FCC SAR TEST REPORT

Client Name	:	Shenzhen Unison Technology Co., Ltd.
Address	:	QiaoHongSheng 219, Building A, YinTian Industrial Park, XiXiang Twon, Bao'An District, ShenZhen, 518000, China
Product Name	:	Walkie Talkies
Model No.	:	UT308
Date	:	Aug. 06, 2019

Shenzhen Anbotek Compliance Laboratory Limited

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TEST REPORT

Applicant	:	Shenzhen Unison Technology Co., Ltd.
Manufacturer	:	Shenzhen Unison Technology Co., Ltd.
Product Name	:	Walkie Talkies
Model No.	:	UT308
Trade Mark	:	UnisonTalkies
Rating(s)	:	DC 4.5V from battery

Test Standard(s) : IEEE 1528-2013; IEC 62209-2:2010;ANSI/IEEE C95.1:2005; FCC 47 CFR Part 2 (2.1093:2013);

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the IEEE 1528-2013, IEC 62209-2:2010, FCC 47 CFR Part 2 (2.1093:2013), ANSI/IEEE C95.1:2005 requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Receipt Aug. 03, 2019

Date of Test Aug. 05, 2019~ Aug. 05, 2019

Anbotek (SZ) Compliance Laboratory Limited * Approved *

Prepared By Bobby Wang

(Engineer / Bobby Wang)

Reviewer Snowy Meng

(Supervisor / Snowy Meng)

Approved & Authorized Signer Sally Zhang

(Manager / Sally Zhang)

Version

Version No.	Date	Description
01	Aug. 06, 2019	Original

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing are as follows.

<Highest SAR Summary>

Mode	Channel Separation	Frequency (MHz)	Position	Maximum Report SAR Results (W/kg)	
				100% duty cycle	50% duty cycle
FRS	12.5KHz	462.6375	Face-held	`	0.193
FRS	12.5KHz	462.6375	Body-Worn	0.965	0.483
FRS	12.5KHz	467.6375	Face-held	0.333	0.167
FRS	12.5KHz	467.6375	Body-Worn	0.734	0.367

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposurelimits (1.6 W/kg) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-2005, and had been tested inaccordance with the measurement methods and procedures specified in IEEE 1528-2013 and IEC 62209-2:2010

2. General Information

2.1 Client Information

Applicant:	Shenzhen Unison Technology Co., Ltd.
Address of Applicant:	QiaoHongSheng 219, Building A, YinTian Industrial Park, XiXiang Twon, Bao'An District, ShenZhen, 518000, China
Manufacture:	Shenzhen Unison Technology Co., Ltd.
Address of Manufacture:	QiaoHongSheng 219, Building A, YinTian Industrial Park, XiXiang Twon, Bao'An District, ShenZhen, 518000, China

2.2 Testing Laboratory Information

Test Site:	Shenzhen Anbotek Compliance Laboratory Limited
Address:	1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China

2.3 Description of Equipment Under Test (EUT)

Name of EUT:	Walkie Talkies
Model Number:	UT308
Power Supply:	DC 4.5V from battery
Frequency Range:	FRS: 462.5625MHz~462.7125MHz FRS: 467.5625MHz~467.7125MHz
Rate Power:	0.5W
Modulation Type:	FM
Channel Separation:	12.5KHz
Antenna Type:	Integral antenna
Antennal Gain:	-9.7dBi

2.4 Device Category and SAR Limits

This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user. according to IEEE Std C95.1, 1999:((IEEE Standard for SafetyLevelswith Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 KHz to 300 GHz).

It specifies the maximum exposure limit of 1.6 W/kg as averaged over any 1 gram of tissue for portable devices being used within 20 cm of the user in the uncontrolled environment.

2.5 Applied Standard

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards:

- IEEE 1528-2013
- FCC 47 CFR Part 2 (2.1093:2013)
- ANSI/IEEE C95.1:2005
- IEC 62209-2:2010
- KDB 447498 D01
- KDB 865664D01
- KDB 865664D02

2.6 Environment of Test Site

Items	Required	Actual
Temperature (℃)	18-25	22~23
Humidity (%RH)	30-70	55~65

2.7 Test Configuration

Face-Held Configuration

Face-held Configuration- per FCC KDB447498 "A test separation distance of 25 mm must be applied for in-front-of the face SAR test exclusion and SAR measurements."

