SAR TEST REPORT

Applicant	ZTE Corporation
FCC ID	SRQ-ZTEA31
Product	LTE/WCDMA/GSM(GPRS) Multi-Mode Digital Mobile Phone
Model	ZTE Blade A31
Report No.	R2108A0673-S2V1
Issue Date	September 13, 2021

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **IEEE 1528- 2013, ANSI C95.1: 1992, IEEE C95.1: 1991.** The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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Version	Revision description	Issue Date
Rev.0	Initial issue of report.	September 1, 2021
Rev.1	Update data.	September 13, 2021
Note: This revised report (Report No. R2108A0673-S2V1) supersedes and replaces the previously issued report (Report No. R2108A0673-S2). Please discard or destroy the previously issued report and dispose of it accordingly.		

1 Test Laboratory

1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **TA technology (shanghai) co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein .Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2 Test facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

A2LA (Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform measurement.

1.3 Testing Location

Company:	TA Technology (Shanghai) Co., Ltd.
Address:	No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China
City:	Shanghai
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1.4 Laboratory Environment

Temperature	Min. = 18°C, Max. = 25 °C
Relative humidity	Min. = 30%, Max. = 70%
Ground system resistance	< 0.5 Ω
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

2 Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for the EUT are as follows:

Table 1: Highest Reported SAR

Mode	Highest Reported SAR (W/kg)		
	1g SAR Head	1g SAR Body-worn (Separation 15mm)	1g SAR Hotspot (Separation 10mm)
LTE FDD 12	0.13	0.34	0.63
LTE FDD 13	**0.22**	**0.47**	**0.71**
Date of Testing: August 13, 2021 ~ August 20, 2021 Date of Sample Received: August 11, 2021			
Note: 1. The device is in compliance with SAR for Uncontrolled Environment /General Population exposure limits (1.6 W/kg) specified in ANSI C95.1: 1992/IEEE C95.1: 1991, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013. 2. According to TCB workshop October, 2014 RF Exposure Prcedures Update (Overlappong LTE Bands): a) Main and Second Antenna SAR for LTE Band 17 (Frequency range: 704-716 MHz) is covered by LTE Band 12 (Frequency range 699-716 MHz) due to similar frequency range, same maximum tune up limit and same channel bandwidth. 3. All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.			

Table 2: Highest Simultaneous Transmission SAR

Exposure Configuration	1g SAR Head	1g SAR Body-worn (Separation 15mm)	1g SAR Hotspot (Separation 10mm)
Highest Simultaneous Transmission SAR (W/kg)	0.948	1.433	1.464
Note: The detail for simultaneous transmission consideration is described in chapter 10.4.			

This report only tests LTE Band12/13/17, and other test band refer to the SRTC report (Report No.: SRTC2021-9004(F)-21011203(H))

3 Description of Equipment under Test

Client Information

Applicant	ZTE Corporation
Applicant address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China
Manufacturer	ZTE Corporation
Manufacturer address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

General Technologies

Application Purpose	Original Grant
EUT Stage	Identical Prototype
Model	ZTE Blade A31
IMEI	864210051724516
Hardware Version	zf7A
Software Version	FLOW_JM_A31_V1.0
Antenna Type	Internal Antenna
Device Class	B
Power Class	LTE FDD 12/13/17: 3
Power Level	LTE FDD 12/13/17: max power
EUT Accessory	
Battery	Manufacturer: Guangdong Fenghua New Energy Co., Ltd. Model: Li3830T43P8h486375
Adapter 1	Manufacturer: Shenzhen Ruijing Industrial Co., Ltd Model: STC-A51D-Z
Adapter 2	Manufacturer: Dongguan Aohai Po wer Technology Co., Ltd. Model: STC-A51D-Z
Adapter 3	Manufacturer: HUIZHOU PUAN ELECTRONICS CO.,LTD Model: STC-A51D-Z
Earphone 1	Manufacturer: JUWEI ELECTRONICS CO.,LTD Model: JWEP1091-Z01
Earphone 2	Manufacturer: ShenZhen FDC Electronic Co.,Ltd Model: DEM-8A
USB Cable 1	Manufacturer: Dongguan Guojun Plastic Electronic Co.,Ltd Model: USB-MU5-B-70-M-L
USB Cable 2	Manufacturer: Shenzhen Yihuaxing Electronic Co.,Ltd Model: USB-MU5-B-70-M-L
Note: The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.	

Wireless Technology and Frequency Range

Wireless Technology		Modulation	Operating mode	Tx (MHz)
LTE	FDD 12	QPSK, 16QAM, 64QAM	Rel.12 /Category 5	699 ~ 716
	FDD 13			777 ~ 787
	FDD 17			704 ~ 716
	Does this device support Carrier Aggregation (CA) ☐Yes ☒No			
	Does this device support SV-LTE (1xRTT-LTE)? ☐Yes ☒No			

4 Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with FCC 47 CFR § 2.1093, IEEE 1528- 2013, ANSI C95.1: 1992, IEEE C95.1: 1991, the following FCC Published RF exposure KDB procedures:

IEC 62209-1

Reference Standards

KDB 248227 D01 802.11Wi-Fi SAR v02r02
KDB 447498 D01 General RF Exposure Guidance v06
KDB 648474 D04 Handset SAR v01r03
KDB 690783 D01 SAR Listings on Grants v01r03
KDB 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
KDB 865664 D02 RF Exposure Reporting v01r02
KDB 941225 D05 SAR for LTE Devices v02r05
KDB 941225 D05A LTE Rel.10 KDB Inquiry Sheet v01r02
KDB 941225 D06 Hotspot Mode v02r01

5 Operational Conditions during Test

5.1 Test Positions

5.1.1 Against Phantom Head

Measurements were made in “cheek” and “tilt” positions on both the left hand and right hand sides of the phantom.

The positions used in the measurements were according to IEEE 1528 - 2013 "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques".

5.1.2 Body Worn Configuration

Body-worn operating configurations should be tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in normal use configurations.

Per FCC KDB Publication 648474 D04, Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB Publication 447498 D01 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are tested with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

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

5.2 Measurement Variability

Per FCC KDB Publication 865664 D01, SAR measurement variability was assessed for each frequency band, which was determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media were required for SAR measurements in a frequency band, the variability measurement procedures were applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. These additional measurements were repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device was returned to ambient conditions (normal room temperature) with the battery fully charged before it was re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR Measurement Variability was assessed using the following procedures for each frequency band:
1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.
2) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.
4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg

The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.

5.3 Test Configuration

5.3.1 LTE Test Configuration

LTE modes were tested according to FCC KDB 941225 D05 publication. Please see notes after the tabulated SAR data for required test configurations. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR. The R&S CMW500 was used for LTE output power measurements and SAR testing. Max power control was used so the UE transmits with maximum output power during SAR testing. SAR must be measured with the maximum TTI (transmit time interval) supported by the device in each LTE configuration.

A) Spectrum Plots for RB Configurations

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

B) MPR

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

C) A-MPR

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

D) Largest channel bandwidth standalone SAR test requirements

1) QPSK with 1 RB allocation

Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.

2) QPSK with 50% RB allocation

The procedures required for 1 RB allocation in 1) are applied to measure the SAR for QPSK with 50% RB allocation.

3) QPSK with 100% RB allocation

For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100% RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in 1) and 2) are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

4) Higher order modulations

For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in above sections to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is > ½ dB higher than the same

configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

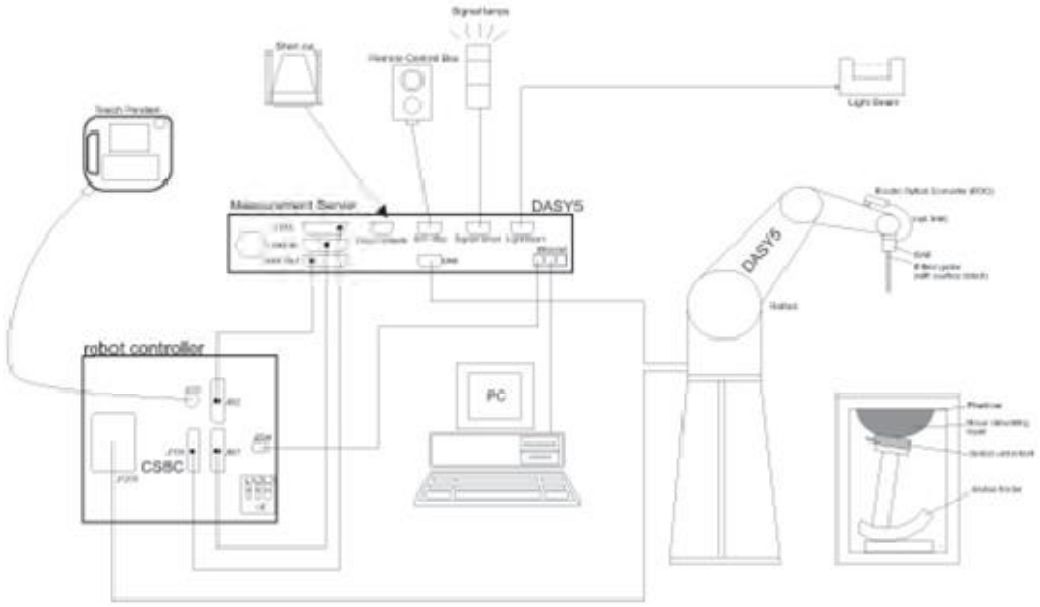
E) Other channel bandwidth standalone SAR test requirements

For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in section A) to determine the channels and RB configurations that need SAR testing and only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is > ½ dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg.

6 SAR Measurements System Configuration

6.1 SAR Measurement Set-up

The DASY system for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP or Win7 and the DASY software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

6.2 DASY5 E-field Probe System

The SAR measurements were conducted with the dosimetric probe EX3DV4 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation.

EX3DV4 Probe Specification

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available
Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2dB (noise: typically < 1 µW/g)
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure Scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.

E-field Probe Calibration

Each probe is calibrated according to a dosimetric assessment procedure with accuracy better than ± 10%. The spherical isotropy was evaluated and found to be better than ± 0.25dB. The sensitivity parameters (NormX, NormY, NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested.

The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies bellow 1 GHz, and in a wave guide 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.

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

SAR=C∆T/∆t

Where: ∆t = Exposure time (30 seconds),

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

∆T = Temperature increase due to RF exposure.

Or

SAR=|E|^{2}σ/ρ

Where: σ = Simulated tissue conductivity,

ρ = Tissue density (kg/m^3).

6.3 SAR Measurement Procedure

Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

Area Scan

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.
Area scan parameters extracted from FCC KDB 865664 D01 SAR measurement 100 MHz to 6 GHz.

	≤3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 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: ΔxArea, ΔyArea	≤ 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.	

Zoom Scan

Zoom scans are used assess the peak spatial SAR values within a cubic averaging volume containing 1 gram and 10 gram of simulated tissue. The zoom scan measures points (refer to table below) within a cube shoes base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the zoom scan evaluates the averaged SAR for 1 gram and 10 gram and displays these values next to the job's label.

Zoom scan parameters extracted from FCC KDB 865664 D01 SAR measurement 100 MHz to 6 GHz.

