
10157	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10158	CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-FDD	6.62	± 9.6 %
10159	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-FDD	6.56	± 9.6 %
10160	CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-FDD	5.82	± 9.6 %
10161	CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10162	CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-FDD	6.58	± 9.6 %
10166	CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-FDD	5.46	± 9.6 %
10167	CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.21	± 9.6 %
10168	CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.79	± 9.6 %
10169	CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10170	CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10171	AAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-FDD	6.49	± 9.6 %
10172	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10173	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10174	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10175	CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10176	CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10177	CAI	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10178	CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10179	CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10180	CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10181	CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10182	CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10183	AAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10184	CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10185	CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-FDD	6.51	± 9.6 %
10186	AAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10187	CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10188	CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10189	AAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10193	CAC	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	WLAN	8.09	± 9.6 %
10194	CAC	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	WLAN	8.12	± 9.6 %
10195	CAC	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	WLAN	8.21	± 9.6 %
10196	CAC	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	WLAN	8.10	± 9.6 %
10197	CAC	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
10198	CAC	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	WLAN	8.27	± 9.6 %
10219	CAC	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	WLAN	8.03	± 9.6 %

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10220	CAC	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
10221	CAC	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	WLAN	8.27	± 9.6 %
10222	CAC	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	WLAN	8.06	± 9.6 %
10223	CAC	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	WLAN	8.48	± 9.6 %
10224	CAC	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	WLAN	8.08	± 9.6 %
10225	CAB	UMTS-FDD (HSPA+)	WCDMA	5.97	± 9.6 %
10226	CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.49	± 9.6 %
10227	CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.26	± 9.6 %
10228	CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-TDD	9.22	± 9.6 %
10229	CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10230	CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10231	CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-TDD	9.19	± 9.6 %
10232	CAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10233	CAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10234	CAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10235	CAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10236	CAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10237	CAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10238	CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10239	CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10240	CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10241	CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.82	± 9.6 %
10242	CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-TDD	9.86	± 9.6 %
10243	CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-TDD	9.46	± 9.6 %
10244	CAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-TDD	10.06	± 9.6 %
10245	CAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-TDD	10.06	± 9.6 %
10246	CAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-TDD	9.30	± 9.6 %
10247	CAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-TDD	9.91	± 9.6 %
10248	CAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-TDD	10.09	± 9.6 %
10249	CAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
10250	CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-TDD	9.81	± 9.6 %
10251	CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-TDD	10.17	± 9.6 %
10252	CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-TDD	9.24	± 9.6 %
10253	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-TDD	9.90	± 9.6 %
10254	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-TDD	10.14	± 9.6 %
10255	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-TDD	9.20	± 9.6 %
10256	CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.96	± 9.6 %
10257	CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.08	± 9.6 %
10258	CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-TDD	9.34	± 9.6 %
10259	CAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-TDD	9.98	± 9.6 %
10260	CAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-TDD	9.97	± 9.6 %
10261	CAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-TDD	9.24	± 9.6 %
10262	CAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-TDD	9.83	± 9.6 %
10263	CAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-TDD	10.16	± 9.6 %
10264	CAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-TDD	9.23	± 9.6 %
10265	CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-TDD	9.92	± 9.6 %
10266	CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-TDD	10.07	± 9.6 %
10267	CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-TDD	9.30	± 9.6 %
10268	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-TDD	10.06	± 9.6 %
10269	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-TDD	10.13	± 9.6 %
10270	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-TDD	9.58	± 9.6 %
10274	CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	WCDMA	4.87	± 9.6 %
10275	CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	WCDMA	3.96	± 9.6 %
10277	CAA	PHS (QPSK)	PHS	11.81	± 9.6 %
10278	CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	PHS	11.81	± 9.6 %
10279	CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	PHS	12.18	± 9.6 %
10290	AAB	CDMA2000, RC1, SO55, Full Rate	CDMA2000	3.91	± 9.6 %
10291	AAB	CDMA2000, RC3, SO55, Full Rate	CDMA2000	3.46	± 9.6 %
10292	AAB	CDMA2000, RC3, SO32, Full Rate	CDMA2000	3.39	± 9.6 %
10293	AAB	CDMA2000, RC3, SO3, Full Rate	CDMA2000	3.50	± 9.6 %
10295	AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	CDMA2000	12.49	± 9.6 %
10297	AAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-FDD	5.81	± 9.6 %
10298	AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10299	AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-FDD	6.39	± 9.6 %

