

Part-0 SAR Characterization Report

Applicant Name : Getac Technology Corporation

Applicant Address : 5F., Building A, No. 209, Sec. 1, Nangang Rd., Nangang Dist., Taipei City,
115018, Taiwan

Product Name : 5G/LTE data card

Brand Name : Telit

Model Number : FN990A28

FCC ID : QYLFN990ZX8

Report Number : USSC23O359001

Compliant Standards : FCC 47 CFR §2.1093

Sample Received Date : Apr. 26, 2024

Date of Testing : Apr. 26, 2024

Report Issue Date : May 03, 2024

The above equipment have been tested by **Eurofins E&E Wireless Taiwan Co., Ltd.**, and found compliance with the requirement of the above standards. The test record, data evaluation & Device Under Test (DUT) configurations represented herein are true and accurate accounts of the measurements of the sample's characteristics under the conditions specified in this report.

Note:

1. The test results are valid only for samples provided by customers and under the test conditions described in this report.
2. This report shall not be reproduced except in full, without the written approval of Eurofins E&E Wireless Taiwan Co., Ltd.
3. The relevant information is provided by customers in this test report. According to the correctness, appropriateness or completeness of the information provided by the customer, if there is any doubt or error in the information which affects the validity of the test results, the laboratory does not take the responsibility.

Approved By :



Ted Fu / Assistant Manager

Table of Contents

Revision History	3
1. Information of Testing Laboratory	4
2. Device Under Test Information	5
3. SAR Measurement System	7
3.1. Definition of Specific Absorption Rate (SAR)	7
3.2. SPEAG DASY8 System	7
3.3. SAR Measurement Procedure	8
3.3.1. Area Scan and Zoom Scan Procedure	8
3.3.2. Power Drift Monitoring	9
3.3.3. Spatial Peak SAR Evaluation.....	9
3.3.4. SAR Averaged Methods.....	10
4. SAR Characterization	11
4.1. DSI (Device State Index) and SAR Determination	11
4.2. SAR Design Target.....	11
4.3. SAR Characterization.....	12
4.4. SAR Test Result for Plimit Calculations.....	13
5. Equipment List	14
6. Measurement Uncertainty	15

1. Information of Testing Laboratory

Test Facilities

Company Name: Eurofins E&E Wireless Taiwan Co., Ltd.
 Address: No. 140-1, Changan Street, Bade District, Taoyuan City 334025, Taiwan
 Website: <https://www.atl.com.tw>
 Telephone: +886-3-271-0188
 Fax: +886-3-271-0190
 E-mail: infoEETW@eurofins.com

Test Site Location

- No. 140-1, Changan Street, Bade District, Taoyuan City 334025, Taiwan
 No. 2, Wuquan 5th Rd. Wugu Dist., New Taipei City, Taiwan

Laboratory Accreditation

Location	TAF	FCC	ISED
No. 140-1, Changan Street, Bade District, Taoyuan City 334025, Taiwan	Accreditation No.: 1330	Designation No.: TW0010	Company No.: 7381A CAB ID: TW1330
No. 2, Wuquan 5th Rd. Wugu Dist., New Taipei City, Taiwan	Accreditation No.: 1330	Designation No.: TW0034	Company No.: 28922 CAB ID: TW1330