			≤3GHz	> 3 GHz
Maximum zoom scan spatial resolution: $\triangle x_{zoom} \triangle y_{zoom}$			≤2GHz: ≤8mm 2 – 3GHz: ≤5mm*	3 – 4GHz: ≤5mm* 4 – 6GHz: ≤4mm*
Maximum zoom scan spatial resolution, normal to phantom surface	Uniform grid: $\triangle z_{zoom}(n)$		≤5mm	3 – 4GHz: ≤4mm 4 – 5GHz: ≤3mm 5 – 6GHz: ≤2mm
	Graded grid	$\triangle z_{zoom}(1)$: between 1st two points closest to phantom surface	≤4mm	3 – 4GHz: ≤3mm 4 – 5GHz: ≤2.5mm 5 – 6GHz: ≤2mm
		$\triangle z_{zoom}(n>1)$: between subsequent points	≤1.5•$\triangle z_{zoom}(n-1)$	
Minimum zoom scan volume	X, y, z		≥30mm	3 – 4GHz: ≥28mm 4 – 5GHz: ≥25mm 5 – 6GHz: ≥22mm
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 ≤ 1.4W/kg, ≤8mm, ≤7mm and ≤5mm zoom scan resolution may be applied, respectively, for 2GHz to 3GHz, 3GHz to 4GHz and 4GHz to 6GHz.				

Volume Scan Procedures

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drifts more than 5%, the SAR will be retested.

7 Main Test Equipment

Name of Equipment	Manufacturer	Type/Model	Serial Number	Last Cal.	Cal. Due Date
Network analyzer	Agilent	E5071B	MY42404014	2021-05-15	2022-05-14
Dielectric Probe Kit	HP	85070E	US44020115	2021-05-15	2022-05-14
Power meter	Agilent	E4417A	GB41291714	2021-05-15	2022-05-14
Power sensor	Agilent	N8481H	MY50350004	2021-05-15	2022-05-14
Power sensor	Agilent	E9327A	US40441622	2021-05-15	2022-05-14
Dual directional coupler	Agilent	778D-012	50519	/	/
Amplifier	INDEXSAR	TPA-005060 G01	13030502	2021-05-15	2022-05-14
Wideband radio communication tester	R&S	CMW 500	113645	2021-05-15	2022-05-14
E-field Probe	SPEAG	EX3DV4	7628	2021-02-16	2022-02-15
DAE	SPEAG	DAE4	1317	2021-02-23	2022-02-22
Validation Kit 750MHz	SPEAG	D750V3	1045	2020-08-28	2023-08-27
Temperature Probe	Tianjin jinming	JM222	381	2021-05-15	2022-05-14
Hygrothermograph	Anymetr	HTC - 1	TY2020A001	2021-05-15	2022-05-14
Twin SAM Phantom	Speag	SAM1	1534	/	/
Software for Test	Speag	DASY52	/	/	/
Softwarefor Tissue	Agilent	85070	/	/	/

8 Tissue Dielectric Parameter Measurements & System Verification

8.1 Tissue Verification

The temperature of the tissue-equivalent medium used during measurement must also be within 18°C to 25°C and within ± 2°C of the temperature when the tissue parameters are characterized. The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements. The parameters should be re-measured after each 24 hours of use; or earlier if the dielectric parameters can become out of tolerance.

Target values

Frequency (MHz)	Water (%)	Salt (%)	Sugar (%)	Glycol (%)	Preventol (%)	Cellulose (%)	ε_r	σ(s/m)
750	41.448	1.452	56	0	0.1	1.0	41.9	0.89

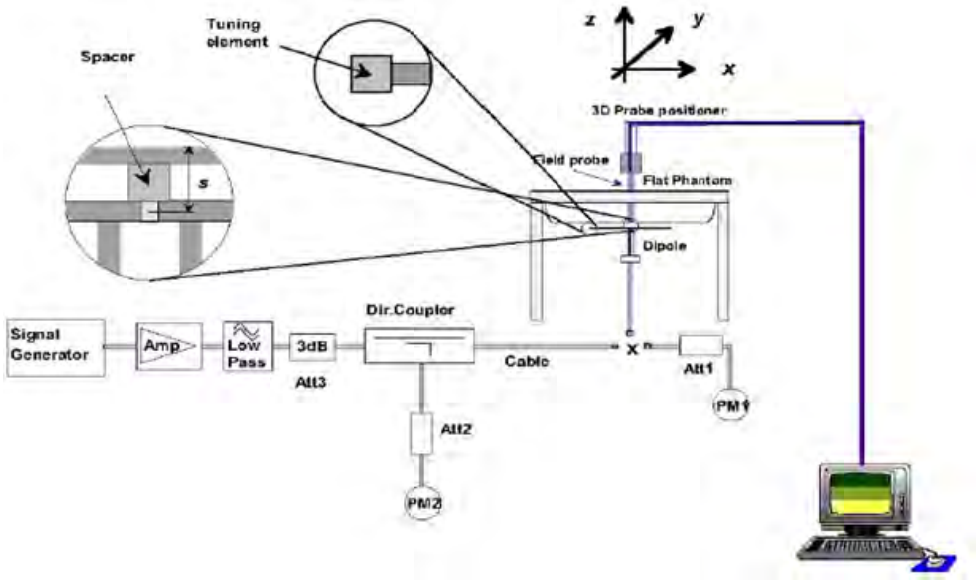
Measurements results

Frequency (MHz)	Test Date	Temp ℃	Measured Dielectric Parameters		Target Dielectric Parameters		Limit (Within ±5%)	
			ε_r	σ(s/m)	ε_r	σ(s/m)	Dev ε_r(%)	Dev σ(%)
750	8/15/2021	21.5	42.3	0.88	41.9	0.89	0.95	-1.12
Note: The depth of tissue-equivalent liquid in a phantom must be ≥ 15.0 cm for SAR measurements ≤ 3 GHz and ≥ 10.0 cm for measurements > 3 GHz.								

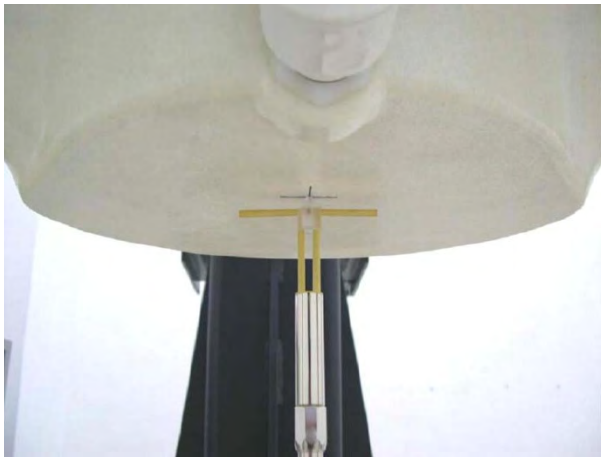
8.2 System Performance Check

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulates were measured using the dielectric probe kit and the network analyzer. A system check measurement for every day was made following the determination of the dielectric parameters of the Tissue simulates, using the dipole validation kit. The dipole antenna was placed under the flat section of the twin SAM phantom.

System check is performed regularly on all frequency bands where tests are performed with the DASY system.



Picture 1System Performance Check setup



Picture 2 Setup Photo

System Check results

Frequency (MHz)	Test Date	Temp ℃	250mW Measured SAR_{1g} (W/kg)	1W Normalized SAR_{1g} (W/kg)	1W Target SAR_{1g} (W/kg)	Δ % (Limit ±10%)	Plot No.
750	8/15/2021	21.5	2.13	8.52	8.37	1.79	1
Note: Target Values used derive from the calibration certificate Data Storage and Evaluation.							

8.3 SAR System Validation

Per FCC KDB 865664 D02v01, SAR system verification is required 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 are used with the required tissue-equivalent media for system validation, according to the procedures outlined in FCC KDB 865664 D01 and IEEE 1528-2013. Since SAR probe calibrations are frequency dependent, each probe calibration point must be 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, measurement frequencies, SAR probes, calibrated signal type(s) and tissue dielectric parameters has been included.

Frequency [MHz]	Date	Probe SN	Probe Type	Probe Cal Point		PERM (Er)	COND (Σ)	CW Validation			Mod. Validation		
								Sensitivity	Probe Linearity	Probe Isotropy	Mod. Type	Duty Factor	PAR
750	2/16/2021	7628	EX3DV4	750	Head	42.81	0.85	PASS	PASS	PASS	FDD	PASS	N/A

NOTE: While the probes have been calibrated for both CW and modulated signals, all measurements were performed using communication systems calibrated for CW signals only. Modulations in the table above represent test configurations for which the measurement system has been validated per FCC KDB Publication 865664D01v01 for scenarios when CW probe calibrations are used with other signal types. SAR systems were validated for modulated signals with a periodic duty cycle, such as GMSK, or with a high peak to average ratio (>5dB), such as OFDM according to KDB 865664.

9 Normal and Maximum Output Power

KDB 447498 D01 at the maximum rated output power and within the tune-up tolerance range specified for the product, but not more than 2 dB lower than the maximum tune-up tolerance limit.

9.1 LTE Mode

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (N_{RB})						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3

LTE FDD Band 12				Conducted Power(dBm)			Tune-up Limit
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			
				23017/699.7	23095/707.5	23173/715.3	
1.4MHz	QPSK	1	0	24.38	24.35	24.24	24.50
		1	2	24.33	24.37	24.23	24.50
		1	5	24.33	24.14	24.21	24.50
		3	0	24.28	24.23	24.10	24.50
		3	2	24.14	24.26	23.96	24.50
		3	3	24.17	23.98	24.15	24.50
		6	0	23.28	23.30	23.05	24.00
	16QAM	1	0	23.20	23.28	23.35	24.00
		1	2	23.18	23.13	23.52	24.00
		1	5	23.59	23.50	22.51	24.00
		3	0	23.39	23.32	23.40	24.00
		3	2	23.32	23.18	23.29	24.00
		3	3	23.20	23.26	23.30	24.00
		6	0	22.20	22.25	22.20	23.00
	64QAM	1	0	22.41	22.38	22.19	23.00
		1	2	22.14	21.94	22.02	23.00
		1	5	22.09	22.04	22.04	23.00
		3	0	22.26	22.13	22.09	23.00
		3	2	22.14	22.03	21.98	23.00
		3	3	22.24	22.15	22.15	23.00
		6	0	21.02	21.18	21.35	22.00

Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				23025/700.5	23095/707.5	23165/714.5	
3MHz	QPSK	1	0	24.39	24.38	24.26	24.50
		1	7	24.32	24.41	24.28	24.50
		1	14	24.35	24.18	24.24	24.50
		8	0	23.38	23.35	23.23	24.00
		8	4	23.27	23.37	23.07	24.00
		8	7	23.27	23.11	23.26	24.00
		15	0	23.32	23.35	23.10	24.00
	16QAM	1	0	23.22	23.29	23.37	24.00
		1	7	23.21	23.15	23.56	24.00
		1	14	23.61	23.54	22.53	24.00
		8	0	22.51	22.46	22.53	23.00
		8	4	22.42	22.30	22.40	23.00
		8	7	22.30	22.38	22.43	23.00
		15	0	22.24	22.30	22.22	23.00
	64QAM	1	0	22.43	22.39	22.21	23.00
		1	7	22.17	21.96	22.04	23.00
		1	14	22.11	22.03	22.06	23.00
		8	0	21.38	21.27	21.22	22.00
		8	4	21.24	21.15	21.09	22.00
		8	7	21.34	21.27	21.28	22.00
		15	0	21.06	21.23	21.37	22.00

Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				23035/701.5	23095/707.5	23155/713.5	
5MHz	QPSK	1	0	24.38	24.34	24.24	24.50
		1	13	24.30	24.40	24.25	24.50
		1	24	24.32	24.13	24.20	24.50
		12	0	23.36	23.31	23.20	24.00
		12	6	23.24	23.32	23.03	24.00
		12	13	23.24	23.08	23.22	24.00
		25	0	23.30	23.31	23.05	24.00
	16QAM	1	0	23.17	23.27	23.35	24.00
		1	13	23.19	23.12	23.54	24.00
		1	24	23.58	23.50	22.50	24.00
		12	0	22.48	22.44	22.50	23.00
		12	6	22.39	22.25	22.36	23.00
		12	13	22.28	22.34	22.40	23.00
		25	0	22.21	22.25	22.18	23.00
	64QAM	1	0	22.38	22.37	22.19	23.00
		1	13	22.15	21.93	22.02	23.00
		1	24	22.12	22.02	22.07	23.00
		12	0	21.37	21.29	21.23	22.00

		12	6	21.22	21.12	21.08	22.00
		12	13	21.32	21.23	21.25	22.00
		25	0	21.03	21.18	21.33	22.00
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				23060/704	23095/707.5	23130/711	
10MHz	QPSK	1	0	**24.35**	24.30	24.21	24.50
		1	25	24.29	**24.36**	**24.23**	24.50
		1	49	24.30	24.12	24.17	24.50
		25	0	**23.33**	23.26	23.16	24.00
		25	13	23.22	**23.28**	23.00	24.00
		25	25	23.21	23.03	**23.18**	24.00
		50	0	**23.27**	23.26	23.01	24.00
	16QAM	1	0	23.26	23.23	23.30	24.00
		1	25	23.15	23.10	23.50	24.00
		1	49	23.56	23.47	22.48	24.00
		25	0	22.45	22.40	22.47	23.00
		25	13	22.36	22.23	22.33	23.00
		25	25	22.25	22.29	22.36	23.00
		50	0	22.19	22.21	22.15	23.00
	64QAM	1	0	22.36	22.33	22.14	23.00
		1	25	22.11	21.91	21.98	23.00
		1	49	22.06	21.96	22.01	23.00
		25	0	21.32	21.21	21.16	22.00
		25	13	21.18	21.08	21.02	22.00
		25	25	21.29	21.18	21.21	22.00
		50	0	21.01	21.14	21.30	22.00

LTE FDD Band 13				**Conducted Power(dBm)**			Tune-up Limit
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			
				23205/779.5	23230/782	23255/784.5	
5MHz	QPSK	1	0	23.77	23.93	23.80	24.50
		1	13	23.81	23.97	23.84	24.50
		1	24	23.94	24.10	23.97	24.50
		12	0	22.85	23.01	22.88	24.00
		12	6	22.72	22.88	22.75	24.00
		12	13	22.67	22.83	22.70	24.00
		25	0	22.76	22.92	22.79	24.00
	16QAM	1	0	23.18	23.34	23.21	24.00
		1	13	23.08	23.24	23.11	24.00
		1	24	22.92	23.08	22.95	24.00
		12	0	21.72	21.88	21.75	23.00
		12	6	21.68	21.84	21.71	23.00
		12	13	21.65	21.81	21.68	23.00

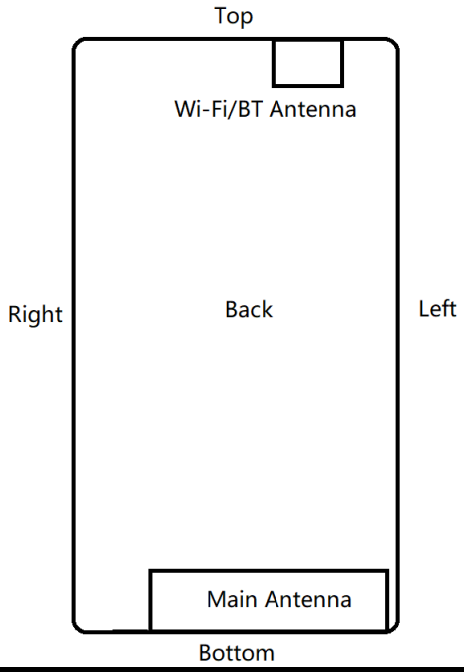
		25	0	21.69	21.85	21.72	23.00
	64QAM	1	0	21.73	21.89	21.76	23.00
		1	13	21.63	21.79	21.66	23.00
		1	24	21.66	21.82	21.69	23.00
		12	0	20.71	20.87	20.74	22.00
		12	6	20.53	20.69	20.56	22.00
		12	13	20.56	20.72	20.59	22.00
		25	0	20.44	20.60	20.47	22.00
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				/	23230/782	/	
10MHz	QPSK	1	0	/	23.96	/	24.50
		1	25	/	24.07	/	24.50
		1	49	/	**24.18**	/	24.50
		25	0	/	**23.07**	/	24.00
		25	13	/	22.94	/	24.00
		25	25	/	22.89	/	24.00
		50	0	/	**22.95**	/	24.00
	16QAM	1	0	/	23.41	/	24.00
		1	25	/	23.33	/	24.00
		1	49	/	23.13	/	24.00
		25	0	/	21.97	/	23.00
		25	13	/	21.91	/	23.00
		25	25	/	21.87	/	23.00
		50	0	/	21.91	/	23.00
	64QAM	1	0	/	21.92	/	23.00
		1	25	/	21.84	/	23.00
		1	49	/	21.87	/	23.00
		25	0	/	20.96	/	22.00
		25	13	/	20.76	/	22.00
		25	25	/	20.78	/	22.00
		50	0	/	20.66	/	22.00

LTE FDD Band 17				**Conducted Power(dBm)**			Tune-up Limit
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			
				23755/706.5	23790/710	23825/713.5	
5MHz	QPSK	1	0	24.23	24.34	24.21	24.50
		1	13	24.25	24.25	24.24	24.50
		1	24	24.14	24.19	24.28	24.50
		12	0	23.20	23.24	23.25	24.00
		12	6	23.25	23.17	23.08	24.00
		12	13	23.14	23.20	23.12	24.00
		25	0	23.17	23.14	23.09	24.00
	16QAM	1	0	23.70	23.46	23.51	24.00

		1	13	23.68	23.69	23.43	24.00
		1	24	23.65	23.44	23.38	24.00
		12	0	22.09	22.05	22.17	23.00
		12	6	22.19	22.17	22.13	23.00
		12	13	22.13	22.22	22.19	23.00
		25	0	22.08	22.19	22.11	23.00
	64QAM	1	0	22.03	21.95	22.01	23.00
		1	13	21.99	21.96	21.92	23.00
		1	24	21.88	22.02	21.95	23.00
		12	0	21.04	21.07	21.08	22.00
		12	6	21.32	21.22	21.10	22.00
		12	13	21.38	21.47	21.55	22.00
		25	0	21.32	21.35	21.24	22.00
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				23780/709	23790/710	23800/711	
10MHz	QPSK	1	0	24.21	**24.27**	24.19	24.50
		1	25	**24.25**	24.25	24.23	24.50
		1	49	24.11	24.17	**24.24**	24.50
		25	0	23.18	**23.20**	**23.22**	24.00
		25	13	**23.23**	23.13	23.05	24.00
		25	25	23.10	23.16	23.09	24.00
		50	0	**23.16**	23.07	23.04	24.00
	16QAM	1	0	23.45	23.43	23.46	24.00
		1	25	23.65	23.68	23.40	24.00
		1	49	23.63	23.39	23.36	24.00
		25	0	22.06	22.04	22.15	23.00
		25	13	22.15	22.14	22.09	23.00
		25	25	22.11	22.18	22.16	23.00
		50	0	22.06	22.15	22.08	23.00
	64QAM	1	0	21.98	21.88	21.96	23.00
		1	25	21.96	21.91	21.89	23.00
		1	49	21.82	21.97	21.93	23.00
		25	0	21.01	21.06	21.02	22.00
		25	13	21.28	21.19	21.06	22.00
		25	25	21.36	21.43	21.52	22.00
		50	0	21.30	21.31	21.21	22.00

10 Measured and Reported (Scaled) SAR Results

10.1 EUT Antenna Locations



Overall (Length x Width): 140 mm x 71 mm Overall Diagonal: 154 mm/Display Diagonal: 138mm						
Distance of the Antenna to the EUT surface/edge						
Antenna	Back Side	Front side	Left Edge	Right Edge	Top Edge	Bottom Edge
Main-Antenna	＜25mm	＜25mm	＜25mm	＜25mm	＞25mm	＜25mm
Hotspot mode, Positions for SAR tests						
Mode	Back Side	Front side	Left Edge	Right Edge	Top Edge	Bottom Edge
Main-Antenna	Yes	Yes	Yes	Yes	N/A	Yes

Note: 1. Per KDB 941225 D06, when the overall device length and width are ≥ 9cm*5cm, the test distance is 10mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge.

2. Per FCC KDB 447498 D01, for each exposure position, testing of other requised channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:

a) ≤0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100MHz

b) ≤0.6 W/kg or 1.5 W/kg, for1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz.

c) ≤ 0.4 W/kg or 1.0 Wkg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz.

3. When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.

4. Per FCC KDB Publication 648474 D04, SAR was evaluated without a headset connected to the device. Since the reported SAR was ≤ 1.2 W/kg, no additional SAR evaluations using a headset cable were required.

10.2 Measured SAR Results

Note: 1.The value with blue color is the maximum SAR Value of each test band.

2. For LTE, QPSK with 100% RB allocation, SAR is required when and the highest reported SAR for 1 RB and 50% RB allocation in are≥ 50% limit(1g).

Head

Band	Test Position	Dist. (mm)	Mode	RB	offset	Ch./Freq. (MHz)	Tune-up (dBm)	Measured power (dBm)	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR1g	Plot No.
LTE 12	Left cheek	0	QPSK	1	25	23095/707.5	24.50	24.36	0.114	0.119	1.03	0.118	/
		0	QPSK	50%	0	23060/704	24.00	23.33	0.082	0.108	1.17	0.096	/
	Left Tilt	0	QPSK	1	25	23095/707.5	24.50	24.36	0.059	0.000	1.03	0.061	/
		0	QPSK	50%	0	23060/704	24.00	23.33	0.045	0.020	1.17	0.053	/
	Right cheek	0	QPSK	1	25	23095/707.5	24.50	24.36	0.122	0.179	1.03	0.126	2
		0	QPSK	50%	0	23060/704	24.00	23.33	0.084	0.082	1.17	0.098	/
	Right Tilt	0	QPSK	1	25	23095/707.5	24.50	24.36	0.070	0.041	1.03	0.072	/
		0	QPSK	50%	0	23060/704	24.00	23.33	0.048	0.040	1.17	0.056	/
LTE 13	Left cheek	0	QPSK	1	49	23230/782	24.50	24.18	0.172	0.068	1.08	0.185	/
		0	QPSK	50%	0	23230/782	24.00	23.07	0.134	0.101	1.24	0.166	/
	Left Tilt	0	QPSK	1	49	23230/782	24.50	24.18	0.105	0.170	1.08	0.113	/
		0	QPSK	50%	0	23230/782	24.00	23.07	0.082	0.036	1.24	0.101	/
	Right cheek	0	QPSK	1	49	23230/782	24.50	24.18	0.200	0.100	1.08	0.215	3
		0	QPSK	50%	0	23230/782	24.00	23.07	0.164	0.128	1.24	0.203	/
	Right Tilt	0	QPSK	1	49	23230/782	24.50	24.18	0.155	0.070	1.08	0.167	/
		0	QPSK	50%	0	23230/782	24.00	23.07	0.120	0.058	1.24	0.149	/