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10300	AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10301	AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	WiMAX	12.03	± 9.6 %
10302	AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)	WiMAX	12.57	± 9.6 %
10303	AAA	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	WiMAX	12.52	± 9.6 %
10304	AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	WiMAX	11.86	± 9.6 %
10305	AAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	WiMAX	15.24	± 9.6 %
10306	AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)	WiMAX	14.67	± 9.6 %
10307	AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)	WiMAX	14.49	± 9.6 %
10308	AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	WiMAX	14.46	± 9.6 %
10309	AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)	WiMAX	14.58	± 9.6 %
10310	AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)	WiMAX	14.57	± 9.6 %
10311	AAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-FDD	6.06	± 9.6 %
10313	AAA	iDEN 1:3	iDEN	10.51	± 9.6 %
10314	AAA	iDEN 1:6	iDEN	13.48	± 9.6 %
10315	AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	WLAN	1.71	± 9.6 %
10316	AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	WLAN	8.36	± 9.6 %
10317	AAC	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	WLAN	8.36	± 9.6 %
10352	AAA	Pulse Waveform (200Hz, 10%)	Generic	10.00	± 9.6 %
10353	AAA	Pulse Waveform (200Hz, 20%)	Generic	6.99	± 9.6 %
10354	AAA	Pulse Waveform (200Hz, 40%)	Generic	3.98	± 9.6 %
10355	AAA	Pulse Waveform (200Hz, 60%)	Generic	2.22	± 9.6 %
10356	AAA	Pulse Waveform (200Hz, 80%)	Generic	0.97	± 9.6 %
10387	AAA	QPSK Waveform, 1 MHz	Generic	5.10	± 9.6 %
10388	AAA	QPSK Waveform, 10 MHz	Generic	5.22	± 9.6 %
10396	AAA	64-QAM Waveform, 100 kHz	Generic	6.27	± 9.6 %
10399	AAA	64-QAM Waveform, 40 MHz	Generic	6.27	± 9.6 %
10400	AAD	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)	WLAN	8.37	± 9.6 %
10401	AAD	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)	WLAN	8.60	± 9.6 %
10402	AAD	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)	WLAN	8.53	± 9.6 %
10403	AAB	CDMA2000 (1xEV-DO, Rev. 0)	CDMA2000	3.76	± 9.6 %
10404	AAB	CDMA2000 (1xEV-DO, Rev. A)	CDMA2000	3.77	± 9.6 %
10406	AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	CDMA2000	5.22	± 9.6 %
10410	AAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9, Subframe Conf=4)	LTE-TDD	7.82	± 9.6 %
10414	AAA	WLAN CCDF, 64-QAM, 40MHz	Generic	8.54	± 9.6 %
10415	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	WLAN	1.54	± 9.6 %
10416	AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	WLAN	8.23	± 9.6 %
10417	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	WLAN	8.23	± 9.6 %
10418	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preambule)	WLAN	8.14	± 9.6 %
10419	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preambule)	WLAN	8.19	± 9.6 %
10422	AAB	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	WLAN	8.32	± 9.6 %
10423	AAB	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	WLAN	8.47	± 9.6 %
10424	AAB	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	WLAN	8.40	± 9.6 %
10425	AAB	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	WLAN	8.41	± 9.6 %
10426	AAB	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	WLAN	8.45	± 9.6 %
10427	AAB	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	WLAN	8.41	± 9.6 %
10430	AAD	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	LTE-FDD	8.28	± 9.6 %
10431	AAD	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	LTE-FDD	8.38	± 9.6 %
10432	AAC	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	LTE-FDD	8.34	± 9.6 %
10433	AAC	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	LTE-FDD	8.34	± 9.6 %
10434	AAA	W-CDMA (BS Test Model 1, 64 DPCH)	WCDMA	8.60	± 9.6 %
10435	AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	± 9.6 %
10447	AAD	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.56	± 9.6 %
10448	AAD	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%)	LTE-FDD	7.53	± 9.6 %
10449	AAC	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%)	LTE-FDD	7.51	± 9.6 %
10450	AAC	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.48	± 9.6 %

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10451	AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	WCDMA	7.59	± 9.6 %
10456	AAB	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)	WLAN	8.63	± 9.6 %
10457	AAA	UMTS-FDD (DC-HSDPA)	WCDMA	6.62	± 9.6 %
10458	AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	CDMA2000	6.55	± 9.6 %
10459	AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	CDMA2000	8.25	± 9.6 %
10460	AAA	UMTS-FDD (WCDMA, AMR)	WCDMA	2.39	± 9.6 %
10461	AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	± 9.6 %
10462	AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.30	± 9.6 %
10463	AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.56	± 9.6 %
10464	AAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	± 9.6 %
10465	AAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.32	± 9.6 %
10466	AAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.57	± 9.6 %
10467	AAE	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	± 9.6 %
10468	AAE	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.32	± 9.6 %
10469	AAE	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.56	± 9.6 %
10470	AAE	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	± 9.6 %
10471	AAE	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.32	± 9.6 %
10472	AAE	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.57	± 9.6 %
10473	AAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	± 9.6 %
10474	AAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.32	± 9.6 %
10475	AAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.57	± 9.6 %
10477	AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.32	± 9.6 %
10478	AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.57	± 9.6 %
10479	AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.74	± 9.6 %
10480	AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.18	± 9.6 %
10481	AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.45	± 9.6 %
10482	AAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.71	± 9.6 %
10483	AAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.39	± 9.6 %
10484	AAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.47	± 9.6 %
10485	AAE	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.59	± 9.6 %
10486	AAE	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.38	± 9.6 %
10487	AAE	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.60	± 9.6 %
10488	AAE	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.70	± 9.6 %
10489	AAE	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.31	± 9.6 %
10490	AAE	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.54	± 9.6 %
10491	AAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.74	± 9.6 %

