



other methodologies above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees until the three channels show the maximum reading. The power density readings equates to 1 mW/cm².

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The E-field in the medium correlates with the temperature rise in the dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

$$SAR = C \frac{\Delta T}{\Delta t}$$

Where:

 Δt = Exposure time (30 seconds),

C = Heat capacity of tissue (brain or muscle),

 ΔT = Temperature increase due to RF exposure.

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

Where:

 σ = Simulated tissue conductivity,

 ρ = Tissue density (kg/m³).

C.4 Other Test Equipment

C.4.1 Data Acquisition Electronics(DAE)

The data acquisition electronics consist 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 with a control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information, as well as an optical uplink for commands and the clock.

The mechanical probe mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection.

The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.



PictureC.4: DAE





C.4.2 Robot

The SPEAG DASY system uses the high precision robots (DASY4: RX90XL; DASY5: RX160L) type from Stäubli SA (France). For the 6-axis controller system, the robot controller version from Stäubli is used. The Stäubli robot series have many features that are important for our application:

- High precision (repeatability 0.02mm)
- High reliability (industrial design)
- > Low maintenance costs (virtually maintenance free due to direct drive gears; no belt drives)
- Jerk-free straight movements (brushless synchron motors; no stepper motors)
- Low ELF interference (motor control fields shielded via the closed metallic construction shields)



Picture C.5DASY 4



Picture C.6DASY 5

C.4.3 Measurement Server

The Measurement server is based on a PC/104 CPU broad with CPU (dasy4: 166 MHz, Intel Pentium; DASY5: 400 MHz, Intel Celeron), chipdisk (DASY4: 32 MB; DASY5: 128MB), RAM (DASY4: 64 MB, DASY5: 128MB). The necessary circuits for communication with the DAE electronic box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY I/O broad, which is directly connected to the PC/104 bus of the CPU broad.

The measurement server performs all real-time data evaluation of field measurements and surface detection, controls robot movements and handles safety operation. The PC operating system cannot interfere with these time critical processes. All connections are supervised by a watchdog, and disconnection of any of the cables to the measurement server will automatically disarm the robot and disable all program-controlled robot movements. Furthermore, the measurement server is equipped with an expansion port which is reserved for future applications. Please note that this expansion port does not have a standardized pinout, and therefore only devices provided by SPEAG can be connected. Devices from any other supplier could seriously damage the measurement server.





Picture C.7 Server for DASY 4 ©Copyright. All rights reserved by CTTL.

Picture C.8 Server for DASY 5 Page 4 of 87





C.4.4 Device Holder for Phantom

The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source at 5mm distance, a positioning uncertainty of ± 0.5 mm would produce a SAR uncertainty of $\pm 20\%$. Accurate device positioning is therefore crucial for accurate and repeatable measurements. The positions in which the devices must be measured are defined by the standards.

The DASY device holder is designed to cope with the different positions given in the standard. It has two scales for device rotation (with respect to the body axis) and device inclination (with respect to the line between the ear reference points). The rotation centers for both scales are the ear reference point (ERP). Thus the device needs no repositioning when changing the angles. The DASY device holder is constructed of low-loss POM material having the following dielectric parameters: relative permittivity ε =3 and loss tangent δ =0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

<Laptop Extension Kit>

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the Mounting Device in place of the phone positioner. The extension is fully compatible with the Twin-SAM and ELI phantoms.



Picture C.9-1: Device Holder



Picture C.9-2: Laptop Extension Kit





C.4.5 Phantom

The SAM Twin Phantom V4.0 is constructed of a fiberglass shell integrated in a table. The shape of the shell is based on data from an anatomical study designed to

Represent the 90th percentile of the population. The phantom enables the dissymmetric evaluation of SAR for both left and right handed handset usage, as well as body-worn usage using the flat phantom region. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot. The shell phantom has a 2mm shell thickness (except the ear region where shell thickness increases to 6 mm).

Shell Thickness:2±0. 2 mmFilling Volume:Approx. 25 litersDimensions:810 x 1000 x 500 mm (H x L x W)Available:Special



Picture C.10: SAM Twin Phantom





ANNEX D Position of the wireless device in relation to the phantom

D.1 General considerations

This standard specifies two handset test positions against the head phantom – the "cheek" position and the "tilt" position.