Body-Worn

Band	Test Position	Dist. (mm)	Mode	RB	offset	Ch./Freq. (MHz)	Tune-up (dBm)	Measured power (dBm)	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR1g	Plot No.
LTE 12	Back Side	15	QPSK	1	25	23095/707.5	24.50	24.36	0.328	-0.110	1.03	0.339	4
		15	QPSK	50%	0	23060/704	24.00	23.33	0.249	0.020	1.17	0.291	/
	Front Side	15	QPSK	1	25	23095/707.5	24.50	24.36	0.168	-0.190	1.03	0.174	/
		15	QPSK	50%	0	23060/704	24.00	23.33	0.121	-0.034	1.17	0.141	/
LTE 13	Back Side	15	QPSK	1	49	23230/782	24.50	24.18	0.433	-0.029	1.08	0.466	5
		15	QPSK	50%	0	23230/782	24.00	23.07	0.372	0.190	1.24	0.461	/
	Front Side	15	0.130	1	49	23230/782	24.50	24.18	0.243	-0.130	1.08	0.262	/
		15	QPSK	50%	0	23230/782	24.00	23.07	0.198	0.089	1.24	0.245	/

Hotspot

Band	Test Position	Dist. (mm)	Mode	RB	offset	Ch./Freq. (MHz)	Tune-up (dBm)	Measured power (dBm)	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR1g	Plot No.
LTE 12	Back Side	10	QPSK	1	25	23095/707.5	24.50	24.36	0.607	-0.100	1.03	0.627	6
		10	QPSK	50%	0	23060/704	24.00	23.33	0.522	0.046	1.17	0.609	/
	Front Side	10	QPSK	1	25	23095/707.5	24.50	24.36	0.209	0.035	1.03	0.216	/
		10	QPSK	50%	0	23060/704	24.00	23.33	0.146	0.067	1.17	0.170	/
	Left Edge	10	QPSK	1	25	23095/707.5	24.50	24.36	0.099	-0.068	1.03	0.102	/
		10	QPSK	50%	0	23060/704	24.00	23.33	0.062	-0.035	1.17	0.072	/
	Right Edge	10	QPSK	1	25	23095/707.5	24.50	24.36	0.187	0.036	1.03	0.193	/
		10	QPSK	50%	0	23060/704	24.00	23.33	0.099	0.024	1.17	0.116	/
	Bottom Edge	10	QPSK	1	25	23095/707.5	24.50	24.36	0.085	0.036	1.03	0.088	/
		10	QPSK	50%	0	23060/704	24.00	23.33	0.057	0.075	1.17	0.067	/
LTE 13	Back Side	10	QPSK	1	49	23230/782	24.50	24.18	0.658	-0.120	1.08	0.708	7
		10	QPSK	50%	0	23230/782	24.00	23.07	0.575	0.036	1.24	0.712	/
	Front Side	10	0.130	1	49	23230/782	24.50	24.18	0.216	0.032	1.08	0.233	/
		10	QPSK	50%	0	23230/782	24.00	23.07	0.217	-0.026	1.24	0.269	/
	Left Edge	10	QPSK	1	49	23230/782	24.50	24.18	0.061	-0.028	1.08	0.066	/
		10	QPSK	50%	0	23230/782	24.00	23.07	0.050	-0.050	1.24	0.062	/
	Right Edge	10	QPSK	1	49	23230/782	24.50	24.18	0.089	0.040	1.08	0.096	/
		10	QPSK	50%	0	23230/782	24.00	23.07	0.085	0.064	1.24	0.105	/
	Bottom Edge	10	QPSK	1	49	23230/782	24.50	24.18	0.145	-0.070	1.08	0.156	/
		10	QPSK	50%	0	23230/782	24.00	23.07	0.114	-0.040	1.24	0.141	/

10.3 Simultaneous Transmission Analysis

Simultaneous Transmission Configurations	Head	Body-worn	Hotspot
GSM + Bluetooth	Yes	Yes	Yes
WCDMA + Bluetooth	Yes	Yes	Yes
LTE + Bluetooth	Yes	Yes	Yes
GSM + Wi-Fi 2.4GHz	Yes	Yes	Yes
WCDMA + Wi-Fi 2.4GHz	Yes	Yes	Yes
LTE + Wi-Fi 2.4GHz	Yes	Yes	Yes
Wi-Fi 2.4GHz + Bluetooth	N/A	N/A	N/A

General Note:

1. The Scaled SAR summation is calculated based on the same configuration and test position.
2. Per KDB 447498 D01, simultaneous transmission SAR is compliant if,

i) Scalar SAR summation < 1.6W/kg, simultaneously transmission SAR measurement is not necessary.

ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. separation distance, mm), and the peak separation distance is determined from the square root of $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$, where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.

iii) If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.

The maximum SAR_{1g} Value for Main-Antenna

The maximum value partial comes from the SRTC report (Report No.: SRTC2021-9004(F)-21011203(H)).

SAR_{1g}(W/kg) / Test Position		GSM/WCDMA/LTE Antenna (Report No.: SRTC2021-9004(F)-21011203(H))	LTE FDD 12	LTE FDD 13	MAX. SAR_{1g}
Head	Left Cheek	0.440	0.118	0.185	0.440
	Left Tilt	0.239	0.061	0.113	0.239
	Right Cheek	0.585	0.126	0.215	0.585
	Right Tilt	0.268	0.072	0.167	0.268
Body worn	Back Side	1.353	0.339	0.466	1.353
	Front Side	0.961	0.174	0.262	0.961
Hotspot	Back Side	1.293	0.627	0.712	1.293
	Front Side	0.720	0.216	0.269	0.720
	Left Edge	0.360	0.102	0.066	0.360
	Right Edge	0.612	0.193	0.105	0.612
	Top Edge	0.000	0.000	0.000	0.000
	Bottom Edge	0.822	0.088	0.156	0.822

About Main- Antenna and Wi-Fi 2.4G/ Bluetooth

SAR_{1g}(W/kg) / Test Position		Main-antenna	Wi-Fi 2.4G (Report No.: SRTC2021-9004(F)-21011203(H))	Bluetooth (Report No.: SRTC2021-9004(F)-21011203(H))	MAX. ΣSAR_{1g}	
		1	2	3	1+2	1+3
Head	Left, Cheek	0.440	0.468	0.066	0.908	0.534
	Left, Tilt	0.239	0.450	0.045	0.689	0.495
	Right, Cheek	0.585	0.363	0.056	0.948	0.419
	Right, Tilt	0.268	0.345	0.040	0.613	0.385
Body worn	Back Side	1.353	0.080	0.019	1.433	0.099
	Front Side	0.961	0.062	0.001	1.023	0.063
Hotspot	Back Side	1.293	0.171	0.037	1.464	0.208
	Front Side	0.720	0.084	0.001	0.804	0.085
	Left Edge	0.360	0.460	0.001	0.820	0.461
	Right Edge	0.612	0.000	0.000	0.612	0.000
	Top Edge	0.000	0.101	0.001	0.101	0.102
	Bottom Edge	0.822	0.000	0.000	0.822	0.000

Note: 1.The value with blue color is the maximum ΣSAR_{1g} Value.

2.MAX. ΣSAR_{1g} =Unlicensed SAR_{MAX} +Licensed SAR_{MAX}

MAX. ΣSAR_{1g} =1.464 W/kg<1.6W/kg, so the Simultaneous transimition SAR with volum scan are not required for Bluetooth / Wi-Fi 2.4G and Main-Antenna.

11 Measurement Uncertainty

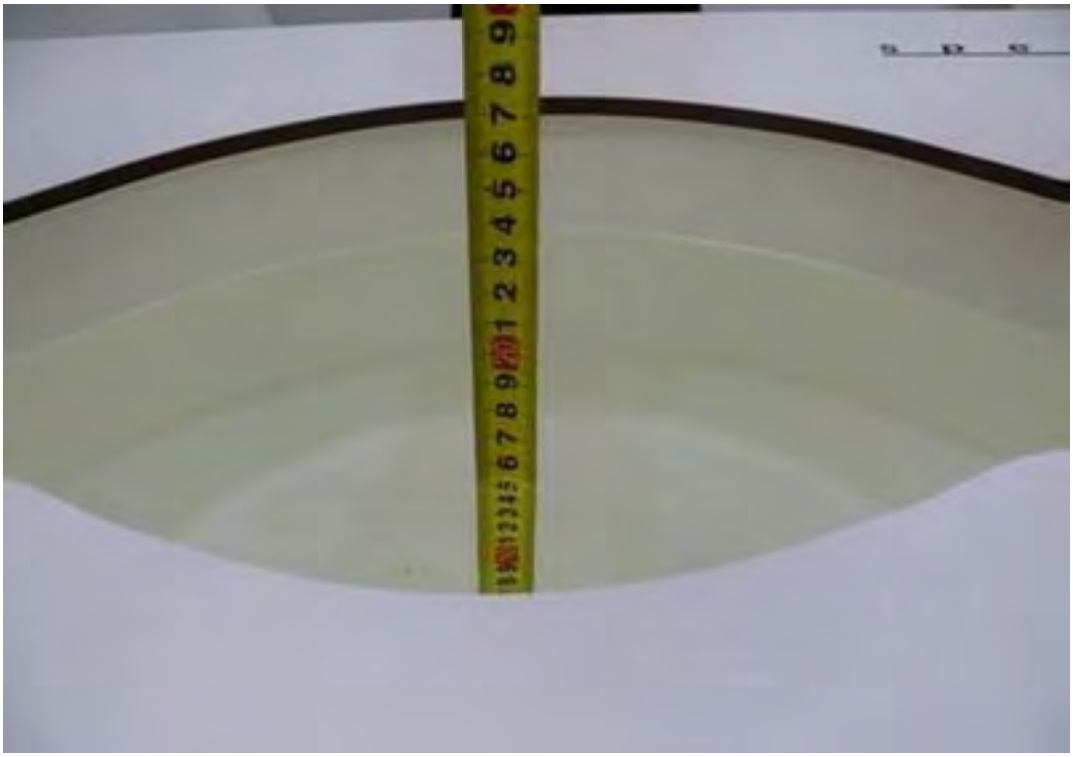
Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528- 2013 is not required in SAR reports submitted for equipment approval.

ANNEX A: Test Layout

Tissue Simulating Liquids

For the measurement of the field distribution inside the flat phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For Head and Body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Picture 3 and Picture 4.