10492	AAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.41	± 9.6 %
10493	AAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.55	± 9.6 %
10494	AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.74	± 9.6 %
10495	AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.37	± 9.6 %
10496	AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.54	± 9.6 %
10497	AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.67	± 9.6 %
10498	AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.40	± 9.6 %
10499	AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.68	± 9.6 %
10500	AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.67	± 9.6 %
10501	AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.44	± 9.6 %
10502	AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.52	± 9.6 %
10503	AAE	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.72	± 9.6 %
10504	AAE	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.31	± 9.6 %
10505	AAE	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.54	± 9.6 %
10506	AAE	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.74	± 9.6 %
10507	AAE	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.36	± 9.6 %
10508	AAE	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.55	± 9.6 %
10509	AAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.99	± 9.6 %
10510	AAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.49	± 9.6 %
10511	AAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.51	± 9.6 %
10512	AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.74	± 9.6 %
10513	AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.42	± 9.6 %
10514	AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.45	± 9.6 %
10515	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	WLAN	1.58	± 9.6 %
10516	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	WLAN	1.57	± 9.6 %
10517	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	WLAN	1.58	± 9.6 %
10518	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	WLAN	8.23	± 9.6 %
10519	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	WLAN	8.39	± 9.6 %
10520	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	WLAN	8.12	± 9.6 %
10521	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	WLAN	7.97	± 9.6 %
10522	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	WLAN	8.45	± 9.6 %
10523	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	WLAN	8.08	± 9.6 %
10524	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	WLAN	8.27	± 9.6 %
10525	AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	WLAN	8.36	± 9.6 %
10526	AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)	WLAN	8.42	± 9.6 %
10527	AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)	WLAN	8.21	± 9.6 %
10528	AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)	WLAN	8.36	± 9.6 %
10529	AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)	WLAN	8.36	± 9.6 %
10531	AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)	WLAN	8.43	± 9.6 %
10532	AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)	WLAN	8.29	± 9.6 %
10533	AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)	WLAN	8.38	± 9.6 %
10534	AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	WLAN	8.45	± 9.6 %

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10535	AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)	WLAN	8.45	± 9.6 %
10536	AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)	WLAN	8.32	± 9.6 %
10537	AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)	WLAN	8.44	± 9.6 %
10538	AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)	WLAN	8.54	± 9.6 %
10540	AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)	WLAN	8.39	± 9.6 %
10541	AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)	WLAN	8.46	± 9.6 %
10542	AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)	WLAN	8.65	± 9.6 %
10543	AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)	WLAN	8.65	± 9.6 %
10544	AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)	WLAN	8.47	± 9.6 %
10545	AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)	WLAN	8.55	± 9.6 %
10546	AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)	WLAN	8.35	± 9.6 %
10547	AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)	WLAN	8.49	± 9.6 %
10548	AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)	WLAN	8.37	± 9.6 %
10550	AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)	WLAN	8.38	± 9.6 %
10551	AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)	WLAN	8.50	± 9.6 %
10552	AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)	WLAN	8.42	± 9.6 %
10553	AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)	WLAN	8.45	± 9.6 %
10554	AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 99pc duty cycle)	WLAN	8.48	± 9.6 %
10555	AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 99pc duty cycle)	WLAN	8.47	± 9.6 %
10556	AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 99pc duty cycle)	WLAN	8.50	± 9.6 %
10557	AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 99pc duty cycle)	WLAN	8.52	± 9.6 %
10558	AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 99pc duty cycle)	WLAN	8.61	± 9.6 %
10560	AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 99pc duty cycle)	WLAN	8.73	± 9.6 %
10561	AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 99pc duty cycle)	WLAN	8.56	± 9.6 %
10562	AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 99pc duty cycle)	WLAN	8.69	± 9.6 %
10563	AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 99pc duty cycle)	WLAN	8.77	± 9.6 %
10564	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	WLAN	8.25	± 9.6 %
10565	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	WLAN	8.45	± 9.6 %
10566	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	WLAN	8.13	± 9.6 %
10567	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	WLAN	8.00	± 9.6 %
10568	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	WLAN	8.37	± 9.6 %
10569	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	WLAN	8.10	± 9.6 %
10570	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	WLAN	8.30	± 9.6 %
10571	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	WLAN	1.99	± 9.6 %
10572	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	WLAN	1.99	± 9.6 %
10573	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	WLAN	1.98	± 9.6 %
10574	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	WLAN	1.98	± 9.6 %
10575	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	WLAN	8.59	± 9.6 %
10576	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	WLAN	8.60	± 9.6 %
10577	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	WLAN	8.70	± 9.6 %
10578	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	WLAN	8.49	± 9.6 %
10579	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle)	WLAN	8.36	± 9.6 %
10580	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	WLAN	8.76	± 9.6 %
10581	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	WLAN	8.35	± 9.6 %
10582	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	WLAN	8.67	± 9.6 %
10583	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	WLAN	8.59	± 9.6 %
10584	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	WLAN	8.60	± 9.6 %
10585	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	WLAN	8.70	± 9.6 %
10586	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	WLAN	8.49	± 9.6 %
10587	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	WLAN	8.36	± 9.6 %