Body-worn Configuration

Body-worn measurements-per FCC KDB447498 "When body-worn accessory SAR testing is required, the body-worn accessory requirements in section 4.2.2 should be applied. PTT two-way radios that support held-to-ear operating mode must also be tested according to the exposure configurations required for handsets. This generally does not apply to cellphones with PTT options that have already been tested in more conservative configurations in applicable wireless modes for SAR compliance at 100% duty factor."

3. Specific Absorption Rate (SAR)

3.1 Introduction

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.

3.2 SAR Definition

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:

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

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

SAR measurement can be either related to the temperature elevation in tissue by

$$\mathbf{SAR} = \mathbf{C}\left(\frac{\boldsymbol{\delta}\mathbf{T}}{\boldsymbol{\delta}\mathbf{t}}\right)$$

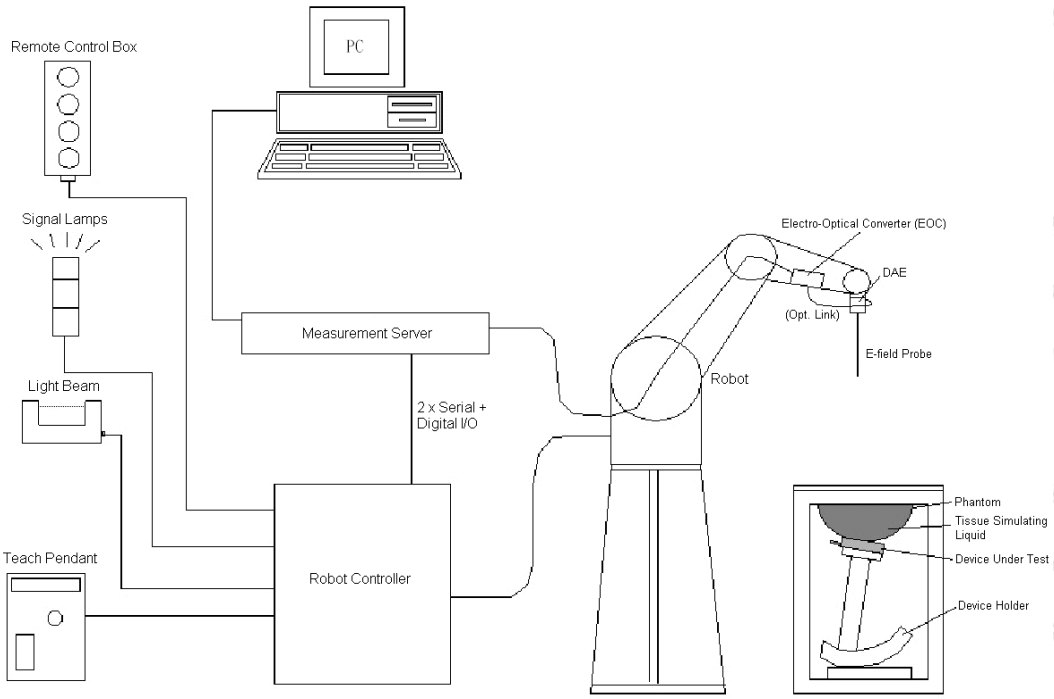
Where: C is the specific head capacity, δT is the temperature rise and δtisthe exposure duration, or related to the electrical field in the tissue by

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

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

However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

4. SAR Measurement System



DASY System Configurations

The DASYsystem for performance compliance tests is illustrated above graphically. This system consists of the following items:

- A standard high precision 6-axis robot with controller, a teach pendant and software
- A data acquisition electronic (DAE) attached to the robot arm extension
- A dosimetric probe equipped with an optical surface detector system
- The electro-optical converter (EOC) performs the conversion between optical and electrical signals
- A measurement server performs the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the accuracy of the probe positioning
- A computer operating Windows XP
- DASY software
- Remove control with teach pendant and additional circuitry for robot safety such as warming lamps, etc.
- The SAM twin phantom
- A device holder
- Tissue simulating liquid
- Dipole for evaluating the proper functioning of the system

components are described in details in the following sub-sections.