Picture 3: liquid depth in the head Phantom



Picture 4: Liquid depth in the flat Phantom

ANNEX B: System Check Results

Plot 1 System Performance Check at 750 MHz TSL

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3

Date: 8/15/2021

Communication System:CW (0); Frequency: 750 MHz;Duty Cycle: 1:1

Medium parameters used: f = 750 MHz; σ = 0.88 S/m; ε_r = 42.3; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN7628; ConvF(10.48, 10.48, 10.48); Calibrated: 2/16/2021;

Electronics: DAE4 SN1317; Calibrated: 2/23/2021

Phantom: SAM 2; Type: SAM; Serial

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

d=15mm,Pin=250mW/Area Scan (4x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 2.29 W/kg

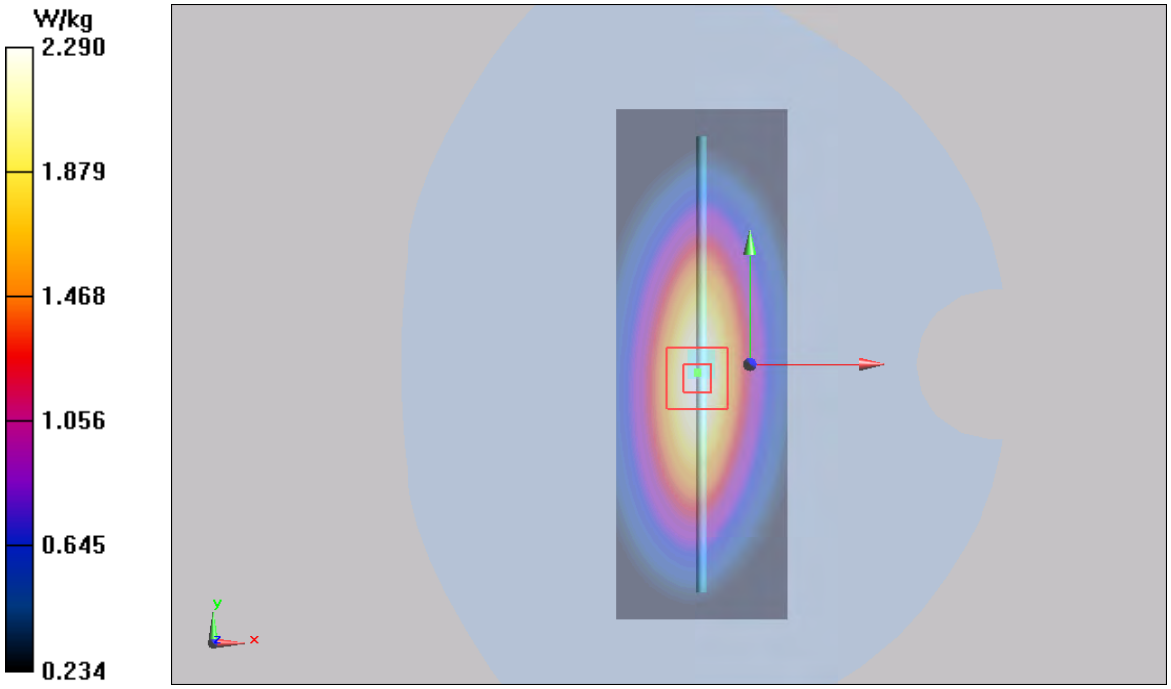
d=15mm,Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 50.653 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 3.16 W/kg

SAR(1 g) = 2.13 W/kg; SAR(10 g) = 1.41 W/kg

Maximum value of SAR (measured) = 2.29 W/kg



ANNEX C: Highest Graph Results

Plot 2 LTE Band 12 1RB Right Cheek Middle

Date: 8/15/2021

Communication System: UID 0, LTE (0); Frequency: 707.5 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.848 S/m; ε_r = 42.763; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN7628; ConvF(10.48, 10.48, 10.48); Calibrated: 2/16/2021;

Electronics: DAE4 SN1317; Calibrated: 2/23/2021

Phantom: SAM 2; Type: SAM; Serial

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Right Cheek Middle/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.124 W/kg

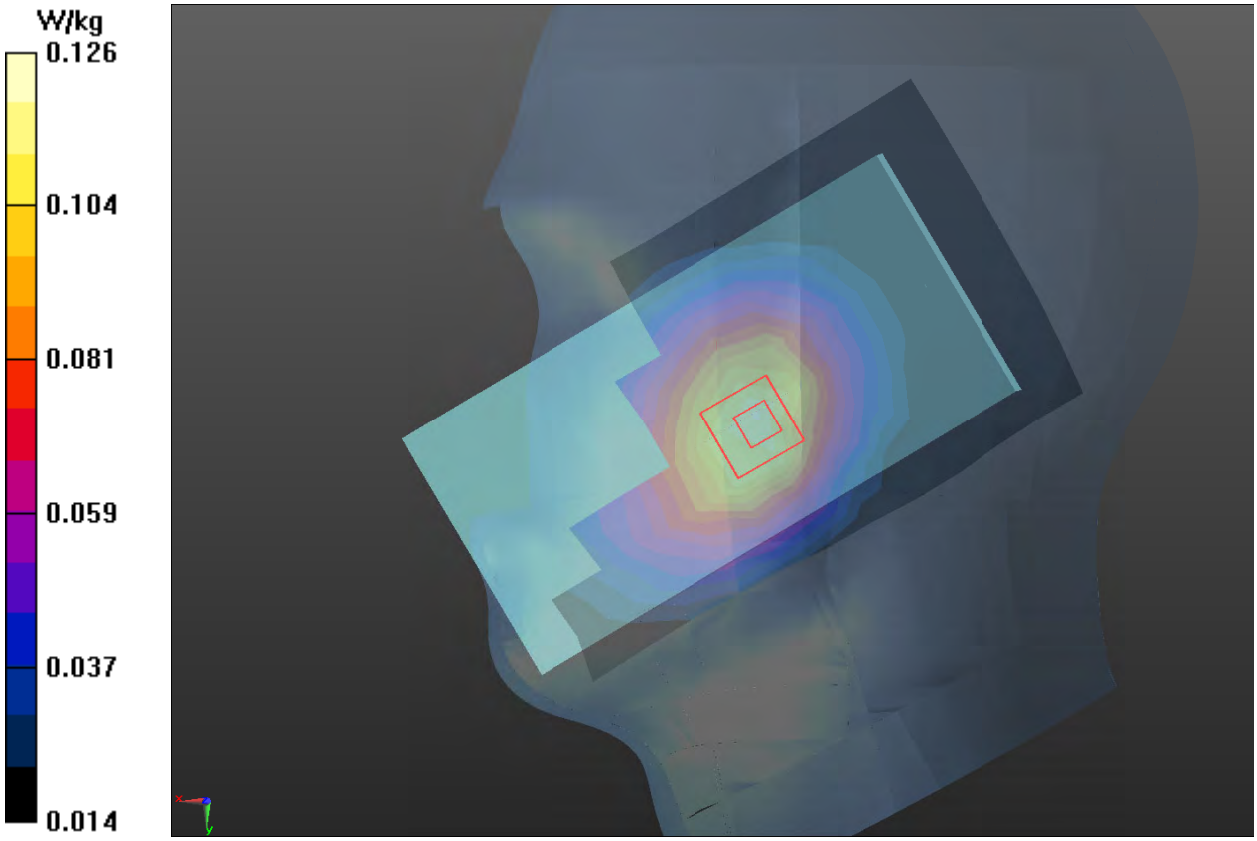
Right Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.686 V/m; Power Drift = 0.179 dB

Peak SAR (extrapolated) = 0.151 W/kg

SAR(1 g) = 0.122 W/kg; SAR(10 g) = 0.092 W/kg

Maximum value of SAR (measured) = 0.126 W/kg



Plot 3 LTE Band 13 1RB Right Cheek Middle

Date: 8/15/2021

Communication System: UID 0, LTE (0); Frequency: 782 MHz;Duty Cycle: 1:1

Medium parameters used: f = 782 MHz; σ = 0.887 S/m; ε_r = 42.079; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN7628; ConvF(10.48, 10.48, 10.48); Calibrated: 2/16/2021;

Electronics: DAE4 SN1317; Calibrated: 2/23/2021

Phantom: SAM 2; Type: SAM; Serial

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Right Cheek Middle/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.208 W/kg

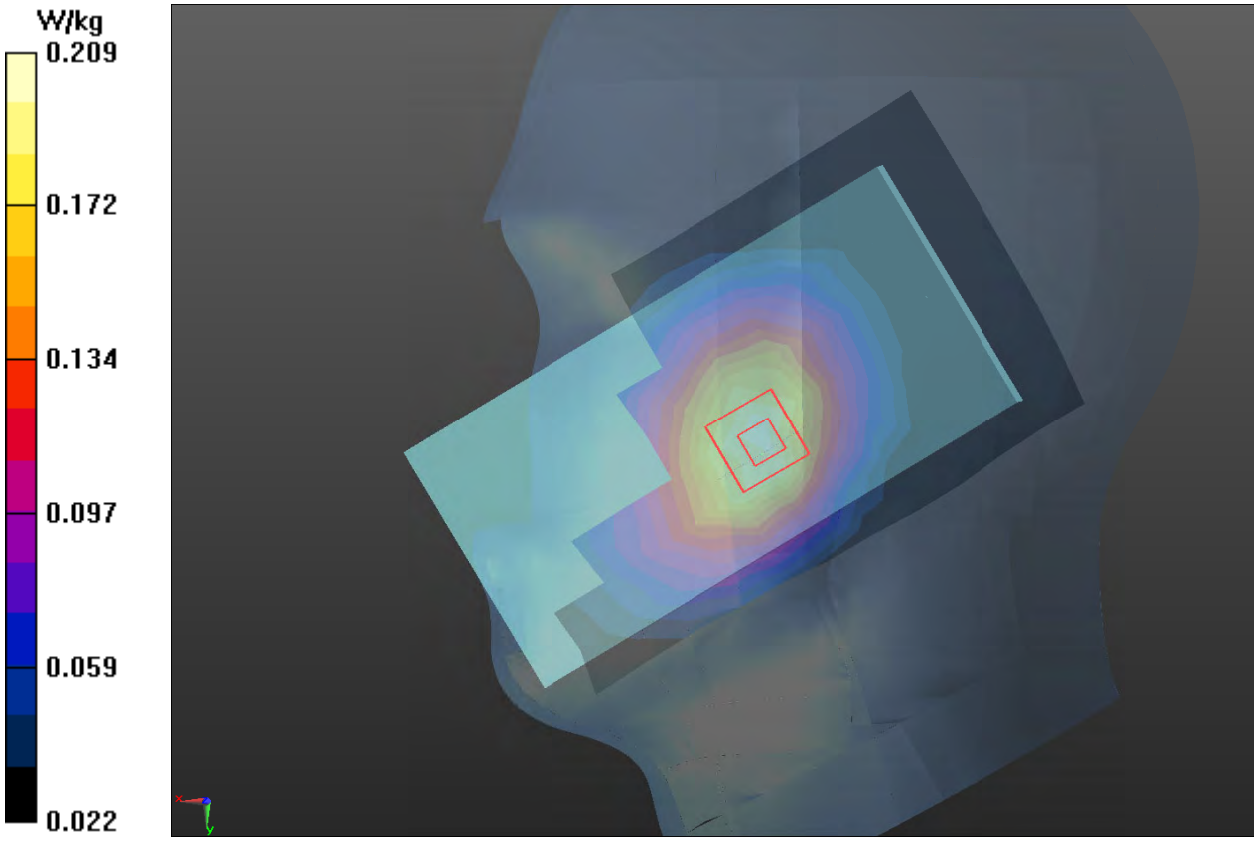
Right Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.187 V/m; Power Drift = 1.00 dB

Peak SAR (extrapolated) = 0.260 W/kg

SAR(1 g) = 0.200 W/kg; SAR(10 g) = 0.153 W/kg

Maximum value of SAR (measured) = 0.209 W/kg



Plot 4 LTE Band 12 1RB Back Side Middle (Distance 15mm)

Date: 8/15/2021

Communication System: UID 0, LTE (0); Frequency: 707.5 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.869 S/m; ε_r = 40.725; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN7628; ConvF(10.48, 10.48, 10.48); Calibrated: 2/16/2021;

Electronics: DAE4 SN1317; Calibrated: 2/23/2021

Phantom: SAM 2; Type: SAM; Serial

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Back Side Middle/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.34 W/kg