10588	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	WLAN	8.76	± 9.6 %
10589	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	WLAN	8.35	± 9.6 %
10590	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	WLAN	8.67	± 9.6 %
10591	AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	WLAN	8.63	± 9.6 %
10592	AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)	WLAN	8.79	± 9.6 %
10593	AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)	WLAN	8.64	± 9.6 %
10594	AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)	WLAN	8.74	± 9.6 %
10595	AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)	WLAN	8.74	± 9.6 %
10596	AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)	WLAN	8.71	± 9.6 %
10597	AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)	WLAN	8.72	± 9.6 %
10598	AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)	WLAN	8.50	± 9.6 %
10599	AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	WLAN	8.79	± 9.6 %
10600	AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)	WLAN	8.88	± 9.6 %
10601	AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	WLAN	8.82	± 9.6 %
10602	AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)	WLAN	8.94	± 9.6 %
10603	AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	WLAN	9.03	± 9.6 %
10604	AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	WLAN	8.76	± 9.6 %
10605	AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)	WLAN	8.97	± 9.6 %
10606	AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)	WLAN	8.82	± 9.6 %
10607	AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	WLAN	8.64	± 9.6 %
10608	AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	WLAN	8.77	± 9.6 %
10609	AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)	WLAN	8.57	± 9.6 %
10610	AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)	WLAN	8.78	± 9.6 %
10611	AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)	WLAN	8.70	± 9.6 %
10612	AAB	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)	WLAN	8.77	± 9.6 %
10613	AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)	WLAN	8.94	± 9.6 %
10614	AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)	WLAN	8.59	± 9.6 %
10615	AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)	WLAN	8.82	± 9.6 %
10616	AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	WLAN	8.82	± 9.6 %
10617	AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)	WLAN	8.81	± 9.6 %
10618	AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)	WLAN	8.58	± 9.6 %
10619	AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)	WLAN	8.86	± 9.6 %
10620	AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)	WLAN	8.87	± 9.6 %
10621	AAB	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)	WLAN	8.77	± 9.6 %
10622	AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)	WLAN	8.68	± 9.6 %
10623	AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	WLAN	8.82	± 9.6 %
10624	AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)	WLAN	8.96	± 9.6 %
10625	AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	WLAN	8.96	± 9.6 %
10626	AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	WLAN	8.83	± 9.6 %
10627	AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)	WLAN	8.88	± 9.6 %
10628	AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)	WLAN	8.71	± 9.6 %
10629	AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)	WLAN	8.85	± 9.6 %
10630	AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)	WLAN	8.72	± 9.6 %
10631	AAB	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)	WLAN	8.81	± 9.6 %
10632	AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)	WLAN	8.74	± 9.6 %
10633	AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	WLAN	8.83	± 9.6 %
10634	AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	WLAN	8.80	± 9.6 %
10635	AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	WLAN	8.81	± 9.6 %
10636	AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	WLAN	8.83	± 9.6 %
10637	AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	WLAN	8.79	± 9.6 %
10638	AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	WLAN	8.86	± 9.6 %
10639	AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 90pc duty cycle)	WLAN	8.85	± 9.6 %
10640	AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle)	WLAN	8.98	± 9.6 %
10641	AAC	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle)	WLAN	9.06	± 9.6 %
10642	AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 90pc duty cycle)	WLAN	9.06	± 9.6 %
10643	AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle)	WLAN	8.89	± 9.6 %
10644	AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 90pc duty cycle)	WLAN	9.05	± 9.6 %
10645	AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	WLAN	9.11	± 9.6 %
10646	AAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	LTE-TDD	11.96	± 9.6 %
10647	AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	LTE-TDD	11.96	± 9.6 %
10648	AAA	CDMA2000 (1x Advanced)	CDMA2000	3.45	± 9.6 %
10652	AAD	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.91	± 9.6 %
10653	AAD	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.42	± 9.6 %
10654	AAD	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.96	± 9.6 %