2. Device Under Test Information

Product Name	5G/LTE data card	
Brand Name	Telit	
Model Name	FN990A28	
FCC ID	QYLFN990ZX8	
Host Information	Product Name: Tablet Trade Name: Getac Model Name: ZX80, ZX80Y(Y= 10 characters, Y can be 0 to 9, A to Z, a to z, "/", "\", "-", "_ " or blank for marketing purpose) All models are electrically identical, different model names are for marketing purpose.	
Supported Wireless Technologies	Tx Frequency (MHz)	Operating Mode
	WCDMA Band 2 : 1852.4 ~ 1907.6 Band 4 : 1712.4 ~ 1752.6 Band 5 : 826.4 ~ 846.6	UMTS Rel. 99 (Voice / Data) HSDPA (Rel. 5) HSUPA (Rel. 6) HSPA+ (Rel. 7) DC-HSDPA (Rel. 8)
	LTE Band 2 : 1850.7 ~ 1909.3 Band 4 : 1710.7 ~ 1754.3 Band 5 : 824.7 ~ 848.3 Band 7 : 2502.5 ~ 2567.5 Band 12 : 699.7 ~ 715.3 Band 13 : 779.5 ~ 784.5 Band 14 : 790.5 ~ 795.5 Band 17 : 706.5 ~ 713.5 Band 25 : 1850.7 ~ 1914.3 Band 26 : 814.7 ~ 848.3 Band 30 : 2307.5 ~ 2312.5 Band 38 : 2572.5 ~ 2617.5 Band 41 : 2498.5 ~ 2687.5 Band 42 : 3552.5 ~ 3597.5 Band 43 : 3652.5 ~ 3697.5 Band 48 : 3552.5 ~ 3697.5 Band 66 : 1710.7 ~ 1779.3 Band 71 : 665.5 ~ 695.5	QPSK, 16QAM, 64QAM, 256QAM
	5G NR FR1 n2 : 1852.5 ~ 1907.5 n5 : 826.5 ~ 846.5 n7 : 2502.5 ~ 2567.5 n25 : 1852.5 ~ 1912.5 n30 : 2307.5 ~ 2312.5 n38 : 2575 ~ 2615 n41 : 2501.01 ~ 2685, 2506.02 ~ 2679.99 n48 : 3555 ~ 3694.98 n66 : 1712.5 ~ 1777.5 n71 : 665.5 ~ 695.5 n77 : 3455.01 ~ 3645, 3705 ~ 3975 n78 : 3455.01 ~ 3544.98, 3705 ~ 3795	CP-OFDM $\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM DFT-s-OFDM QPSK, 16QAM, 64QAM, 256QAM
	WLAN 2.4G : 2412 ~ 2462 5G : 5180 ~ 5240, 5260 ~ 5320, 5500 ~ 5700, 5745 ~ 5825 6G : 5935 ~ 6415, 6435 ~ 6515, 6535 ~ 6875, 6895 ~ 7115	2.4G : 802.11b/g/n/ac/ax 5G : 802.11a/n/ac/ax 6G : 802.11a/ax
	Bluetooth 2402 ~ 2480	BR, EDR, LE

Note:

1. The above DUT information is declared by manufacturer and for more detailed features description please refers to the manufacturer’s specifications or User’s Manual.
2. This variant report due to only reduce n48 power, therefore SAR were evaluated accordingly for it.

Time-Averaging for SAR

This device is enabled with Qualcomm Smart Transmit algorithm to control and manage transmitting power in real time and to ensure that the time-averaged RF exposure from 3G/LTE/5G NR WWAN is in compliance with the requirements. This Part-0 report shows SAR characterization of WWAN radios for 3G/LTE/5G NR sub-6. The characterization is achieved by determining *P_{limit}* for 3G/LTE/5G NR sub-6 that corresponds to the exposure design targets after accounting for all device design related uncertainties. The SAR characterization is denoted as SAR Char in this report.

The compliance test under the static transmission scenario and simultaneous transmission analysis are reported in Part-1 report. The validation of the time-averaging algorithm and compliance under the dynamic (time-varying) transmission scenario for WWAN technologies are reported in Part-2 report.

Nomenclature for Part-0 Report

Technology	Term	Description
3G/LTE/5G NR	<i>P_{limit}</i>	Power level that corresponds to the exposure design target (<i>SAR_{design_target}</i>) after accounting for all device design related uncertainties
	<i>P_{max}</i>	Maximum tune up output power
	<i>SAR_{design_target}</i>	Target SAR level < SAR limit after accounting for all device design related uncertainties
	<i>SAR Char</i>	Table containing <i>P_{limit}</i> for all technologies and bands

3. SAR Measurement System

3.1. Definition of Specific Absorption Rate (SAR)

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person’s awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

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

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

SAR measurement can be related to the electrical field in the tissue by

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

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

3.2. SPEAG DASY8 System

The DASY8 system consists of high precision robot, probe alignment sensor, phantom, robot controller, controlled measurement server and near-field probe. The robot includes six axes that can move to the precision position of the DASY8 software defined. The DASY8 software can define the area that is detected by the probe. The robot is connected to controlled box. Controlled measurement server is connected to the controlled robot box. The DAE includes amplifier, signal multiplexing, AD converter, offset measurement and surface detection. It is connected to the Electro-optical coupler (EOC). The ECO performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC.