4.1 E-Field Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG).The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. This probe has a built in optical surface detection system to prevent from collision with phantom.

➢ E-Field Probe Specification

<EX3DV4 Probe>

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Frequency	10 MHz to 6 GHz; Linearity: ± 0.2 dB
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: ± 0.2 dB (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

Photo of EX3DV4

➢ E-Field Probe Calibration

Each probe needs to be calibrated according to a dosimetric assessment procedure with accuracy better than ± 10%. The spherical isotropy shall be evaluated and within ± 0.25dB. The sensitivity parameters (NormX, NormY, and NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested. The calibration data can be referred to appendix C of this report.

4.2 Data Acquisition Electronics (DAE)

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.

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

Photo of DAE

4.3 Robot

The SPEAG DASY system uses the high precision robots (DASY5: TX60XL) type from Stäubli SA (France). For the 6-axis controllersystem, the robot controller version (DASY5: CS8c) from Stäubli is used. The Stäublirobot series have many features that are important for our application:

- High precision (repeatability ±0.035 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)

Photo of DASY5

4.4 Measurement Server

The measurement server is based on a PC/104 CPU board with CPU (DASY5: 400 MHz, Intel Celeron), chipdisk (DASY5: 128 MB), RAM (DASY5: 128 MB). The necessary circuits for communication with the DAE electronic box, as well as the 16 bit AD converter system for optical detection and digital I/O interface

are contained on the DASY I/O board, which is directly connected to the PC/104 bus of the CPU board.

The measurement server performs all the real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operations.

Photo of Server for DASY5

4.5 Phantom

<SAM Twin Phantom>

Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm	
Filling Volume	Approx. 25 liters	
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet	
Measurement Areas	Left Hand, Right Hand, Flat Phantom	**Photo of SAM Phantom**

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

<ELI4 Phantom>

Shell Thickness	2 ± 0.2 mm (sagging: <1%)	
Filling Volume	Approx. 30 liters	
Dimensions	Major ellipse axis: 600 mm Minor axis:400 mm	

			Photo of ELI4 Phantom

The ELI4 phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

4.6 Device Holder

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

The DASY device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation center for both scales is the ear reference point (ERP).Thus the device needs no repositioning when changing the angles.

The DASY device holder is constructed of low-loss POM material having the following dielectric parameters: relative permittivity ε = 3 and loss tangent δ = 0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

Device Holder

4.7 Data Storage and Evaluation

➢ Data Storage

The DASY software stores the assessed data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all the necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files. The post-processing software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of erroneous parameter settings. For example, if a measurement has been performed with an incorrect crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be reevaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type (e.g., [V/m], [A/m], [mW/g]). Some of these units are not available in certain situations or give meaningless results, e.g., a SAR-output in a non-lose media, will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

➢ Data Evaluation

The DASY post-processing software (SEMCAD) automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software：

Probe parameters：	- Sensitivity	$Norm_i$, a_{i0}, a_{i1}, a_{i2}
	- Conversion factor	$ConvF_i$
	- Diode compression point	dcp_i
Device parameters：	- Frequency	f
	- Crest factor	cf
Media parameters：	- Conductivity	σ
	- Density	ρ

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY components. In the direct measuring mode of the multi-meter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power.

The formula for each channel can be given as：

$$V_i = U_i + U_i^2 \cdot \frac{cf}{dcp_i}$$

with V_i= compensated signal of channel i, (i = x, y, z)
U_i = input signal of channel i, (i = x, y, z)
cf = crest factor of exciting field (DASY parameter)
dcp_i = diode compression point (DASY parameter)

From the compensated input signals, the primary field data for each channel can be evaluated：

E-field Probes：$E_i = \sqrt{\frac{V_i}{Norm_i \cdot ConvF}}$

H-field Probes：$H_i = \sqrt{V_i} \cdot \frac{a_{i0}+a_{i1}f+a_{i2}f^2}{f}$

with V_i = compensated signal of channel i,(i = x, y, z)
$Norm_i$= sensor sensitivity of channel i, (i = x, y, z), μV/(V/m)^2 for E-field Probes
ConvF= sensitivity enhancement in solution
a_{ij}= sensor sensitivity factors for H-field probes
f = carrier frequency [GHz]
E_i= electric field strength of channel i in V/m
H_i= magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude)：

$$E_{tot} = \sqrt{E_x^2 + E_y^2 + E_z^2}$$

The primary field data are used to calculate the derived field units.