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10655	AAE	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.21	± 9.6 %
10658	AAA	Pulse Waveform (200Hz, 10%)	Test	10.00	± 9.6 %
10659	AAA	Pulse Waveform (200Hz, 20%)	Test	6.99	± 9.6 %
10660	AAA	Pulse Waveform (200Hz, 40%)	Test	3.98	± 9.6 %
10661	AAA	Pulse Waveform (200Hz, 60%)	Test	2.22	± 9.6 %
10662	AAA	Pulse Waveform (200Hz, 80%)	Test	0.97	± 9.6 %
10670	AAA	Bluetooth Low Energy	Bluetooth	2.19	± 9.6 %
10671	AAA	IEEE 802.11ax (20MHz, MCS0, 90pc duty cycle)	WLAN	9.09	± 9.6 %
10672	AAA	IEEE 802.11ax (20MHz, MCS1, 90pc duty cycle)	WLAN	8.57	± 9.6 %
10673	AAA	IEEE 802.11ax (20MHz, MCS2, 90pc duty cycle)	WLAN	8.78	± 9.6 %
10674	AAA	IEEE 802.11ax (20MHz, MCS3, 90pc duty cycle)	WLAN	8.74	± 9.6 %
10675	AAA	IEEE 802.11ax (20MHz, MCS4, 90pc duty cycle)	WLAN	8.90	± 9.6 %
10676	AAA	IEEE 802.11ax (20MHz, MCS5, 90pc duty cycle)	WLAN	8.77	± 9.6 %
10677	AAA	IEEE 802.11ax (20MHz, MCS6, 90pc duty cycle)	WLAN	8.73	± 9.6 %
10678	AAA	IEEE 802.11ax (20MHz, MCS7, 90pc duty cycle)	WLAN	8.78	± 9.6 %
10679	AAA	IEEE 802.11ax (20MHz, MCS8, 90pc duty cycle)	WLAN	8.89	± 9.6 %
10680	AAA	IEEE 802.11ax (20MHz, MCS9, 90pc duty cycle)	WLAN	8.80	± 9.6 %
10681	AAA	IEEE 802.11ax (20MHz, MCS10, 90pc duty cycle)	WLAN	8.62	± 9.6 %
10682	AAA	IEEE 802.11ax (20MHz, MCS11, 90pc duty cycle)	WLAN	8.83	± 9.6 %
10683	AAA	IEEE 802.11ax (20MHz, MCS0, 99pc duty cycle)	WLAN	8.42	± 9.6 %
10684	AAA	IEEE 802.11ax (20MHz, MCS1, 99pc duty cycle)	WLAN	8.26	± 9.6 %
10685	AAA	IEEE 802.11ax (20MHz, MCS2, 99pc duty cycle)	WLAN	8.33	± 9.6 %
10686	AAA	IEEE 802.11ax (20MHz, MCS3, 99pc duty cycle)	WLAN	8.28	± 9.6 %
10687	AAA	IEEE 802.11ax (20MHz, MCS4, 99pc duty cycle)	WLAN	8.45	± 9.6 %
10688	AAA	IEEE 802.11ax (20MHz, MCS5, 99pc duty cycle)	WLAN	8.29	± 9.6 %
10689	AAA	IEEE 802.11ax (20MHz, MCS6, 99pc duty cycle)	WLAN	8.55	± 9.6 %
10690	AAA	IEEE 802.11ax (20MHz, MCS7, 99pc duty cycle)	WLAN	8.29	± 9.6 %
10691	AAA	IEEE 802.11ax (20MHz, MCS8, 99pc duty cycle)	WLAN	8.25	± 9.6 %
10692	AAA	IEEE 802.11ax (20MHz, MCS9, 99pc duty cycle)	WLAN	8.29	± 9.6 %
10693	AAA	IEEE 802.11ax (20MHz, MCS10, 99pc duty cycle)	WLAN	8.25	± 9.6 %
10694	AAA	IEEE 802.11ax (20MHz, MCS11, 99pc duty cycle)	WLAN	8.57	± 9.6 %
10695	AAA	IEEE 802.11ax (40MHz, MCS0, 90pc duty cycle)	WLAN	8.78	± 9.6 %
10696	AAA	IEEE 802.11ax (40MHz, MCS1, 90pc duty cycle)	WLAN	8.91	± 9.6 %
10697	AAA	IEEE 802.11ax (40MHz, MCS2, 90pc duty cycle)	WLAN	8.61	± 9.6 %
10698	AAA	IEEE 802.11ax (40MHz, MCS3, 90pc duty cycle)	WLAN	8.89	± 9.6 %
10699	AAA	IEEE 802.11ax (40MHz, MCS4, 90pc duty cycle)	WLAN	8.82	± 9.6 %
10700	AAA	IEEE 802.11ax (40MHz, MCS5, 90pc duty cycle)	WLAN	8.73	± 9.6 %
10701	AAA	IEEE 802.11ax (40MHz, MCS6, 90pc duty cycle)	WLAN	8.86	± 9.6 %
10702	AAA	IEEE 802.11ax (40MHz, MCS7, 90pc duty cycle)	WLAN	8.70	± 9.6 %
10703	AAA	IEEE 802.11ax (40MHz, MCS8, 90pc duty cycle)	WLAN	8.82	± 9.6 %
10704	AAA	IEEE 802.11ax (40MHz, MCS9, 90pc duty cycle)	WLAN	8.56	± 9.6 %
10705	AAA	IEEE 802.11ax (40MHz, MCS10, 90pc duty cycle)	WLAN	8.69	± 9.6 %
10706	AAA	IEEE 802.11ax (40MHz, MCS11, 90pc duty cycle)	WLAN	8.66	± 9.6 %
10707	AAA	IEEE 802.11ax (40MHz, MCS0, 99pc duty cycle)	WLAN	8.32	± 9.6 %
10708	AAA	IEEE 802.11ax (40MHz, MCS1, 99pc duty cycle)	WLAN	8.55	± 9.6 %
10709	AAA	IEEE 802.11ax (40MHz, MCS2, 99pc duty cycle)	WLAN	8.33	± 9.6 %
10710	AAA	IEEE 802.11ax (40MHz, MCS3, 99pc duty cycle)	WLAN	8.29	± 9.6 %
10711	AAA	IEEE 802.11ax (40MHz, MCS4, 99pc duty cycle)	WLAN	8.39	± 9.6 %
10712	AAA	IEEE 802.11ax (40MHz, MCS5, 99pc duty cycle)	WLAN	8.67	± 9.6 %
10713	AAA	IEEE 802.11ax (40MHz, MCS6, 99pc duty cycle)	WLAN	8.33	± 9.6 %
10714	AAA	IEEE 802.11ax (40MHz, MCS7, 99pc duty cycle)	WLAN	8.26	± 9.6 %
10715	AAA	IEEE 802.11ax (40MHz, MCS8, 99pc duty cycle)	WLAN	8.45	± 9.6 %
10716	AAA	IEEE 802.11ax (40MHz, MCS9, 99pc duty cycle)	WLAN	8.30	± 9.6 %
10717	AAA	IEEE 802.11ax (40MHz, MCS10, 99pc duty cycle)	WLAN	8.48	± 9.6 %
10718	AAA	IEEE 802.11ax (40MHz, MCS11, 99pc duty cycle)	WLAN	8.24	± 9.6 %
10719	AAA	IEEE 802.11ax (80MHz, MCS0, 90pc duty cycle)	WLAN	8.81	± 9.6 %
10720	AAA	IEEE 802.11ax (80MHz, MCS1, 90pc duty cycle)	WLAN	8.87	± 9.6 %
10721	AAA	IEEE 802.11ax (80MHz, MCS2, 90pc duty cycle)	WLAN	8.76	± 9.6 %
10722	AAA	IEEE 802.11ax (80MHz, MCS3, 90pc duty cycle)	WLAN	8.55	± 9.6 %
10723	AAA	IEEE 802.11ax (80MHz, MCS4, 90pc duty cycle)	WLAN	8.70	± 9.6 %
10724	AAA	IEEE 802.11ax (80MHz, MCS5, 90pc duty cycle)	WLAN	8.90	± 9.6 %
10725	AAA	IEEE 802.11ax (80MHz, MCS6, 90pc duty cycle)	WLAN	8.74	± 9.6 %
10726	AAA	IEEE 802.11ax (80MHz, MCS7, 90pc duty cycle)	WLAN	8.72	± 9.6 %
10727	AAA	IEEE 802.11ax (80MHz, MCS8, 90pc duty cycle)	WLAN	8.66	± 9.6 %