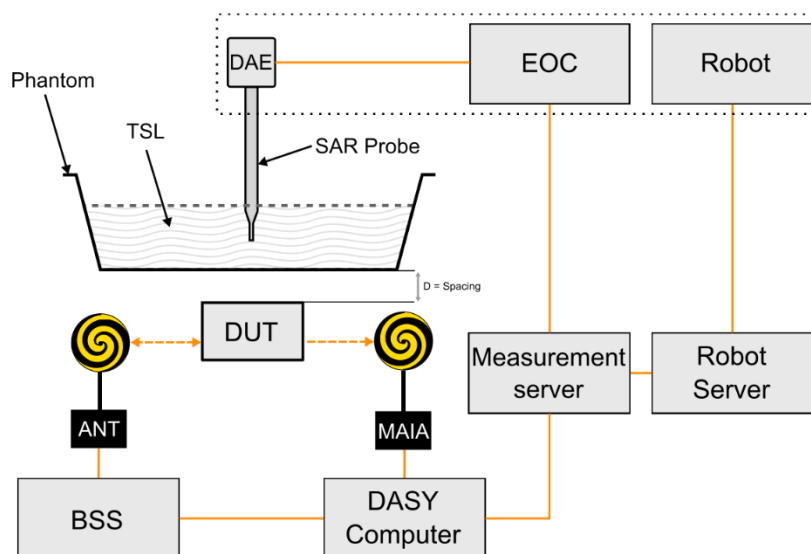


Fig-2.1 SPEAG DASY8 System Setup

3.3. SAR Measurement Procedure

According to the SAR test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

- (a) Power reference measurement
- (b) Area scan
- (c) Zoom scan
- (d) Power drift measurement

The SAR measurement procedures for each of test conditions are as follows:

- (a) Make DUT to transmit maximum output power
- (b) Measure conducted output power through RF cable
- (c) Place the DUT in the specific position of phantom
- (d) Perform SAR testing steps on the DASY system
- (e) Record the SAR value

3.3.1. Area Scan and Zoom Scan Procedure

First area scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an area scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, zoom scan is required. The zoom scan is performed around the highest E-field value to determine the averaged SAR-distribution.

Measure the local SAR at a test point at 1.4 mm of the inner surface of the phantom recommended by SEPAG. The area scan (two-dimensional SAR distribution) is performed cover at least an area larger than the projection of the DUT or antenna. The measurement resolution and spatial resolution for interpolation shall be chosen to allow identification of the local peak locations to within one-half of the linear dimension of the corresponding side of the zoom scan volume. Following table provides the measurement parameters required for the area scan.

Parameter	$f \leq 3$ GHz	3 GHz $< f \leq 6$ GHz
Maximum distance from closest measurement point to phantom surface	5 ± 1	$\delta \ln(2)/2 \pm 0.5$
Maximum probe angle from probe axis to phantom surface normal at the measurement location	$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
Maximum area scan spatial resolution: Δx_{Area} , Δy_{Area}	≤ 2 GHz: ≤ 15 mm $2 - 3$ GHz: ≤ 12 mm	$3 - 4$ GHz: ≤ 12 mm $4 - 6$ GHz: ≤ 10 mm

From the scanned SAR distribution, identify the position of the maximum SAR value, in addition identify the positions of any local maxima with SAR values within 2 dB of the maximum value that will not be within the zoom scan of other peaks. Additional peaks shall be measured only when the primary peak is within 2 dB of the SAR compliance limit (e.g. 1 W/kg for 1.6 W/kg, 1 g limit; or 1.26 W/kg for 2 W/kg, 10 g limit).

The zoom scan (three-dimensional SAR distribution) is performed at the local maxima locations identified in previous area scan procedure. The zoom scan volume must be larger than the required minimum dimensions. When graded grids are used, which only applies in the direction normal to the phantom surface, the initial grid separation closest to the phantom surface and subsequent graded grid increment ratios must satisfy the required protocols. The 1-g SAR averaging volume must be fully contained within the zoom scan measurement volume boundaries; otherwise, the measurement must be repeated by shifting or expanding the zoom scan volume. The similar requirements also apply to 10-g SAR measurements. Following table provides the measurement parameters required for the zoom scan.