Picture D.1-a Typical "fixed" case handset Picture D.1-b Typical "clam-shell" case handset



Picture D.2 Cheek position of the wireless device on the left side of SAM







Picture D.3 Tilt position of the wireless device on the left side of SAM

D.2 Body-worn device

A typical example of a body-worn device is a mobile phone, wireless enabled PDA or other battery operated wireless device with the ability to transmit while mounted on a person's body using a carry accessory approved by the wireless device manufacturer.



Picture D.4Test positions for body-worn devices

D.3 Desktop device

A typical example of a desktop device is a wireless enabled desktop computer placed on a table or desk when used.

The DUT shall be positioned at the distance and in the orientation to the phantom that corresponds to the intended use as specified by the manufacturer in the user instructions. For devices that employ an external antenna with variable positions, tests shall be performed for all antenna positions specified. Picture8.5 show positions for desktop device SAR tests. If the intended use is not specified, the device shall be tested directly against the flat phantom.







Picture D.5 Test positions for desktop devices



D.4 DUT Setup Photos

Picture D.6

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ANNEX E Equivalent Media Recipes

The liquid used for the frequency range of 800-3000 MHz consisted of water, sugar, salt, preventol, glycol monobutyl and Cellulose. The liquid has been previously proven to be suited for worst-case. The Table E.1 shows the detail solution. It's satisfying the latest tissue dielectric parameters requirements proposed by the IEEE 1528 and IEC 62209.

Frequency	025Uood	025Dody	1900	1900	2450	2450	5800	5800
(MHz)	osoneau	osobouy	Head	Body	Head	Body	Head	Body
Ingredients (% by weight) Water 41.45 52.5 55.242 69.91 58.79 72.60 65.53 6 Sugar 56.0 45.0 \ \ \								
Water	41.45	52.5	55.242	69.91	58.79	72.60	65.53	65.53
Sugar	56.0	45.0	١	١	١	١	١	١
Salt	1.45	1.4	0.306	0.13	0.06	0.18	١	١
Preventol	0.1	0.1	١	١	١	١	١	١
Cellulose	1.0	1.0	١	١	١	١	١	١
Glycol	1	1	11 150	20.06	41 15	27.22	1	1
Monobutyl	١	١	44.452	29.90	41.15	21.22	١	1
Diethylenglycol	N	1	1	``	1	``	17.04	17.04
monohexylether	١	١	١	Λ	1	Λ	17.24	17.24
Triton X-100	١	١	١	١	١	١	17.24	17.24
Dielectric	c=41 5	c=55.0	c=40.0	c=52.2	c=20.2	c=52.7	c=25.2	c=49.2
Parameters	$\epsilon = 41.0$	ε=0.07	$\epsilon = 40.0$	z = 0.0.0	ε-39.2 σ-1.90	ε-02.1 σ-1.0E	ε-30.3 σ-5.07	ε-40.2 σ-6.00
Target Value	0-0.90	0-0.97	0-1.40	0-1.02	0-1.00	0-1.95	0-0.27	0-0.00

TableE.1: Composition of the Tissue Equivalent Matter

Note: There are a little adjustment respectively for 750, 1750, 2600, 5200, 5300 and 5600 based on the recipe of closest frequency in table E.1.





ANNEX F System Validation

The SAR system must be validated against its performance specifications before it is deployed. When SAR probes, system components or software are changed, upgraded or recalibrated, these must be validated with the SAR system(s) that operates with such components.

Probe SN.	Liquid name	Validation date	Frequency point	Status (OK or Not)
7825	H650-7000M	December 8,2023	750 MHz	OK
7825	H650-7000M	December 8,2023	900 MHz	OK
7825	H650-7000M	December 8,2023	1450 MHz	OK
7825	H650-7000M	December 8,2023	1750 MHz	OK
7825	H650-7000M	December 9,2023	1900 MHz	OK
7825	H650-7000M	December 9,2023	2100 MHz	OK
7825	H650-7000M	December 9,2023	2300 MHz	OK
7825	H650-7000M	December 10,2023	2450 MHz	OK
7825	H650-7000M	December 10,2023	2600 MHz	OK
7825	H650-7000M	December 11,2023	3500 MHz	OK
7825	H650-7000M	December 11,2023	3700 MHz	OK
7825	H650-7000M	December 11,2023	3900 MHz	OK
7825	H650-7000M	December 12,2023	5250 MHz	OK
7825	H650-7000M	December 12,2023	5600 MHz	OK
7825	H650-7000M	December 12,2023	5800 MHz	OK