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10728	AAA	IEEE 802.11ax (80MHz, MCS9, 90pc duty cycle)	WLAN	8.65	± 9.6 %
10729	AAA	IEEE 802.11ax (80MHz, MCS10, 90pc duty cycle)	WLAN	8.64	± 9.6 %
10730	AAA	IEEE 802.11ax (80MHz, MCS11, 90pc duty cycle)	WLAN	8.67	± 9.6 %
10731	AAA	IEEE 802.11ax (80MHz, MCS0, 99pc duty cycle)	WLAN	8.42	± 9.6 %
10732	AAA	IEEE 802.11ax (80MHz, MCS1, 99pc duty cycle)	WLAN	8.46	± 9.6 %
10733	AAA	IEEE 802.11ax (80MHz, MCS2, 99pc duty cycle)	WLAN	8.40	± 9.6 %
10734	AAA	IEEE 802.11ax (80MHz, MCS3, 99pc duty cycle)	WLAN	8.25	± 9.6 %
10735	AAA	IEEE 802.11ax (80MHz, MCS4, 99pc duty cycle)	WLAN	8.33	± 9.6 %
10736	AAA	IEEE 802.11ax (80MHz, MCS5, 99pc duty cycle)	WLAN	8.27	± 9.6 %
10737	AAA	IEEE 802.11ax (80MHz, MCS6, 99pc duty cycle)	WLAN	8.36	± 9.6 %
10738	AAA	IEEE 802.11ax (80MHz, MCS7, 99pc duty cycle)	WLAN	8.42	± 9.6 %
10739	AAA	IEEE 802.11ax (80MHz, MCS8, 99pc duty cycle)	WLAN	8.29	± 9.6 %
10740	AAA	IEEE 802.11ax (80MHz, MCS9, 99pc duty cycle)	WLAN	8.48	± 9.6 %
10741	AAA	IEEE 802.11ax (80MHz, MCS10, 99pc duty cycle)	WLAN	8.40	± 9.6 %
10742	AAA	IEEE 802.11ax (80MHz, MCS11, 99pc duty cycle)	WLAN	8.43	± 9.6 %
10743	AAA	IEEE 802.11ax (160MHz, MCS0, 90pc duty cycle)	WLAN	8.94	± 9.6 %
10744	AAA	IEEE 802.11ax (160MHz, MCS1, 90pc duty cycle)	WLAN	9.16	± 9.6 %
10745	AAA	IEEE 802.11ax (160MHz, MCS2, 90pc duty cycle)	WLAN	8.93	± 9.6 %
10746	AAA	IEEE 802.11ax (160MHz, MCS3, 90pc duty cycle)	WLAN	9.11	± 9.6 %
10747	AAA	IEEE 802.11ax (160MHz, MCS4, 90pc duty cycle)	WLAN	9.04	± 9.6 %
10748	AAA	IEEE 802.11ax (160MHz, MCS5, 90pc duty cycle)	WLAN	8.93	± 9.6 %
10749	AAA	IEEE 802.11ax (160MHz, MCS6, 90pc duty cycle)	WLAN	8.90	± 9.6 %
10750	AAA	IEEE 802.11ax (160MHz, MCS7, 90pc duty cycle)	WLAN	8.79	± 9.6 %
10751	AAA	IEEE 802.11ax (160MHz, MCS8, 90pc duty cycle)	WLAN	8.82	± 9.6 %
10752	AAA	IEEE 802.11ax (160MHz, MCS9, 90pc duty cycle)	WLAN	8.81	± 9.6 %
10753	AAA	IEEE 802.11ax (160MHz, MCS10, 90pc duty cycle)	WLAN	9.00	± 9.6 %
10754	AAA	IEEE 802.11ax (160MHz, MCS11, 90pc duty cycle)	WLAN	8.94	± 9.6 %
10755	AAA	IEEE 802.11ax (160MHz, MCS0, 99pc duty cycle)	WLAN	8.64	± 9.6 %
10756	AAA	IEEE 802.11ax (160MHz, MCS1, 99pc duty cycle)	WLAN	8.77	± 9.6 %
10757	AAA	IEEE 802.11ax (160MHz, MCS2, 99pc duty cycle)	WLAN	8.77	± 9.6 %
10758	AAA	IEEE 802.11ax (160MHz, MCS3, 99pc duty cycle)	WLAN	8.69	± 9.6 %
10759	AAA	IEEE 802.11ax (160MHz, MCS4, 99pc duty cycle)	WLAN	8.58	± 9.6 %
10760	AAA	IEEE 802.11ax (160MHz, MCS5, 99pc duty cycle)	WLAN	8.49	± 9.6 %
10761	AAA	IEEE 802.11ax (160MHz, MCS6, 99pc duty cycle)	WLAN	8.58	± 9.6 %
10762	AAA	IEEE 802.11ax (160MHz, MCS7, 99pc duty cycle)	WLAN	8.49	± 9.6 %
10763	AAA	IEEE 802.11ax (160MHz, MCS8, 99pc duty cycle)	WLAN	8.53	± 9.6 %
10764	AAA	IEEE 802.11ax (160MHz, MCS9, 99pc duty cycle)	WLAN	8.54	± 9.6 %
10765	AAA	IEEE 802.11ax (160MHz, MCS10, 99pc duty cycle)	WLAN	8.54	± 9.6 %
10766	AAA	IEEE 802.11ax (160MHz, MCS11, 99pc duty cycle)	WLAN	8.51	± 9.6 %