Parameter		$f \leq 3$ GHz	$3 \text{ GHz} < f \leq 6$ GHz
Maximum zoom scan spatial resolution: $\Delta x_{\text{Zoom}}, \Delta y_{\text{Zoom}}$		≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm	3 – 4 GHz: ≤ 5 mm 4 – 6 GHz: ≤ 4 mm
Maximum zoom scan spatial resolution, normal to phantom surface	<i>uniform grid:</i> $\Delta z_{\text{Zoom}}(n)$	≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	<i>graded grids:</i> $\Delta z_{\text{Zoom}}(1)$	≤ 4 mm	3 – 4 GHz: ≤ 3.0 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2.0 mm
	$\Delta z_{\text{Zoom}}(n>1)$	$\leq 1.5 \cdot \Delta z_{\text{Zoom}}(n-1)$ mm	
Minimum zoom scan volume (x, y, z)		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

3.3.2. Power Drift Monitoring

All SAR testing is under the DUT 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 DUT 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 drift more than 5%, the SAR will be retested.

3.3.3. Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a “cube” measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

- (a) Extraction of the measured data (grid and values) from the Zoom Scan
- (b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
- (c) Generation of a high-resolution mesh within the measured volume
- (d) Interpolation of all measured values from the measurement grid to the high-resolution grid
- (e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
- (f) Calculation of the averaged SAR within masses of 1g and 10g

3.3.4. SAR Averaged Methods

In DASYS, the interpolation and extrapolation are both based on the modified Quadratic Shepard's method. The interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation.

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5 mm.

4. SAR Characterization

4.1. DSI (Device State Index) and SAR Determination

This device uses different Device State Index (DSI) to configure different time averaged power levels based on certain exposure scenarios. Depending on the detection scheme implemented in the DUT, the worst-case SAR was determined by measurements for the relevant exposure conditions for that DSI. Detailed descriptions of the detection mechanisms are included in the operational description document.

When 10g-SAR exposure comparison is needed, the worst-case was determined from SAR normalized to 10g SAR limit.

The device state index (DSI) conditions used in below represent different exposure scenarios.

Exposure Scenario	Description	SAR Test Cases
Body (DSI = 0)	Device positioned against to body	Body SAR tested with DUT at 0 mm

4.2. SAR Design Target

The *SAR_design_target* is determined by ensuring that it is less than SAR limit after accounting for total device designed related uncertainties specified by the manufacturer. The total uncertainties for this device is 1.0 dB. To account for total uncertainty, *SAR_design_target* is determined as below.

$$SAR_{design_target} < SAR_{regulatory\ limit} \times 10^{\frac{-Total\ Uncertainty}{10}}$$

For 1g-SAR, the SAR_{regulatory limit} is 1.6 W/kg, and the *SAR_design_target* is 0.95 W/kg.

4.3. SAR Characterization

SAR test results corresponding to P_{max} for each antenna/technology/band/DSI can be found in section 4.4.

The P_{limit} is calculated by linearly scaling with the measured SAR at the P_{max} to correspond to the SAR_{design_target} . The P_{limit} determination for each exposure scenario corresponding to SAR_{design_target} are show in below.

SAR Characterizations

DSI		0	Pmax (Maximum Tune-up Power, dBm)
Averaging Volume		1g	
Test Distance (mm)		0	
WWAN Bands	Tx Antenna	Plimit (dBm)	
5G NR n48	MIMO 1	21.4	21.5

Note :

3. When $P_{max} < P_{limit}$, the DUT will operate at a power level up to P_{max} .
4. All P_{limit} EFS and maximum tune up output power P_{max} levels entered in above Table correspond to average power levels after accounting for duty cycle in the case of TDD modulation schemes (e.g. LTE TDD).
5. Maximum tune-up output power P_{max} is used to configure DUT during RF tune-up procedure. The maximum allowed output power is equal to maximum Tune up output power +1.0 dB device design uncertainty.