Table F.1: System Validation for 7825





ANNEX G Probe Calibration Certificate

Probe 7825 Calibration Certificate

	ON LABORATORY		国际互认
Add: No.52 HuaYuanBei Ro Tel: +86-10-62304633-2117	oad, Haidian District, Beij	ing, 100191, China	校准 CALIBRATION CNAS L0570
E-mail: emf@caict.ac.cn	http://www.caict.ac.ca	n	
Client CTTL		Certificate No	: J23Z60393
CALIBRATION C	ERTIFICATE		
Dbject	EX3DV4 -	SN : 7825	
Calibration Procedure(s)	FF-Z11-00	4-02	
	Calibration	Procedures for Dosimetric E-field Probe	es
Calibration date:	Septembe	r 27, 2023	
his calibration Certificate docur neasurements and the uncertai	ments the traceability to inties with confidence pr	o national standards, which realize the physical robability are given on the following pages and	units of measurements(SI). The are part of the certificate.
All calibrations have been condu	ucted in the closed labo	ratory facility: environment temperature(22±3)°C	and humidity<70%.
Calibration Equipment used (M8	TE critical for calibratio	n)	
rimary Standards	ID # Ca	al Date(Calibrated by, Certificate No.) Sched	uled Calibration
Power Meter NRP2	101919	12-Jun-23(CTTL, No.J23X05435)	Jun-24
Power sensor NRP-Z91	101547	12-Jun-23(CTTL, No.J23X05435)	Jun-24
Power sensor NRP-Z91	101548	12-Jun-23(CTTL, No.J23X05435)	Jun-24
Reference 10dBAttenuator	18N50W-10dB	19-Jan-23(CTTL, No.J23X00212)	Jan-25
	18N50W-20dB	19-Jan-23(CTTL, NO.J23X00211)	Jan-25
Reference 20dBAttenuator		04 May 00/00540 Ma EX 2046 May 22)	May 24
Reference 20dBAttenuator Reference Probe EX3DV4	SN 3846	31-May-23(SPEAG, No.EX-3846_May23)	May-24
Reference 20dBAttenuator Reference Probe EX3DV4 DAE4	SN 3846 SN 1555	31-May-23(SPEAG, No.EX-3846_May23) 24-Aug-23(SPEAG, No.DAE4-1555_Aug23) 24 June 23(SPEAC, No.DAE4-1555_Aug23)	May-24 3) Aug-24
Reference 20dBAttenuator Reference Probe EX3DV4 DAE4 DAE4	SN 3846 SN 1555 SN 549	31-May-23(SPEAG, No.EX-3846_May23) 24-Aug-23(SPEAG, No.DAE4-1555_Aug23) 24-Jan-23(SPEAG, No.DAE4-549_Jan23) 20 Aug 22(SPEAC, No.DAE4-1744_Aug22)	May-24 3) Aug-24 Jan-24
Reference 20dBAttenuator Reference Probe EX3DV4 DAE4 DAE4 DAE4	SN 3846 SN 1555 SN 549 SN 1744	31-May-23(SPEAG, No.EX-3846_May23) 24-Aug-23(SPEAG, No.DAE4-1555_Aug23 24-Jan-23(SPEAG, No.DAE4-549_Jan23) 30-Aug-22(SPEAG, No.DAE4-1744_Aug22	May-24 3) Aug-24 Jan-24 2) Aug-23
Reference 20dBAttenuator Reference Probe EX3DV4 DAE4 DAE4 DAE4 Secondary Standards	SN 3846 SN 1555 SN 549 SN 1744 ID #	31-May-23(SPEAG, No.EX-3846_May23) 24-Aug-23(SPEAG, No.DAE4-1555_Aug23 24-Jan-23(SPEAG, No.DAE4-549_Jan23) 30-Aug-22(SPEAG, No.DAE4-1744_Aug22 Cal Date(Calibrated by, Certificate No.)	May-24 3) Aug-24 Jan-24 2) Aug-23 Scheduled Calibration
Reference 20dBAttenuator Reference Probe EX3DV4 DAE4 DAE4 DAE4 Secondary Standards SignalGenerator MG3700A	SN 3846 SN 1555 SN 549 SN 1744 ID # 6201052605	31-May-23(SPEAG, No.EX-3846_May23) 24-Aug-23(SPEAG, No.DAE4-1555_Aug23 24-Jan-23(SPEAG, No.DAE4-549_Jan23) 30-Aug-22(SPEAG, No.DAE4-1744_Aug23 Cal Date(Calibrated by, Certificate No.) 12-Jun-23(CTTL, No.J23X05434)	May-24 3) Aug-24 Jan-24 2) Aug-23 Scheduled Calibration Jun-24
Reference 20dBAttenuator Reference Probe EX3DV4 DAE4 DAE4 DAE4 Secondary Standards SignalGenerator MG3700A Network Analyzer E5071C	SN 3846 SN 1555 SN 549 SN 1744 ID # 6201052605 MY46110673	31-May-23(SPEAG, No.EX-3846_May23) 24-Aug-23(SPEAG, No.DAE4-1555_Aug23 24-Jan-23(SPEAG, No.DAE4-549_Jan23) 30-Aug-22(SPEAG, No.DAE4-1744_Aug23 Cal Date(Calibrated by, Certificate No.) 12-Jun-23(CTTL, No.J23X05434) 10-Jan-23(CTTL, No.J23X00104)	May-24 3) Aug-24 Jan-24 2) Aug-23 Scheduled Calibration Jun-24 Jan-24