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

Attachment 6. – Dipole Calibration Data

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

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

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

Accreditation No.: SCS 0108

Client HCT (Dymstec)

Certificate No: D2450V2-743_Jan19

CALIBRATION CERTIFICATE

결재	담당자	확인자
직위/성명	SW 1팀 과장	팀장 / 최○○
일자	2019.12.15	2019.12.15

Object	D2450V2 - SN:743
Calibration procedure(s)	QA CAL-05.v11 Calibration Procedure for SAR Validation Sources between 0.7-3 GHz
Calibration date:	January 28, 2019

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-18 (No. 217-02672/02673)	Apr-19
Power sensor NRP-Z91	SN: 103244	04-Apr-18 (No. 217-02672)	Apr-19
Power sensor NRP-Z91	SN: 103245	04-Apr-18 (No. 217-02673)	Apr-19
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-18 (No. 217-02682)	Apr-19
Type-N mismatch combination	SN: 5047.2 / 06327	04-Apr-18 (No. 217-02683)	Apr-19
Reference Probe EX3DV4	SN: 7349	31-Dec-18 (No. EX3-7349_Dec18)	Dec-19
DAE4	SN: 601	04-Oct-18 (No. DAE4-601_Oct18)	Oct-19

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

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

Issued: January 28, 2019

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

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

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

Accreditation No.: SCS 0108

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

DASY Version	DASY5	V52.10.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.8 ± 6 %	1.87 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.3 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**51.8 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.14 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.2 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.1 ± 6 %	2.03 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	12.8 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**49.9 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.94 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**23.4 W/kg ± 16.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.6 Ω + 5.5 jΩ
Return Loss	- 24.0 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	50.2 Ω + 7.9 jΩ
Return Loss	- 22.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.161 ns

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

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

Additional EUT Data

Manufactured by	SPEAG

DASY5 Validation Report for Head TSL

Date: 28.01.2019

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:743

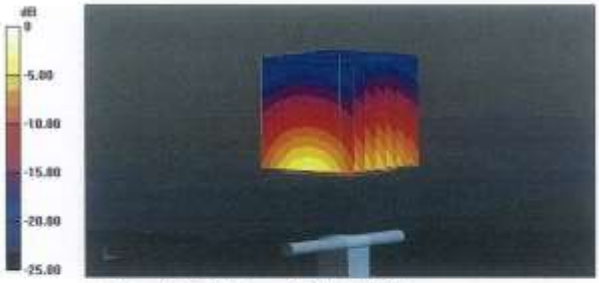
Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.87 S/m; ε_r = 37.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.96, 7.96, 7.96) @ 2450 MHz; Calibrated: 31.12.2018
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.10.2018
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