4.4. SAR Test Result for Plimit Calculations

Band	Modulation	Test Position	Channel	RB Size	RB Offset	Antenna	Meas. Conducted Power (dBm)	Tune-up (dBm)	Duty Cycle Scaling Factor	SAR1 g (W/kg)	SAR Design Target	Plimit(With Duty Factor)	Minimum
NR Band n48	DFT-s QPSK40M	Rear Face	642888	1	1	Ant MIMO 1	19.41	19.5	1.000	0.476	0.95	21.4	21.4
NR Band n48	DFT-s QPSK40M	Left Side	642888	1	1	Ant MIMO 1	19.41	19.5	1.000	0.001	0.95	48.2	
NR Band n48	DFT-s QPSK40M	Right Side	642888	1	1	Ant MIMO 1	19.41	19.5	1.000	0.159	0.95	26.2	
NR Band n48	DFT-s QPSK40M	Top Side	642888	1	1	Ant MIMO 1	19.41	19.5	1.000	0.001	0.95	48.2	
NR Band n48	DFT-s QPSK40M	Bottom Side	642888	1	1	Ant MIMO 1	19.41	19.5	1.000	0.069	0.95	29.8	
NR Band n48	DFT-s QPSK40M	Rear Face	642888	50	28	Ant MIMO 1	19.34	19.5	1.000	0.439	0.95	21.7	
NR Band n48	DFT-s QPSK40M	Left Side	642888	50	28	Ant MIMO 1	19.34	19.5	1.000	0.001	0.95	48.1	
NR Band n48	DFT-s QPSK40M	Right Side	642888	50	28	Ant MIMO 1	19.34	19.5	1.000	0.142	0.95	26.6	
NR Band n48	DFT-s QPSK40M	Top Side	642888	50	28	Ant MIMO 1	19.34	19.5	1.000	0.001	0.95	48.1	
NR Band n48	DFT-s QPSK40M	Bottom Side	642888	50	28	Ant MIMO 1	19.34	19.5	1.000	0.053	0.95	30.9	
NR Band n48	DFT-s QPSK40M	Rear Face	642888	100	0	Ant MIMO 1	18.26	18.5	1.000	0.347	0.95	21.6	
NR Band n48	DFT-s QPSK40M	Rear Face	638000	1	1	Ant MIMO 1	19.39	19.5	1.000	0.477	0.95	21.4	
NR Band n48	DFT-s QPSK40M	Rear Face	640444	1	1	Ant MIMO 1	19.38	19.5	1.000	0.469	0.95	21.4	
NR Band n48	DFT-s QPSK40M	Rear Face	645332	1	1	Ant MIMO 1	19.30	19.5	1.000	0.395	0.95	22.1	

5. Equipment List

Manufacturer	Equipment	Model	Serial No.	Cal. Date	Cal. Interval
SPEAG	3500 MHz System Validation Kit	D3500V2	1013	Sep. 20, 2023	1 year
SPEAG	3700 MHz System Validation Kit	D3700V2	1034	Sep. 20, 2023	1 year
SPEAG	Dosimetric E-Field Probe	EX3DV4	7737	Jun. 05, 2023	1 year
SPEAG	Data Acquisition Electronics	DAE4	1743	Aug. 17, 2023	1 year
R&S	Spectrum Analyzer	FSV3044	101255	Nov. 30, 2023	1 year
Anritsu	Radio Communication Analyzer	MT8821C	6272459653	Aug. 16, 2023	1 year
Anritsu	Radio Communication Analyzer	MT8000A	6272466193	Aug. 16, 2023	1 year
Anritsu	Radio Communication Analyzer	MT8870A	6272488631	Sep. 11, 2023	1 year
Agilent	Wideband Radio Communication Tester	E5515C	GB47020167	Sep. 15, 2023	1 year
SPEAG	Dielectric Probe Kit	DAKS_VNA R140	0010318	May. 22, 2023	1 year
SPEAG	Dielectric Probe Kit	DAKS-3.5	1101	May. 23, 2023	1 year
SPEAG	POWERSOURCE1	SE UMS 160 CA	4244	May. 16, 2023	1 year
HILA	Digital Thermometer	TM-905A	2202674	Aug. 09, 2023	1 year
Agilent	Power Meter	EDM Series E4418B	GB40206143	May. 25, 2023	1 year
R&S	Power Sensor	NRP8S	111511	Nov. 30, 2023	1 year
R&S	Power Sensor	NRP8S	111512	Nov. 30, 2023	1 year
Testo	Thermometer	608-H1	83837934	Dec. 08, 2023	1 year