$$SAR = E_{tot}^2 \cdot \frac{\sigma}{\rho \cdot 1000}$$

with SAR = local specific absorption rate in mW/g
E_{tot}= total field strength in V/m
σ = conductivity in [mho/m] or [Siemens/m]
ρ = equivalent tissue density in g/cm^3

Note that the density is set to 1, to account for actual head tissue density rather than the density of the tissue simulating liquid.

5. Test Equipment List

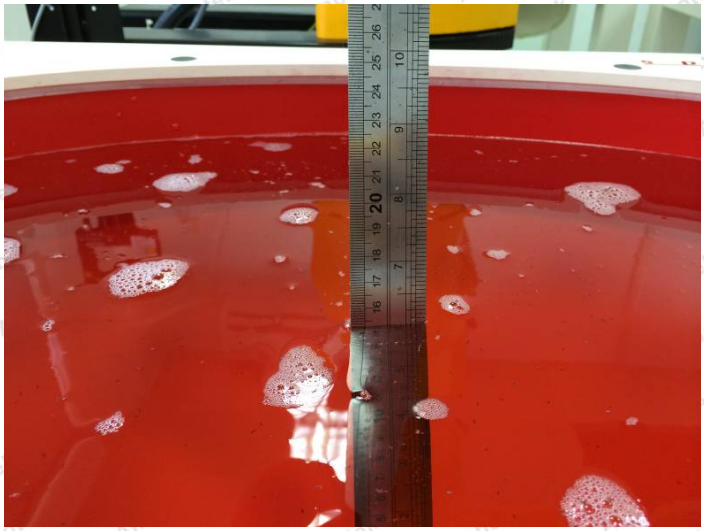
Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	Dosimetric E-Field Probe	EX3DV4	7396	May 06, 2019	May 06, 2020
SPEAG	System Validation Dipole D450V3	D450V3	1079	Aug. 29, 2016	Aug. 28, 2019
SPEAG	Data Acquisition Electronics	DAE4	387	Sep. 06, 2018	Sep. 05, 2019
Agilent	ENA Series Network Analyzer	E5071C	MY46317418	May 22, 2019	May 21, 2020
SPEAG	DAK	DAK-3.5	1226	NCR	NCR
SPEAG	SAM Twin Phantom	QD000P40CD	1802	NCR	NCR
SPEAG	ELI Phantom	QDOVA004AA	2058	NCR	NCR
AR	Amplifier	ZHL-42W	QA1118004	NCR	NCR
Agilent	Power Meter	N1914A	MY50001102	Oct. 28, 2018	Oct. 27, 2019
Agilent	Power Sensor	N8481H	MY51240001	Oct. 29, 2018	Oct. 28, 2019
R&S	Spectrum Analyzer	N9020A	MY51170037	May 21, 2019	May 20, 2020
Agilent	Signal Generation	N5182A	MY48180656	May 21, 2019	May 20, 2020
Worken	Directional Coupler	0110A05601O-10	COM5BNW1A2	May 21, 2019	May 20, 2020

Note:

1. The calibration certificate of DASY can be referred to appendix C of this report.
2. The dipole calibration interval can be extended to 3 years with justification. The dipoles are also not physically damaged, or repaired during the interval.
3. The Insertion Loss calibration of Dual Directional Coupler and Attenuator were characterized via the network analyzer and compensated during system check.
4. The dielectric probe kit was calibrated via the network analyzer, with the specified procedure (calibrated in pure water) and calibration kit (standard) short circuit, before the dielectric measurement. The specific procedure and calibration kit are provided by Agilent.
5. In system check we need to monitor the level on the power meter, and adjust the power amplifier level to have precise power level to the dipole; the measured SAR will be normalized to 1W input power according to the ratio of 1W to the input power to the dipole. For system check, the calibration of the power amplifier is deemed not critically required for correct measurement; the power meter is critical and we do have calibration for it

6. Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 6.1. For 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 as followed:



Photograph of the depth in the Body Phantom (450MHz)

The following table gives the recipes for tissue simulating liquid.