Reference 20dBAttenuator Reference Probe EX3DV4 DAE4 DAE4 DAE4 Secondary Standards SignalGenerator MG3700A Network Analyzer E5071C Reference 10dBAttenuator	SN 3846 SN 1555 SN 549 SN 1744 ID # 6201052605 MY46110673 BT0520	31-May-23(SPEAG, No.EX-3846_May23) 24-Aug-23(SPEAG, No.DAE4-1555_Aug23 24-Jan-23(SPEAG, No.DAE4-549_Jan23) 30-Aug-22(SPEAG, No.DAE4-549_Jan23) 20-Aug-22(SPEAG, No.DAE4-1744_Aug22 Cal Date(Calibrated by, Certificate No.) 12-Jun-23(CTTL, No.J23X05434) 10-Jan-23(CTTL, No.J23X00104) 11-May-23(CTTL, No.J23X04061)	May-24 3) Aug-24 Jan-24 2) Aug-23 Scheduled Calibration Jun-24 Jan-24 May-25
Reference 20dBAttenuator Reference Probe EX3DV4 DAE4 DAE4 DAE4 Secondary Standards SignalGenerator MG3700A Network Analyzer E5071C Reference 10dBAttenuator Reference 20dBAttenuator	SN 3846 SN 1555 SN 549 SN 1744 ID # 6201052605 MY46110673 BT0520 BT0267 DY4610	31-May-23(SPEAG, No.EX-3846_May23) 24-Aug-23(SPEAG, No.DAE4-1555_Aug23 24-Jan-23(SPEAG, No.DAE4-549_Jan23) 30-Aug-22(SPEAG, No.DAE4-549_Jan23) 30-Aug-22(SPEAG, No.DAE4-1744_Aug23 Cal Date(Calibrated by, Certificate No.) 12-Jun-23(CTTL, No.J23X05434) 10-Jan-23(CTTL, No.J23X00104) 11-May-23(CTTL, No.J23X04061) 11-May-23(CTTL, No.J23X04062)	May-24 3) Aug-24 Jan-24 2) Aug-23 Scheduled Calibration Jun-24 Jan-24 May-25 May-25
Reference 20dBAttenuator Reference Probe EX3DV4 DAE4 DAE4 DAE4 Secondary Standards SignalGenerator MG3700A Network Analyzer E5071C Reference 10dBAttenuator Reference 20dBAttenuator OCP DAK-3.5	SN 3846 SN 1555 SN 549 SN 1744 ID # 6201052605 MY46110673 BT0520 BT0267 SN 1040	31-May-23(SPEAG, No.EX-3846_May23) 24-Aug-23(SPEAG, No.DAE4-1555_Aug2 24-Jan-23(SPEAG, No.DAE4-549_Jan23) 30-Aug-22(SPEAG, No.DAE4-1744_Aug22 Cal Date(Calibrated by, Certificate No.) 12-Jun-23(CTTL, No.J23X05434) 10-Jan-23(CTTL, No.J23X00104) 11-May-23(CTTL, No.J23X04061) 11-May-23(CTTL, No.J23X04062) 18-Jan-23(SPEAG, No.OCP-DAK3.5-1040	May-24 3) Aug-24 Jan-24 2) Aug-23 Scheduled Calibration Jun-24 Jan-24 May-25 May-25 Jan-24
Reference 20dBAttenuator Reference Probe EX3DV4 DAE4 DAE4 DAE4 Secondary Standards SignalGenerator MG3700A Network Analyzer E5071C Reference 10dBAttenuator Reference 20dBAttenuator OCP DAK-3.5	SN 3846 SN 1555 SN 549 SN 1744 ID # 6201052605 MY46110673 BT0520 BT0267 SN 1040	31-May-23(SPEAG, No.EX-3846_May23) 24-Aug-23(SPEAG, No.DAE4-1555_Aug23 24-Jan-23(SPEAG, No.DAE4-549_Jan23) 30-Aug-22(SPEAG, No.DAE4-1744_Aug23 Cal Date(Calibrated by, Certificate No.) 12-Jun-23(CTTL, No.J23X05434) 10-Jan-23(CTTL, No.J23X00104) 11-May-23(CTTL, No.J23X04061) 11-May-23(CTTL, No.J23X04062) 18-Jan-23(SPEAG, No.OCP-DAK3.5-1040) Function	May-24 3) Aug-24 Jan-24 2) Aug-23 Scheduled Calibration Jun-24 Jan-24 May-25 May-25 May-25 Jan-24 sture-
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Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A,B,C,D	modulation dependent linearization parameters
Polarization Φ	Φ rotation around probe axis
Polarization θ	θ rotation around an axis that is in the plane normal to probe axis (at measurement center), i
	$\theta=0$ 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≤900MHz in TEM-cell; f>1800MHz: waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E²-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 (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; VRx, y, z: A, B, C 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≤800MHz) and inside waveguide using analytical field distributions based on power measurements for f >800MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty valued 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±50MHz to±100MHz.
- 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).