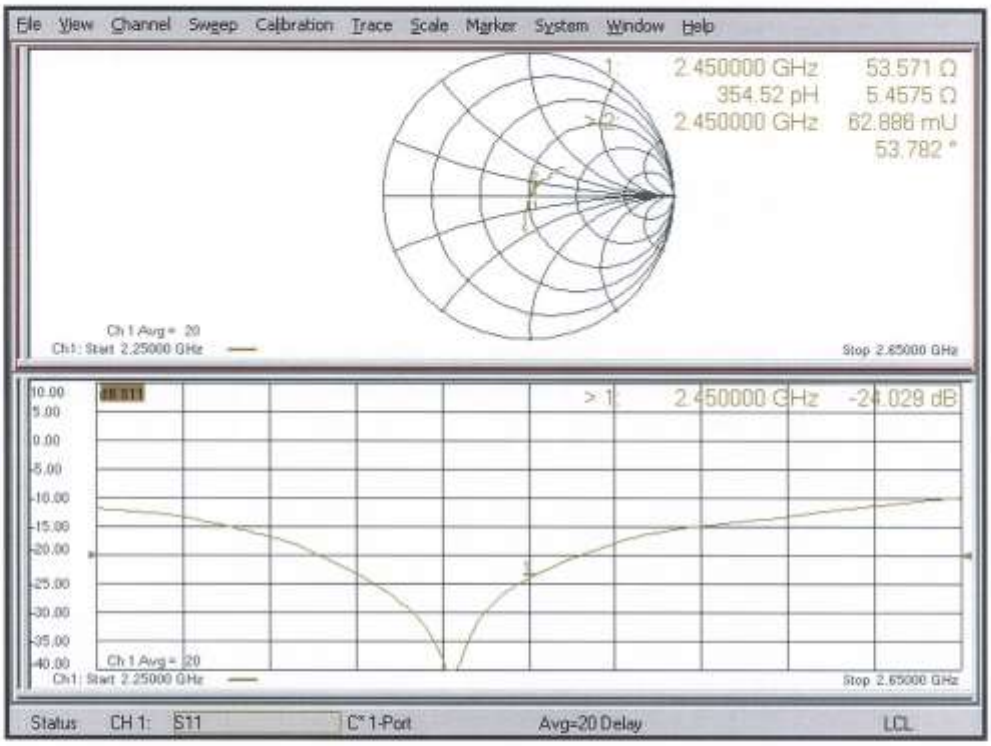
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 116.5 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 26.6 W/kg
SAR(1 g) = 13.3 W/kg; SAR(10 g) = 6.14 W/kg
Maximum value of SAR (measured) = 22.1 W/kg



0 dB = 22.1 W/kg = 13.44 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 28.01.2019

Test Laboratory: SPEAG, Zurich, Switzerland

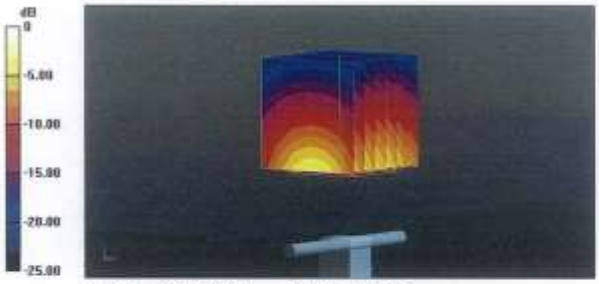
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:743

Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 2.03 S/m; ε_r = 51.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

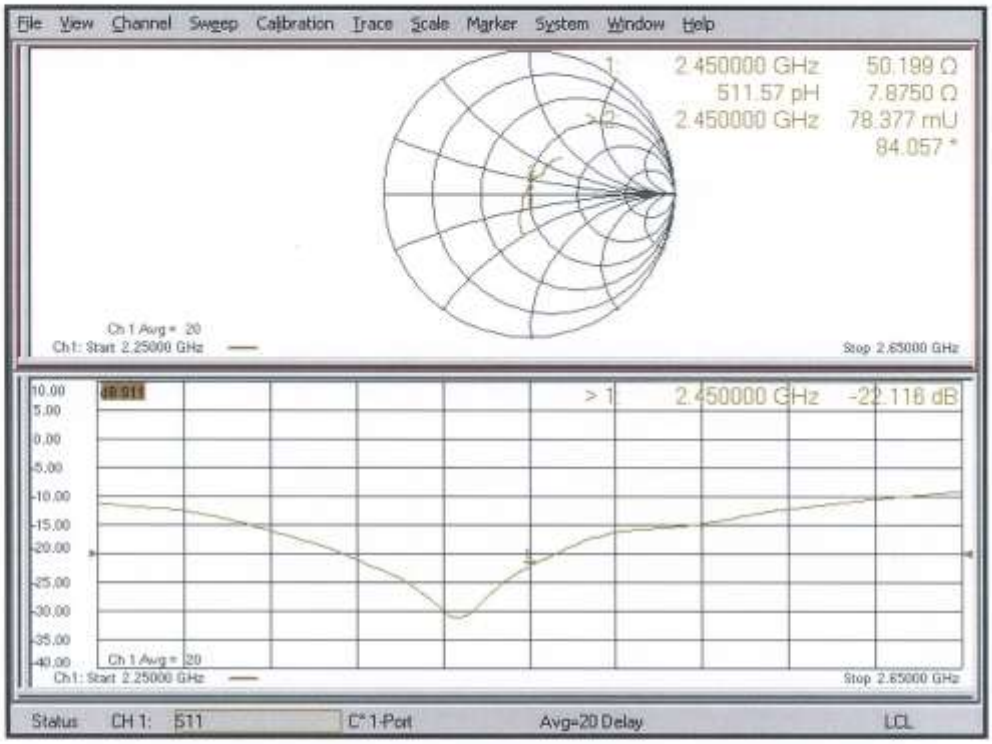
- Probe: EX3DV4 - SN7349; ConvF(8.09, 8.09, 8.09) @ 2450 MHz; Calibrated: 31.12.2018
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.10.2018
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 107.2 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 25.5 W/kg
SAR(1 g) = 12.8 W/kg; SAR(10 g) = 5.94 W/kg
Maximum value of SAR (measured) = 20.7 W/kg



0 dB = 20.7 W/kg = 13.16 dBW/kg

Impedance Measurement Plot for Body TSL



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