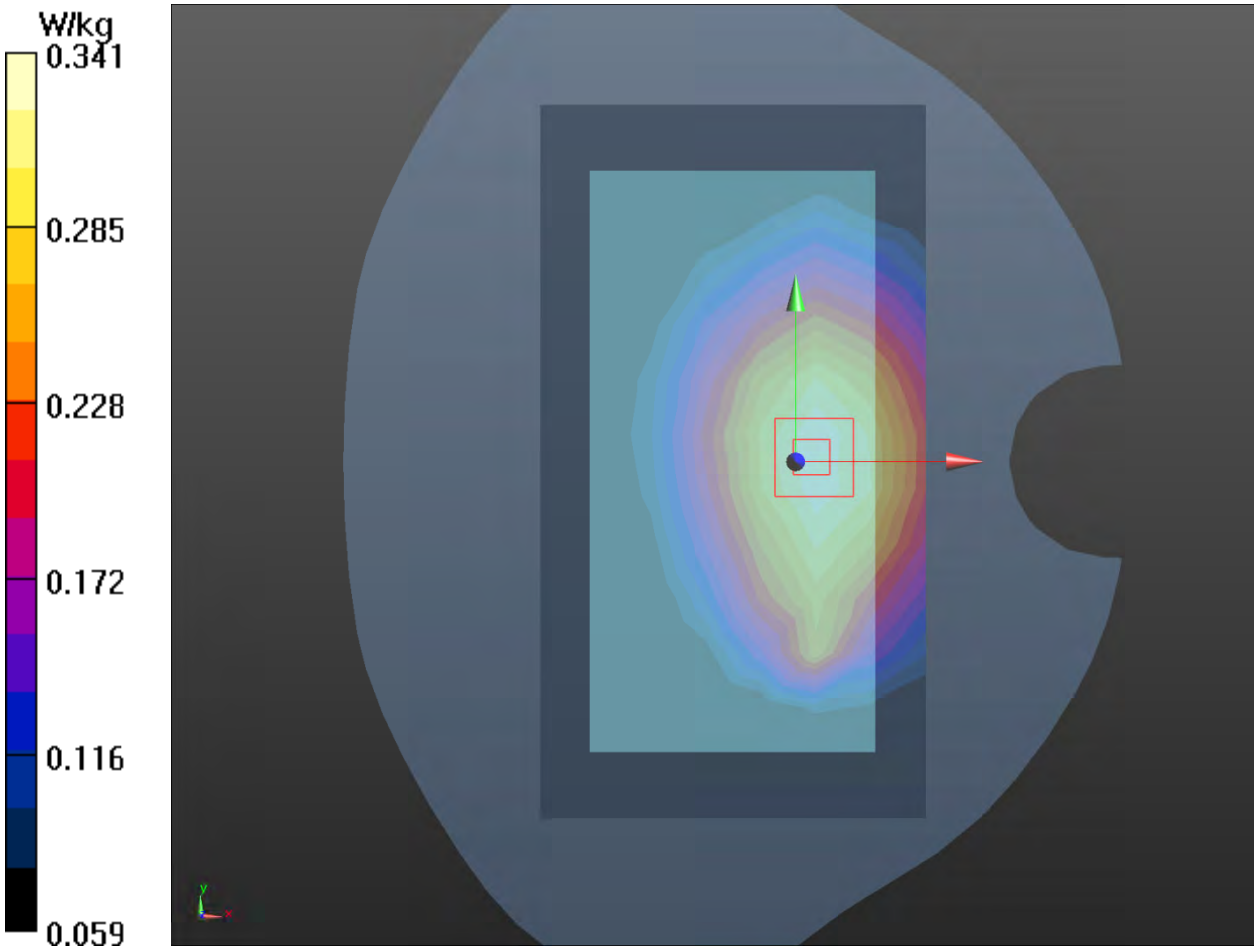
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.75 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 0.402 W/kg

SAR(1 g) = 0.328 W/kg; SAR(10 g) = 0.256 W/kg

Maximum value of SAR (measured) = 0.341 W/kg



Plot 5 LTE Band 13 1RB Back Side Middle (Distance 15mm)

Date: 8/15/2021

Communication System: UID 0, LTE (0); Frequency: 782 MHz;Duty Cycle: 1:1

Medium parameters used: f = 782 MHz; σ = 0.917 S/m; ε_r = 40.132; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN7628; ConvF(10.48, 10.48, 10.48); Calibrated: 2/16/2021;

Electronics: DAE4 SN1317; Calibrated: 2/23/2021

Phantom: SAM 2; Type: SAM; Serial

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Back Side Middle/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.443 W/kg

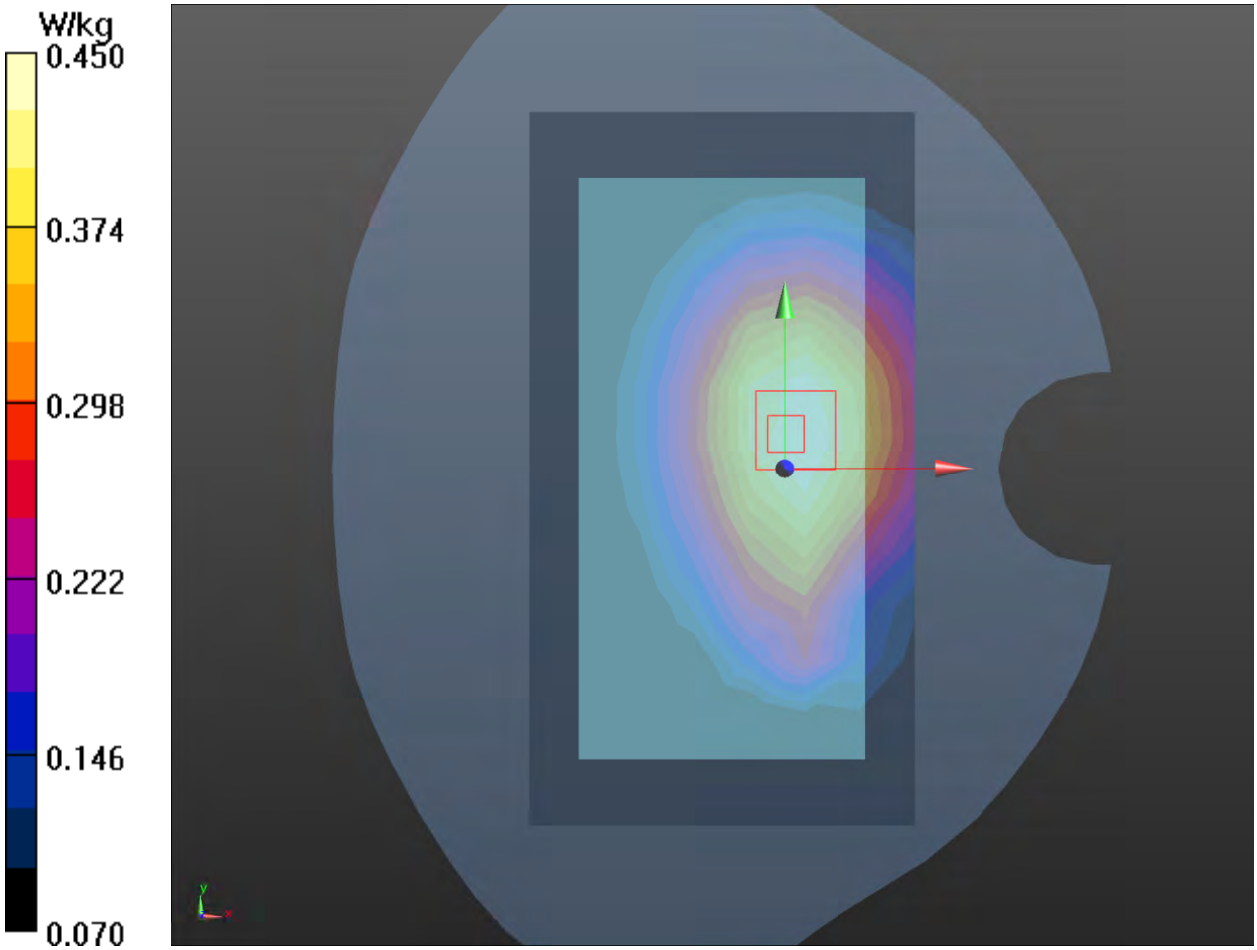
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 19.39 V/m; Power Drift = -0.029 dB

Peak SAR (extrapolated) = 0.551 W/kg

SAR(1 g) = 0.433 W/kg; SAR(10 g) = 0.328 W/kg

Maximum value of SAR (measured) = 0.450 W/kg



Plot 6 LTE Band 12 1RB Back Side Middle (Distance 10mm)

Date: 8/15/2021

Communication System: UID 0, LTE (0); Frequency: 707.5 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.869 S/m; ε_r = 40.725; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN7628; ConvF(10.48, 10.48, 10.48); Calibrated: 2/16/2021;

Electronics: DAE4 SN1317; Calibrated: 2/23/2021

Phantom: SAM 2; Type: SAM; Serial

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Back Side Middle/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.609 W/kg

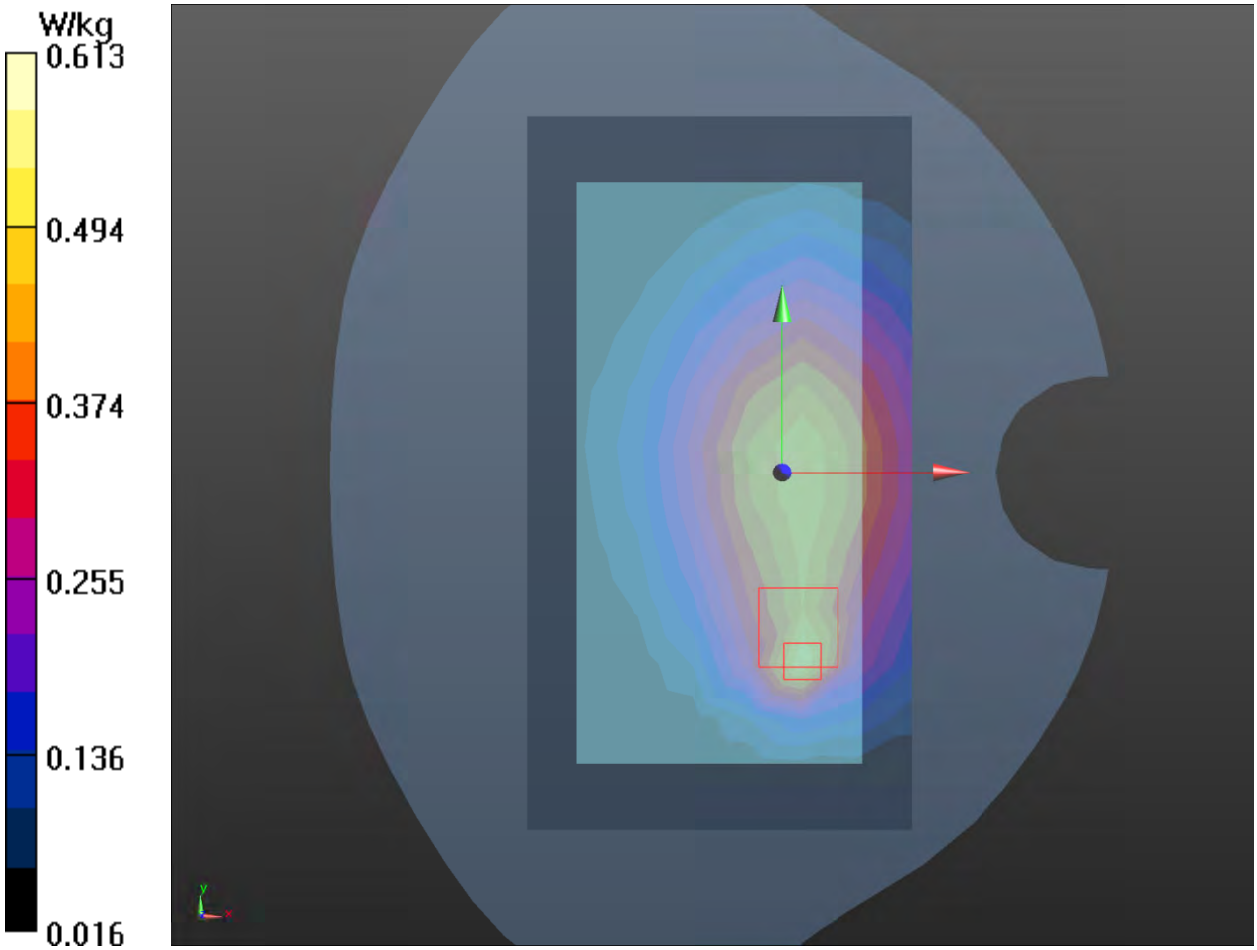
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 20.11 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.942 W/kg