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DASY/EASY – Parameters of Probe: EX3DV4 – SN: 7825

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm(µV/(V/m) ²) ^A	0.69	0.66	0.69	±10.0%
DCP(mV) ^B	109.7	112.0	114.9	

Calibration Results for Modulation Response

UID	Communication System Name		dB	B dBõV	С	dB	WR mV	Max Dev.	Max Unc ^E (<i>k</i> =2)
0	CW	X	0.0	0.0	1.0	0.00	223.6	±2.3%	±4.7%
	a di bara da sela di serie	Y	0.0	0.0	1.0		221.4		
		Z	0.0	0.0	1.0		226.6		
10352-AAA	Pulse Waveform (200Hz, 10%)	X	1.74	61.65	7.38	5.	60	±2.9%	±9.6%
		Y	1.71	61.52	7.34	10.00	60		
		Z	1.87	62.56	8.26		60	Sec. 1	
10353-AAA	Pulse Waveform (200Hz, 20%)	X	0.81	60.00	5.43		80	±2.0%	±9.6%
		Y	0.82	60.00	5.49	6.99	80		
		Z	0.97	60.49	6.25	-	80	-	
10354-AAA	Pulse Waveform (200Hz, 40%)	X	22.00	76.00	9.00		95	±1.8%	±9.6%
		Y	24.00	76.00	9.00	3.98	95		
		Z	2.00	66.00	7.00		95		
10355-AAA	Pulse Waveform (200Hz, 60%)	X	0.25	60.00	3.68		120	±1.3%	±9.6%
		Y	0.25	60.00	3.82	2.22	120		
		Z	0.35	60.00	4.72		120		
10387-AAA	QPSK Waveform, 1 MHz	X	0.47	60.00	7.93		150	±2.5%	±9.6%
		Y	0.50	60.00	8.08	1.00	150		
		Z	0.55	60.00	7.56		150		
10388-AAA	QPSK Waveform, 10 MHz	X	0.88	60.00	8.07		150	±1.2%	±9.6%
		Y	0.96	60.18	8.64	0.00	150		
		Z	0.96	60.00	7.83		150		
10396-AAA	64-QAM Waveform, 100 kHz	X	1.63	61.61	13.03		150	±1.3%	±9.6%
		Y	1.66	61.81	13.19	3.01	150		
		Z	1.71	61.12	12.00		150		
10414-AAA	WLAN CCDF, 64-QAM, 40MHz	X	3.26	64.04	12.86		150	±3.3%	±9.6%
		Y	3.44	64.23	13.20	0.00	150		
		Z	3.24	63.32	12.10		150		

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%.