6. Measurement Uncertainty

SAR Uncertainty Budget for Frequency Range of 300 MHz to 3 GHz

Symbol	Error Description	Uncertainty (± %)	Probability Distribution	Div.	ci (1 g)	ci (10 g)	Standard Uncertainty (± %, 1g)	Standard Uncertainty (± %, 10g)
Measurement System Errors								
CF	Probe Calibration	12.0	N	2	1	1	6.0	6.0
CF _{drift}	Probe Calibration Drift	1.7	R	√3	1	1	1.0	1.0
LIN	Probe Linearity	4.7	R	√3	1	1	2.7	2.7
BBS	Broadband Signal	2.8	R	√3	1	1	1.6	1.6
ISO	Probe Isotropy	7.6	R	√3	1	1	4.4	4.4
DAE	Other Probe+Electronic	0.8	N	1	1	1	0.8	0.8
AMB	RF Ambient	0.7	N	1	1	1	0.7	0.7
Δ _{sys}	Probe Positioning	0.006	N	1	0.14	0.14	0.0	0.0
DAT	Data Processing	1.2	N	1	1	1	1.2	1.2
Phantom and Device Errors								
LIQ(σ)	Conductivity (meas.)DAK	2.5	N	1	0.78	0.71	2.0	1.8
LIQ(T _σ)	Conductivity (temp)BB	3.3	R	√3	0.78	0.71	1.5	1.4
EPS	Phantom Permittivity	14.0	R	√3	0	0	0.0	0.0
DIS	Distance DUT-TSL	2.0	N	1	2	2	4.0	4.0
D _{xyz}	Device Positioning	1.0	N	1	1	1	1.0	1.0
H	Device Holder	2.5	N	1	1	1	2.5	2.5
MOD	DUT Modulation	2.4	R	√3	1	1	1.4	1.4
TAS	Time-average SAR	1.7	R	√3	1	1	1.0	1.0
RF _{drift}	DUT drift	2.5	N	1	1	1	2.5	2.5
Correction to the SAR results								
C(ε, σ)	Deviation to Target	1.9	N	1	1	0.84	1.9	1.6
C(R)	SAR Scaling	0.0	R	√3	1	1	0.0	0.0
u(Δ SAR)	Combined Uncertainty					RSS	10.5	10.4
U	Expanded Uncertainty					k=2	21.0	20.8

SAR Uncertainty Budget for Frequency Range of 3 GHz to 6 GHz

Symbol	Error Description	Uncertainty (± %)	Probability Distribution	Div.	ci (1 g)	ci (10 g)	Standard Uncertainty (± %, 1g)	Standard Uncertainty (± %, 10g)
Measurement System Errors								
CF	Probe Calibration	13.1	N	2	1	1	6.55	6.55
CF _{drift}	Probe Calibration Drift	1.7	R	√3	1	1	1.0	1.0
LIN	Probe Linearity	4.7	R	√3	1	1	2.7	2.7
BBS	Broadband Signal	2.6	R	√3	1	1	1.5	1.5
ISO	Probe Isotropy	7.6	R	√3	1	1	4.4	4.4
DAE	Other Probe+Electronic	1.2	N	1	1	1	1.2	1.2
AMB	RF Ambient	0.7	N	1	1	1	0.7	0.7
Δ _{sys}	Probe Positioning	0.005	N	1	0.29	0.29	0.0	0.0
DAT	Data Processing	2.3	N	1	1	1	2.3	2.3
Phantom and Device Errors								
LIQ(σ)	Conductivity (meas.)DAK	2.5	N	1	0.78	0.71	2.0	1.8
LIQ(T _σ)	Conductivity (temp)BB	3.4	R	√3	0.78	0.71	1.5	1.4
EPS	Phantom Permittivity	14.0	R	√3	0.25	0.25	2.0	2.0
DIS	Distance DUT-TSL	2.0	N	1	2	2	4.0	4.0
D _{xyz}	Device Positioning	1.0	N	1	1	1	1.0	1.0
H	Device Holder	2.5	N	1	1	1	2.5	2.5
MOD	DUT Modulation	2.4	R	√3	1	1	1.4	1.4
TAS	Time-average SAR	1.7	R	√3	1	1	1.0	1.0
RF _{drift}	DUT drift	2.5	N	1	1	1	2.5	2.5
Correction to the SAR results								
C(ε, σ)	Deviation to Target	1.9	N	1	1	0.84	1.9	1.6
C(R)	SAR Scaling	0.0	R	√3	1	1	0.0	0.0
u(Δ SAR)	Combined Uncertainty					RSS	11.2	11.1
U	Expanded Uncertainty					k=2	22.4	22.2

***** End of Report *****