SAR(1 g) = 0.607 W/kg; SAR(10 g) = 0.383 W/kg

Maximum value of SAR (measured) = 0.613 W/kg



Plot 7 LTE Band 13 1RB Back Side Middle (Distance 10mm)

Date: 8/15/2021

Communication System: UID 0, LTE (0); Frequency: 782 MHz;Duty Cycle: 1:1

Medium parameters used: f = 782 MHz; σ = 0.917 S/m; ε_r = 40.132; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN7628; ConvF(10.48, 10.48, 10.48); Calibrated: 2/16/2021;

Electronics: DAE4 SN1317; Calibrated: 2/23/2021

Phantom: SAM 2; Type: SAM; Serial

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Back Side Middle/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.695 W/kg

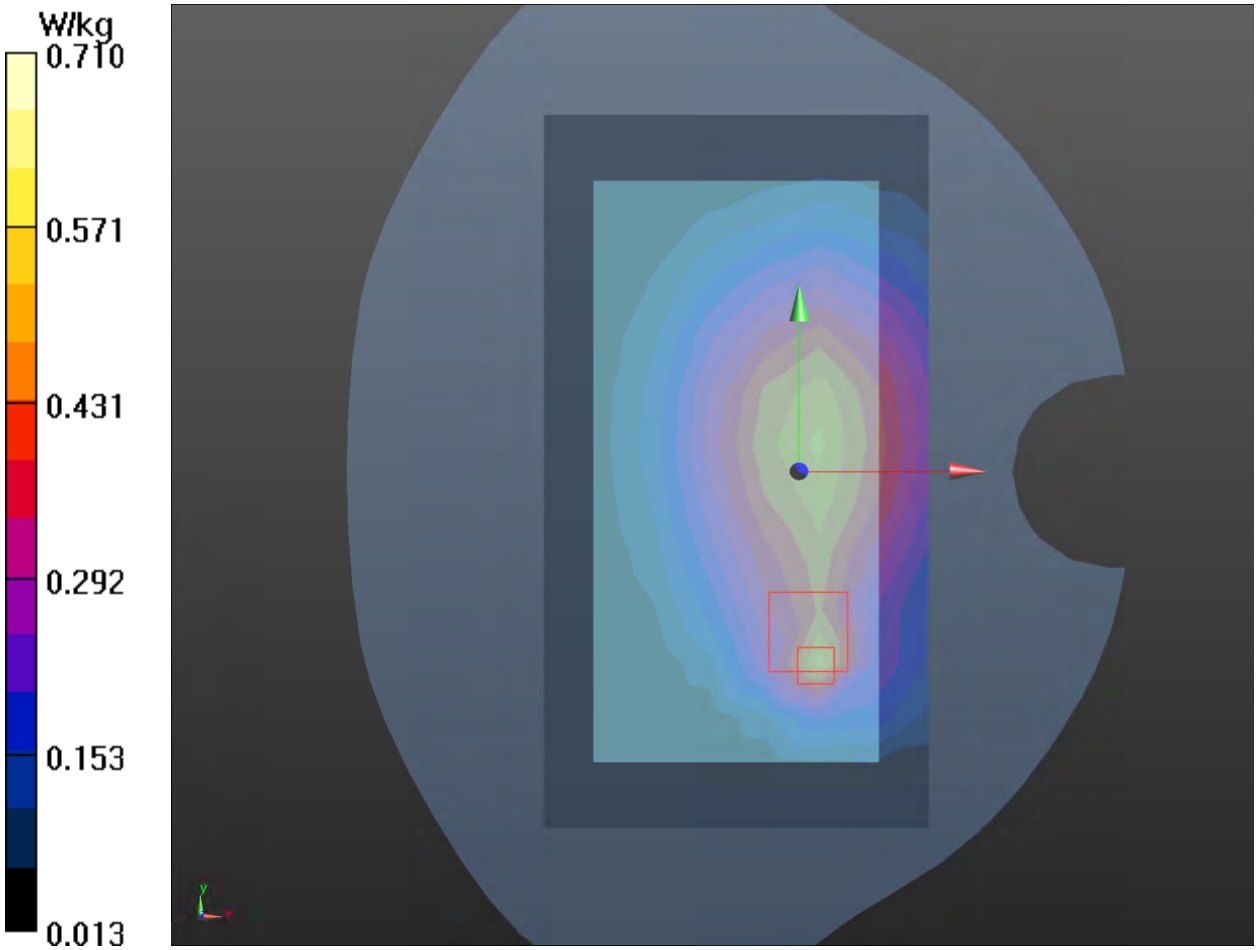
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 20.38 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.941 W/kg

SAR(1 g) = 0.658 W/kg; SAR(10 g) = 0.402 W/kg

Maximum value of SAR (measured) = 0.710 W/kg



ANNEX D: Probe Calibration Certificate

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

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

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

Accreditation No.: **SCS 0108**

Client **Auden** Certificate No: **EX3-7628_Feb21**

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:7628
Calibration procedure(s)	QA CAL-01.v9, QA CAL-14.v6, QA CAL-23.v5, QA CAL-25.v7 Calibration procedure for dosimetric E-field probes
Calibration date:	February 16, 2021

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	01-Apr-20 (No. 217-03100/03101)	Apr-21
Power sensor NRP-Z91	SN: 103244	01-Apr-20 (No. 217-03100)	Apr-21
Power sensor NRP-Z91	SN: 103245	01-Apr-20 (No. 217-03101)	Apr-21
Reference 20 dB Attenuator	SN: CC2552 (20x)	31-Mar-20 (No. 217-03106)	Apr-21
DAE4	SN: 660	23-Dec-20 (No. DAE4-660_Dec20)	Dec-21
Reference Probe ES3DV2	SN: 3013	30-Dec-20 (No. ES3-3013_Dec20)	Dec-21
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-20)	In house check: Jun-22
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-21

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

Issued: February 16, 2021

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., $\vartheta = 0$ 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 $\vartheta = 0$ ($f \leq 900$ 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 $f \leq 800$ 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).

EX3DV4 – SN:7628 February 16, 2021

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7628

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.61	0.56	0.61	± 10.1 %
DCP (mV)[B]	109.2	108.2	109.0	

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	149.4	± 2.7 %	± 4.7 %
		Y	0.00	0.00	1.00		155.2		
		Z	0.00	0.00	1.00		166.3		
10352-AAA	Pulse Waveform (200Hz, 10%)	X	1.78	61.75	7.06	10.00	60.0	± 2.9 %	± 9.6 %
		Y	1.55	60.76	6.50		60.0		
		Z	1.58	60.81	6.57		60.0		
10353-AAA	Pulse Waveform (200Hz, 20%)	X	0.85	60.00	5.15	6.99	80.0	± 2.3 %	± 9.6 %
		Y	0.85	60.00	5.03		80.0		
		Z	0.79	60.00	4.98		80.0		
10354-AAA	Pulse Waveform (200Hz, 40%)	X	0.44	60.00	4.18	3.98	95.0	± 2.5 %	± 9.6 %
		Y	8.00	70.00	7.00		95.0		
		Z	0.10	132.92	0.43		95.0		
10355-AAA	Pulse Waveform (200Hz, 60%)	X	0.26	60.00	3.63	2.22	120.0	± 1.6 %	± 9.6 %
		Y	10.15	157.55	9.99		120.0		
		Z	7.49	159.80	25.97		120.0		
10387-AAA	QPSK Waveform, 1 MHz	X	0.71	69.02	16.11	1.00	150.0	± 3.3 %	± 9.6 %
		Y	0.53	63.89	12.42		150.0		
		Z	0.53	63.57	12.67		150.0		
10388-AAA	QPSK Waveform, 10 MHz	X	1.60	69.56	15.90	0.00	150.0	± 1.1 %	± 9.6 %
		Y	1.33	66.14	13.93		150.0		
		Z	1.33	66.05	14.03		150.0		
10396-AAA	64-QAM Waveform, 100 kHz	X	1.78	65.59	16.29	3.01	150.0	± 1.0 %	± 9.6 %
		Y	1.71	64.82	15.85		150.0		
		Z	1.57	63.48	15.49		150.0		
10399-AAA	64-QAM Waveform, 40 MHz	X	2.93	67.49	15.80	0.00	150.0	± 1.4 %	± 9.6 %
		Y	2.81	66.48	15.12		150.0		
		Z	2.80	66.27	15.10		150.0		
10414-AAA	WLAN CCDF, 64-QAM, 40MHz	X	3.83	66.82	15.68	0.00	150.0	± 2.5 %	± 9.6 %
		Y	3.77	66.09	15.24		150.0		
		Z	3.92	66.64	15.56		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.

EX3DV4– SN:7628 February 16, 2021

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7628

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	8.5	59.16	31.40	4.05	0.00	4.90	0.60	0.00	1.00
Y	9.3	65.93	32.35	4.45	0.00	4.92	0.54	0.00	1.00
Z	9.2	65.89	32.86	1.60	0.00	4.90	0.18	0.00	1.00

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	-144.2
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

Note: Measurement distance from surface can be increased to 3-4 mm for an *Area Scan* job.