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 ^A The uncertainties of Norm X, Y, Z do not affect the E²-field uncertainty inside TSL (see Page 5).
 ^B Numerical linearization parameter: uncertainty not required.
 ^E Uncertainly 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: 7825

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	6.35	46.30	32.55	0.92	0.00	4.90	0.27	0.00	1.01
Y	7.56	54.73	32.26	1.34	0.00	4.90	0.36	0.00	1.01
Z	6.62	47.62	31.25	4.39	0.00	4.90	0.48	0.00	1.01

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	101.7
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disable
Probe Overall Length	337mm
Probe Body Diameter	10mm
Tip Length	9mm
Tip Diameter	2.5mm
Probe Tip to Sensor X Calibration Point	1mm
Probe Tip to Sensor Y Calibration Point	1mm
Probe Tip to Sensor Z Calibration Point	1mm
Recommended Measurement Distance from Surface	1.4mm

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DASY/EASY – Parameters of Probe: EX3DV4 – SN:7825

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	Unct.
750	41.9	0.89	9.37	9.37	9.37	0.19	1.18	±12.7%
900	41.5	0.97	8.97	8.97	8.97	0.21	1.23	±12.7%
1450	40.5	1.20	8.20	8.20	8.20	0.12	1.27	±12.7%
1750	40.1	1.37	7.80	7.80	7.80	0.27	0.95	±12.7%
1900	40.0	1.40	7.50	7.50	7.50	0.31	0.92	±12.7%
2000	40.0	1.40	7.52	7.52	7.52	0.26	1.03	±12.7%
2300	39.5	1.67	7.36	7.36	7.36	0.63	0.67	±12.7%
2450	39.2	1.80	7.09	7.09	7.09	0.52	0.80	±12.7%
2600	39.0	1.96	6.91	6.91	6.91	0.67	0.69	±12.7%
3300	38.2	2.71	6.62	6.62	6.62	0.49	0.81	±13.9%
3500	37.9	2.91	6.48	6.48	6.48	0.41	1.03	±13.9%
3700	37.7	3.12	6.32	6.32	6.32	0.41	1.03	±13.9%
3900	37.5	3.32	6.22	6.22	6.22	0.35	1.35	±13.9%
4100	37.2	3.53	6.12	6.12	6.12	0.40	1.15	±13.9%
4200	37.1	3.63	6.03	6.03	6.03	0.35	1.35	±13.9%
4400	36.9	3.84	5.94	5.94	5.94	0.30	1.52	±13.9%
4600	36.7	4.04	5.86	5.86	5.86	0.55	1.10	±13.9%
4800	36.4	4.25	5.76	5.76	5.76	0.55	1.12	±13.9%
4950	36.3	4.40	5.56	5.56	5.56	0.50	1.20	±13.9%
5250	35.9	4.71	5.02	5.02	5.02	0.45	1.35	±13.9%
5600	35.5	5.07	4.40	4.40	4.40	0.55	1.25	±13.9%
5750	35.4	5.22	4.55	4.55	4.55	0.45	1.40	±13.9%

^c Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of 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 frequency up to 6 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. 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 \pm 1% for frequencies below 3 GHz and below \pm 2% for the 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: ±7.4% (k=2)

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Receiving Pattern (Φ), θ=0°

f=600 MHz, TEM

f=1800 MHz, R22







Uncertainty of Axial Isotropy Assessment: ±1.2% (k=2)

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Conversion Factor Assessment

f=750 MHz,WGLS R9(H_convF)

f=1750 MHz,WGLS R22(H_convF)



Deviation from Isotropy in Liquid



Uncertainty of Spherical Isotropy Assessment: ±3.2% (k=2)

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Appendix: Modulation Calibration Parameters