Composition of the Head Tissue Equivalent Matter

Mixture %	Frequency (Brain) 450MHz
Water	38.56
Sugar	56.32
Salt	3.95
Preventol	0.10
Cellulose	1.07
Dielectric Parameters Target Value	f=450MHz ε_r=43.5 σ=0.87

Composition of the Body Tissue Equivalent Matter

Mixture %	Frequency (Brain) 450MHz
Water	56.16
Sugar	46.78
Salt	1.49
Preventol	0.10
Cellulose	0.47

Dielectric Parameters Target Value	f=450MHz ε_r=56.7 σ=0.94

The following table shows the measuring results for simulating liquid.

Dielectric Performance of Head Tissue Simulating Liquid

Tissue Type	Measured Frequency (MHz)	Target Tissue		Measured Tissue		Dev. %		Liquid Temp.	Test Data
		ε_r	σ	ε_r	σ	ε_r	σ		
450H	450	43.5	0.87	43.3	0.85	-0.46%	-2.30%	22.2 degree	2019-08-05
450B	450	56.7	0.94	56.4	0.96	-0.53%	2.13%	22.2 degree	2019-08-05

7. System Verification Procedures

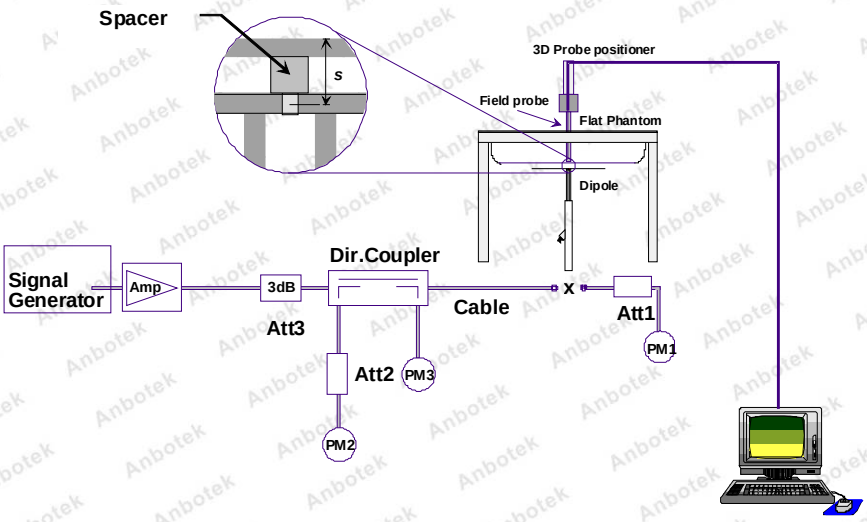
Each DASY system is equipped with one or more system validation kits. These units, together with the predefined measurement procedures within the DASY software, enable the user to conduct the system performance check and system validation. System validation kit includes a dipole, tripod holder to fix it underneath the flat phantom and a corresponding distance holder.

- **Purpose of System Performance check**

  The system performance check verifies that the system operates within its specifications. System and operator errors can be detected and corrected. It is recommended that the system performance check be performed prior to any usage of the system in order to guarantee reproducible results. The system performance check uses normal SAR measurements in a simplified setup with a well characterized source. This setup was selected to give a high sensitivity to all parameters that might fail or vary over time. The system check does not intend to replace the calibration of the components, but indicates situations where the system uncertainty is exceeded due to drift or failure.