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:7628

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	41.9	0.89	10.48	10.48	10.48	0.43	0.80	± 12.0 %
835	41.5	0.90	10.15	10.15	10.15	0.46	0.80	± 12.0 %
900	41.5	0.97	9.77	9.77	9.77	0.51	0.86	± 12.0 %
1450	40.5	1.20	9.03	9.03	9.03	0.35	0.80	± 12.0 %
1750	40.1	1.37	8.76	8.76	8.76	0.28	0.86	± 12.0 %
1900	40.0	1.40	8.38	8.38	8.38	0.28	0.86	± 12.0 %
2000	40.0	1.40	8.29	8.29	8.29	0.37	0.88	± 12.0 %
2300	39.5	1.67	8.15	8.15	8.15	0.36	0.92	± 12.0 %
2450	39.2	1.80	8.01	8.01	8.01	0.27	0.92	± 12.0 %
2600	39.0	1.96	7.71	7.71	7.71	0.40	0.92	± 12.0 %
3300	38.2	2.71	7.24	7.24	7.24	0.30	1.35	± 13.1 %
3500	37.9	2.91	7.04	7.04	7.04	0.30	1.35	± 13.1 %
3700	37.7	3.12	7.00	7.00	7.00	0.35	1.35	± 13.1 %
3900	37.5	3.32	6.83	6.83	6.83	0.35	1.50	± 13.1 %
4100	37.2	3.53	6.73	6.73	6.73	0.35	1.50	± 13.1 %
4200	37.1	3.63	6.46	6.46	6.46	0.35	1.60	± 13.1 %
4400	36.9	3.84	6.39	6.39	6.39	0.35	1.60	± 13.1 %
4600	36.7	4.04	6.12	6.12	6.12	0.35	1.70	± 13.1 %
4800	36.4	4.25	6.16	6.16	6.16	0.40	1.80	± 13.1 %
4950	36.3	4.40	5.94	5.94	5.94	0.40	1.80	± 13.1 %
5250	35.9	4.71	5.51	5.51	5.51	0.40	1.80	± 13.1 %
5600	35.5	5.07	5.00	5.00	5.00	0.40	1.80	± 13.1 %
5750	35.4	5.22	4.95	4.95	4.95	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:7628

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)
6500	34.5	6.07	5.50	5.50	5.50	0.20	2.50	± 18.6 %
7000	33.9	6.65	5.60	5.60	5.60	0.25	2.50	± 18.6 %
8000	32.7	7.84	5.40	5.40	5.40	0.50	1.50	± 18.6 %
9000	31.5	9.08	5.35	5.35	5.35	0.50	1.80	± 18.6 %

[C] Frequency validity above 6GHz is ± 700 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies 6-10 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 ± 1% for frequencies below 3 GHz; below ± 2% for frequencies between 3-6 GHz; and below ± 4% for frequencies between 6-10 GHz at any distance larger than half the probe tip diameter from the boundary.

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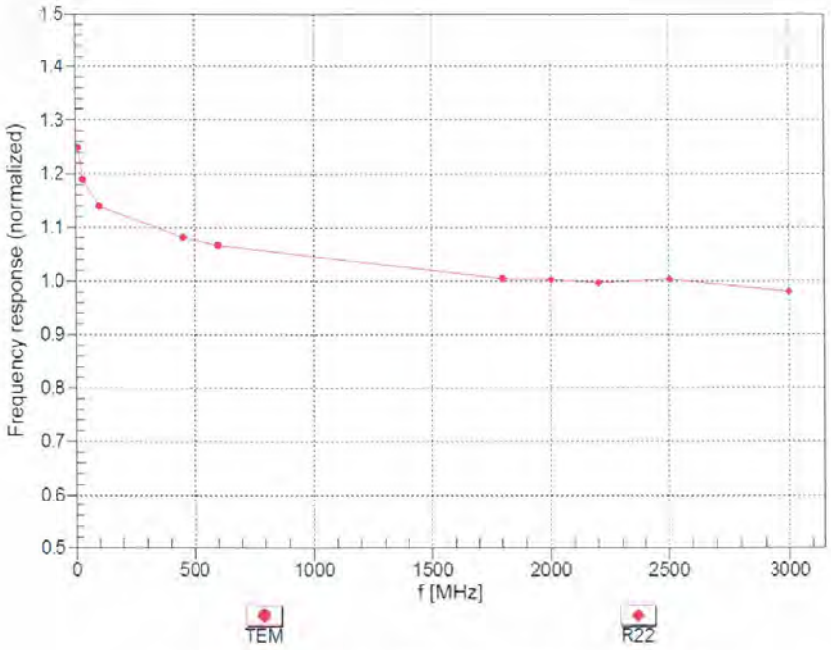
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



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

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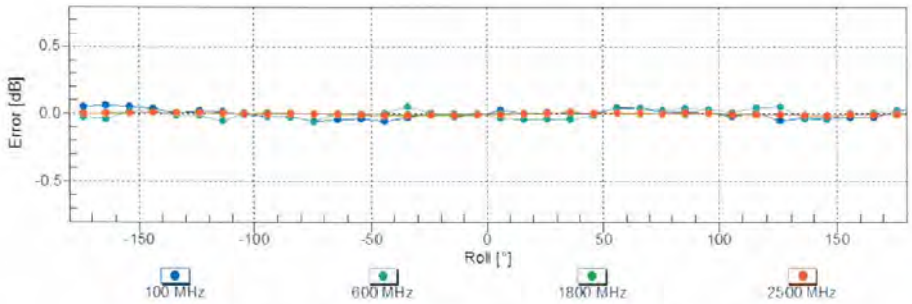
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM

f=1800 MHz,R22



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

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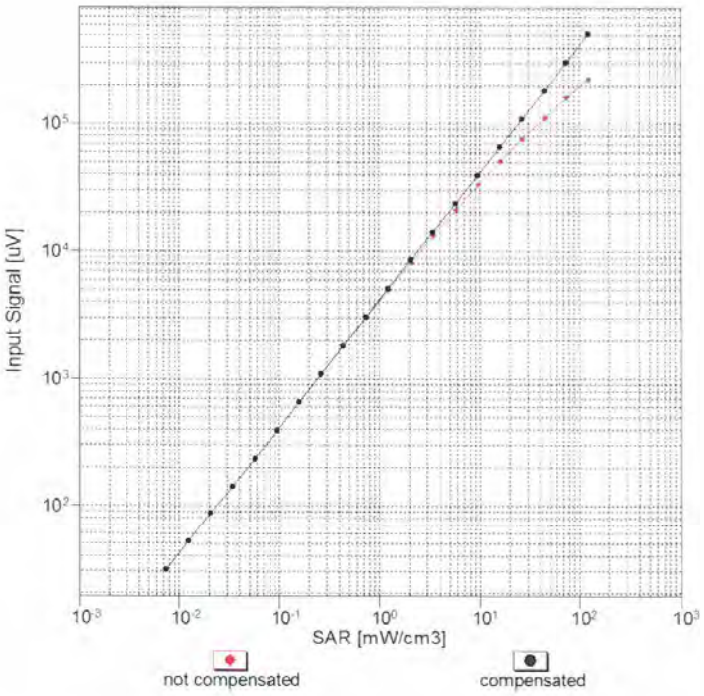
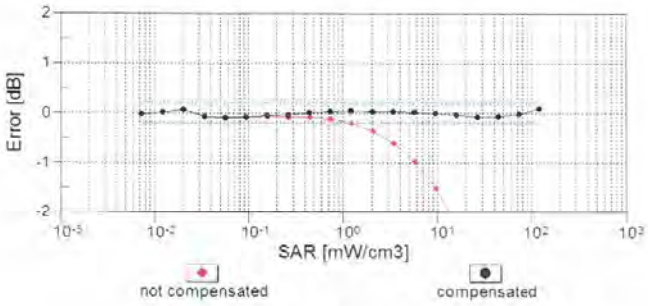
Dynamic Range f(SAR_{head})
(TEM cell , f_{eval}= 1900 MHz)





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

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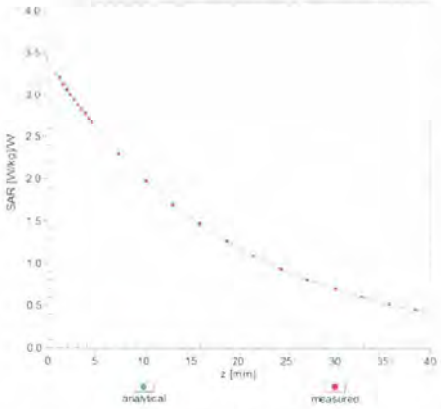
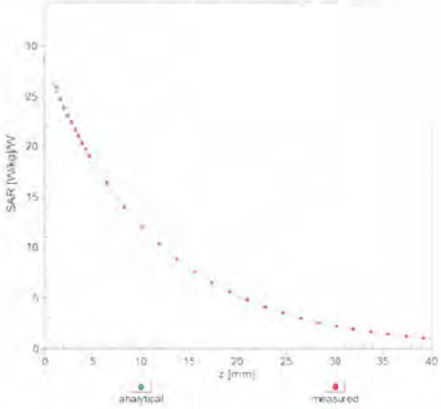
Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

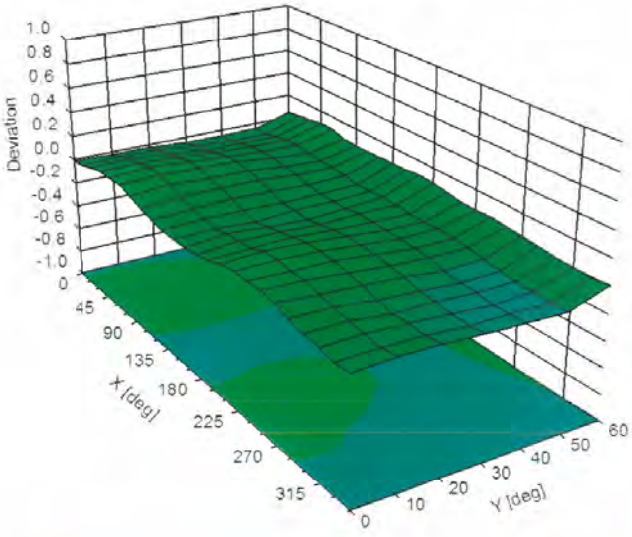


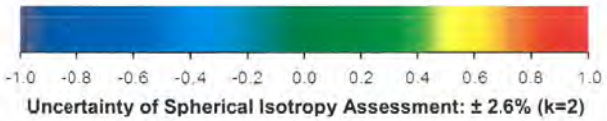
f = 1900 MHz,WGLS R22 (H_convF)



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	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	WLAN	8.68	± 9.6 %
10063	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	WLAN	8.63	± 9.6 %
10064	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	WLAN	9.09	± 9.6 %
10065	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	WLAN	9.00	± 9.6 %
10066	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	WLAN	9.38	± 9.6 %
10067	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	WLAN	10.12	± 9.6 %
10068	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	WLAN	10.24	± 9.6 %
10069	CAD	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	CAC	UMTS-FDD (HSDPA)	WCDMA	3.98	± 9.6 %
10098	DAC	UMTS-FDD (HSUPA, Subtest 2)	WCDMA	3.98	± 9.6 %

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10099	CAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	GSM	9.55	± 9.6 %
10100	CAC	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-FDD	5.67	± 9.6 %
10101	CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	± 9.6 %
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 %
10104	CAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-TDD	9.97	± 9.6 %
10105	CAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-TDD	10.01	± 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 %
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	CAG	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	WLAN	8.10	± 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	8.59	± 9.6 %
10119	CAD	IEEE 802.11n (HT Mixed, 135 Mbps, 64-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	5.73	± 9.6 %
10143	CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	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	6.41	± 9.6 %
10147	CAC	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	CAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-TDD	9.28	± 9.6 %
10152	CAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-TDD	9.92	± 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, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10156	CAF	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	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	6.56	± 9.6 %
10160	CAG	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	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 %
10167	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.21	± 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 %
10171	CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-FDD	6.49	± 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 %
10175	CAF	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-FDD	5.72	± 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 %
10179	AAE	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 %

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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 %
10183	CAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-FDD	6.50	± 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 %
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	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10193	CAE	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	WLAN	8.09	± 9.6 %
10194	AAD	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	WLAN	8.12	± 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	CAF	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	WLAN	8.03	± 9.6 %
10220	AAF	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	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 %
10226	CAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.49	± 9.6 %
10227	CAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.26	± 9.6 %
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	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10234	CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
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-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10241	CAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.82	± 9.6 %
10242	CAD	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-TDD	9.86	± 9.6 %
10243	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	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-TDD	10.09	± 9.6 %
10249	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
10250	CAG	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	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)	LTE-TDD	9.20	± 9.6 %
10256	CAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.96	± 9.6 %
10257	CAD	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.08	± 9.6 %
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 %

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