UID	Rev	Communication System Name	Group	PAR (dB)	UncE
0	1	CW	CW	0.00	+4.7
10010	CAA	SAR Validation (Square, 100ms, 10ms)	Test	10.00	± 9.6 °
0011	CAB	UMTS-FDD (WCDMA)	WCDMA	2.91	± 9.6 9
0012	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	WLAN	1.87	+9.6
0013	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	WLAN	9.46	±9.6
0021	DAC	GSM-FDD (TDMA, GMSK)	GSM	9.39	± 9.6
0023	DAC	GPRS-FDD (TDMA, GMSK, TN 0)	GSM	9.57	± 9.6
0024	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	GSM	6.56	± 9.6
0025	DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	GSM	12.62	± 9.6
0026	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	GSM	9.55	± 9.6
0027	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	GSM	4.80	± 9.6
0028	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	GSM	3.55	± 9.6
0029	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	GSM	7.78	± 9.6
0030	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	Bluetooth	5.30	± 9.6
0031	CAA	IEEE 802,15,1 Bluetooth (GFSK, DH3)	Bluetooth	1.87	± 9.6
0032	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	Bluetooth	1.16	± 9.6
0033	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	Bluetooth	7.74	± 9.6
0034	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 (1xRTL RC1)	CDMA2000	4.57	± 9.6
0042	CAB	IS-54 / IS-136 EDD (TDMA/EDM, PI/4-DOPSK, Halfrate)	AMPS	7.78	± 9.6
10044	CAA	IS-91/FIA/TIA-553 EDD (EDMA EM)	AMPS	0.00	± 9.6
10048	CAA	DECT (TDD TDMA/EDM GESK Full Slot 24)	DECT	13.80	± 9.6
10040	CAA	DECT (TDD, TDMA/EDM, GESK, Double Slot, 12)	DECT	10.79	+9.6
10056	CAA	LIMTS-TDD (TD-SCDMA 128 Mcns)	TD-SCDMA	11.01	+ 9.6
10058	DAC	EDGE-EDD (TDMA 8PSK TN 0-1-2-3)	GSM	6.52	+9.6
10050	CAB	IEEE 802 11b WIEi 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	CAD	IEEE 802 11a/b WiEi 5 GHz (OEDM, 6 Mbps)	WLAN	8.68	+9.6
10063	CAD	IEEE 802 11a/h WiFi 5 GHz (OEDM, 9 Mbps)	WLAN	8.63	+96
10064	CAD	IEEE 802 11a/b WiFi 5 GHz (OFDM, 12 Mbps)	WLAN	9.09	+96
10065	CAD	IEEE 802 11a/h WiFi 5 GHz (OFDM, 12 Mbps)	WLAN	9.00	+96
10066	CAD	IEEE 802 11a/h WiFi 5 CHz (OEDM, 10 Mbps)	WLAN	9.38	+96
10067	CAD	IEEE 802 11a/h WiFi 5 GHz (OEDM, 36 Mbps)	WLAN	10.12	+96
10068	CAD	IEEE 802 11a/h WiFi 5 GHz (OEDM, 88 Mbps)	WLAN	10.12	+96
10069	CAD	IEEE 802 11a/h WiFi 5 GHz (OFDM, 40 Mbps)	WLAN	10.56	+96
10071	CAB	IEEE 802 11g WiFi 2 4 GHz (DSSS/OEDM 9 Mbps)	WIAN	9.83	+96
10072	CAB	IEEE 802 11a WiFi 2.4 GHz (DSSS/OEDM, 12 Mbps)	WLAN	9.62	+96
10072	CAB	IEEE 802 11g WiFi 2.4 GHz (DSSS/OEDM, 12 Mbps)	WLAN	9.94	+96
10074	CAB	IEEE 802 11a WiFi 2.4 GHz (DSSS/OEDM, 10 Mbps)	WIAN	10.30	+96
10075	CAB	IEEE 802 11g WiFi 2.4 GHz (DSSS/OEDM, 36 Mbps)	WLAN	10.30	+96
0076	CAB	IEEE 802 11a WiFi 2.4 GHz (DSSS/OEDM, 48 Mbps)	WLAN	10.04	+ 9.6
0077	CAB	IEEE 802 11g WIEi 2 4 GHz (DSSS/OEDM 54 Mbps)	WLAN	11.00	+06
0081	CAB	CDMA2000 (1xRTT RC3)	CDMA2000	3.97	+96
0082	CAB	IS-54 / IS-136 EDD (TDMA/EDM_PI/4-DOPSK_Fullrate)	AMPS	4 77	+96
0090	DAC	GPRS-EDD (TDMA_GMSK_TN 0.4)	GSM	6.56	+ 9.6
0097	CAC	UMTS-FDD (HSDPA)	WCDMA	3.08	+96
0098	DAC	UMTS-EDD (HSUPA Subtest 2)	WCDMA	3.90	+ 9.6
10090	CAC	EDGE-EDD (TDMA 8PSK TN 0.4)	GSM	9.56	+96
0100	CAC	LTE-EDD (SC-EDMA 100% RB 20 MHz OPSK)		5.55	+9.6
00100	UNU	LIL-1 DD (00-1 DWA, 100 % ND, 20 WINZ, QFON)	LIE-FUU	0.07	1 9.0