- **System Setup**

  In the simplified setup for system evaluation, the EUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave that comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The equipment setup is shown below:



System Setup for System Evaluation

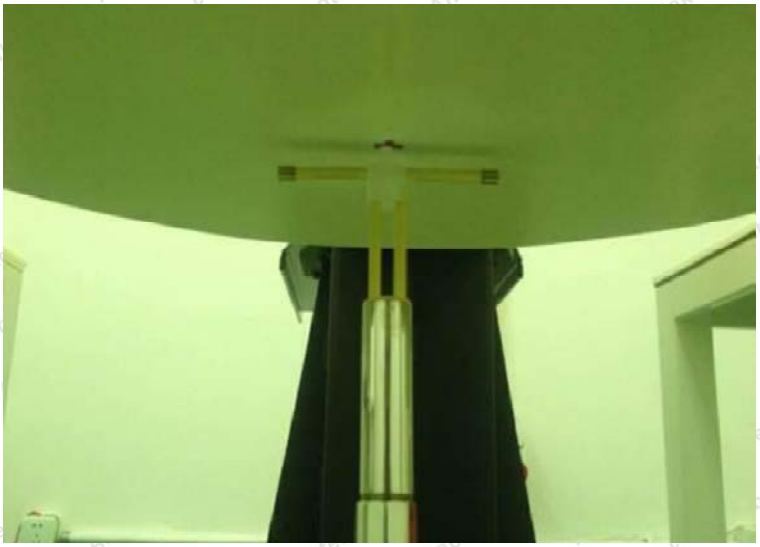


Photo of Dipole Setup

- **Validation Results**

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. The table below shows the target SAR and measured SAR after normalized to 1W input power. It indicates that the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

System Check in Head Tissue Simulating Liquid

Freq	Test Date	Temp	250mW Measured		1W Normalized		1W Target		Limit (±10% Deviation)	
			SAR_{1g}	SAR_{10g}	SAR_{1g}	SAR_{10g}	SAR_{1g}	SAR_{10g}	SAR_{1g}	SAR_{10g}
450MHz	2019/08/05	22.2	1.166	0.780	4.664	3.120	4.58	3.06	1.83%	1.96%

System Check in Body Tissue Simulating Liquid

Freq	Test Date	Temp	250mW Measured		1W Normalized		1W Target		Limit (±10% Deviation)	
			SAR_{1g}	SAR_{10g}	SAR_{1g}	SAR_{10g}	SAR_{1g}	SAR_{10g}	SAR_{1g}	SAR_{10g}
450MHz	2019/08/05	22.2	1.147	0.765	4.588	3.060	4.60	3.03	-0.26%	0.99%

Note:

1. The graph results see system check.
2. Target Values used derive from the calibration certificate

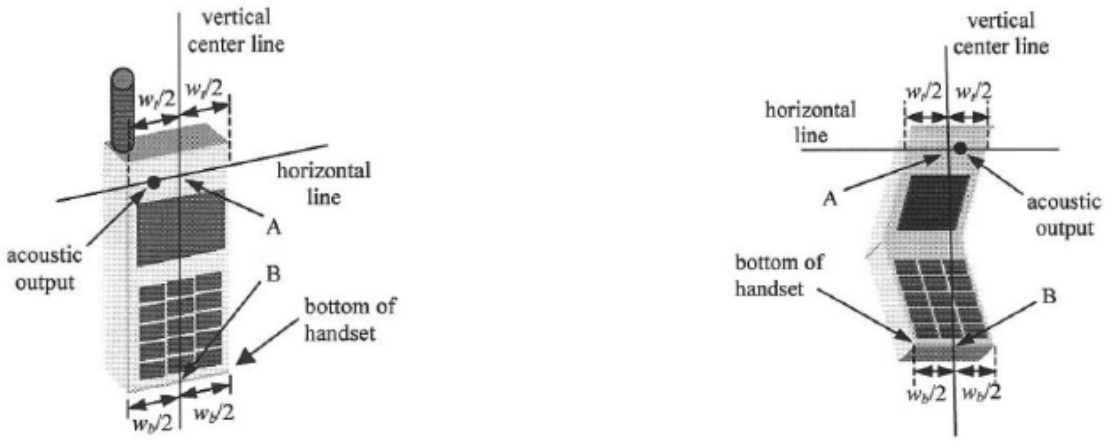
8. EUT Testing Position

8.1. Define two imaginary lines on the handset

(a) The vertical centerline passes through two points on the front side of the handset - the midpoint of the width w_t of the handset at the level of the acoustic output, and the midpoint of the width w_b of the bottom of the handset.

(b) The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output. The horizontal line is also tangential to the face of the handset at point A.

(c) The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.