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	L-111	an. em@earet.ac.en nup.//www.caret.ac.en			
10102	CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10103	DAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
10105	CAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-TDD	9.97	± 9.6 %
10108	CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-FDD	5.80	± 9.6 %
10109	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10111	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-FDD	5.75 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 %
10115	CAG	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	WLAN	8.46	± 9.6 %
10116	CAG	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	WLAN	8.15	± 9.6 %
10117	CAG	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	WLAN	8.07	± 9.6 %
10118	CAD	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
10140	CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10141	CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-FDD	6.53	± 9.6 %
10142	CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-FDD	6.35	± 9.6 %
10144	CAC	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-FDD	6.65	± 9.6 %
10145	CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-FDD	5.76	± 9.6 %
10146	CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-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	CAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-TDD	9.28	± 9.6 %
10153	CAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-TDD	10.05	± 9.6 %
10154	CAF	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-FDD	5.75	± 9.6 %
10155	CAF	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-FDD	5.79	± 9.6 %
10157	CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10158	CAE	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	5.82	± 9.6 %
10161	CAG	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10162	CAG	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-FDD	6.58	± 9.6 %
10166	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-FDD	5.46	±9.6%
10168	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.79	± 9.6 %
10169	CAG	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10170	CAG	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10172	CAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10173	CAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10174	CAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10176	CAF	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10177	CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10178	CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10180	CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10181	CAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10182	CAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10184	CAG	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10185	CAI	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-FDD	6.51	± 9.6 %
10186	CAG	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %

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10187	CAG LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10188	CAG LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10189	CAE LIE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10194	AAD IEEE 802.11n (HT Greenfield, 39 Mbps, BPSK)	WLAN	8.09	± 9.6 %
10195	CAE IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	WLAN	8.21	± 9.6 %
10196	CAE IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	WLAN	8.10	± 9.6 %
10197	AAE IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
10198	CAF IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	WLAN	8.27	± 9.6 %
10219	AAF LEEE 802.11n (HT Mixed, 7.2 MDps, BPSK)	WLAN	8.03	±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	CAD IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	WLAN	8.48	± 9.6 %
10224	CAD IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	WLAN	8.08	± 9.6 %
10225	CAD UMTS-FDD (HSPA+)	WCDMA	5.97	± 9.6 %
10220	CAD LITE-TDD (SC-FDMA, TRB, 1.4 MHz, 16-QAM)	LTE-TDD	9.49	+96%
10228	CAD LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-TDD	9.22	± 9.6 %
10229	DAC 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	CAD LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10233	CAD LIE-TDD (SC-FDMA, 1 RB, 5 MHz, 04-QAM)	LTE-TOD	9.21	+969
10235	CAD LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10236	CAD LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10237	CAD LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10238	CAB LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10239	CAB LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10240	CAB LTE-TOD (SC-FDMA, 1 KB, 15 MHZ, QPSK)		9.21	+9.6 9
10241	CAD ITE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 10-QAM)	LTE-TDD	9.86	± 9.6 %
10242	CAD LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-TDD	9.46	± 9.6 %
10244	CAD LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-TDD	10.06	± 9.6 %
10245	CAG LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-TDD	10.06	± 9.6 %
10246	CAG LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-TDD	9.30	± 9.6 %
10247	CAG LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-TDD	9.91	± 9.6 %
10248	CAG LIE-TOD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)		9.29	19.0 %
10249	CAG LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-OAM)	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	CAB LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-TDD	10.14	± 9.6 %
10255	CAB LTE-TDD (SC-FDMA, 50% RB, 15 MHZ, QPSK)		9.20	±9.69
10257	CAD LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.08	+969
10258	CAD LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-TDD	9.34	± 9.6 %
10259	CAD LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-TDD	9.98	± 9.6 %
10260	CAG LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-TDD	9.97	±9.6 %
10261	CAG LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-TDD	9.24	± 9.6 %
10262	CAG LIE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-TDD	9.83	± 9.6 %
10263	CAG LITE-TOD (SC-FDMA, 100% RB, 5 MHZ, 64-QAM)	LIE-IDD	0.22	±9.6 %
10265	CAG LTE-TDD (SC-FDMA, 100% RB, 10 MHz 16-OAM)	LTE-TDD	9.23	±969
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 %

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