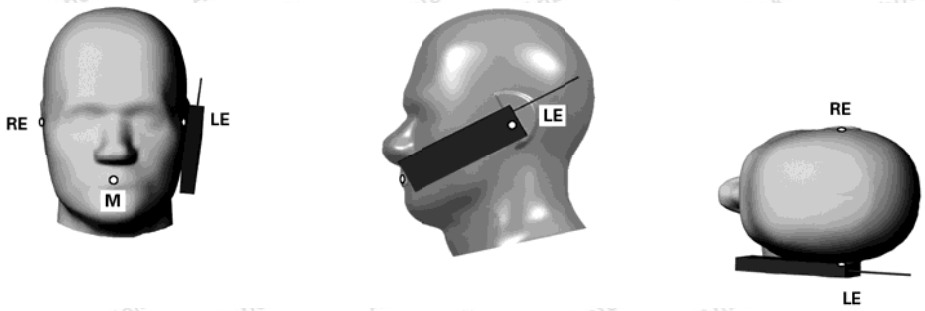


Handset Vertical and Horizontal Reference Lines

8.2. Position for Cheek/Touch

(a) To position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane containing the three ear and mouth reference point (M: Mouth, RE: Right Ear, and LE: Left Ear) and align the center of the ear piece with the line RE-LE.

(b) To move the device towards the phantom with the ear piece aligned with the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost.

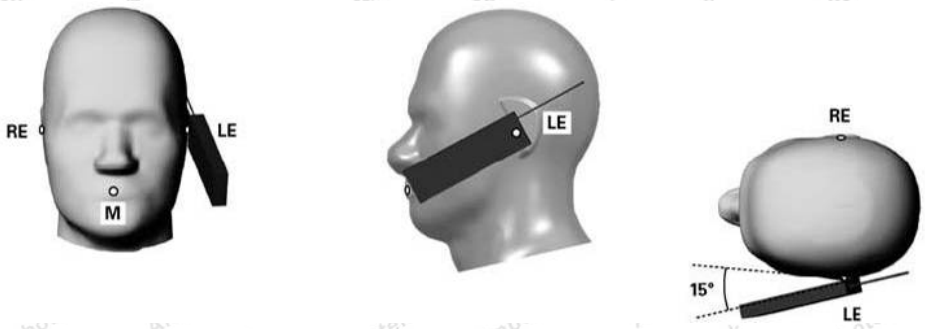


Cheek Position

8.3. Position for Ear / 15° Tilt

(a) To position the device in the "cheek" position described above.

(b) While maintaining the device the reference plane described above and pivoting against the ear, moves it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost (see Fig. 8.3).



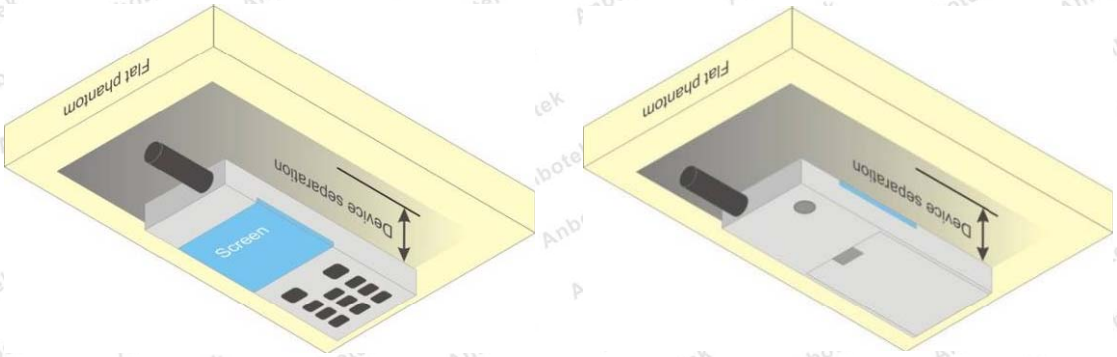
Tilt Position

8.4. Body Worn Position

(a) To position the device parallel to the phantom surface with either keypad up or down.

(b) To adjust the device parallel to the flat phantom.

(c) To adjust the distance between the device surface and the flat phantom to 0.5 cm.



Body Worn Position

9. Measurement Procedures

The measurement procedures are as follows:

(a) Use base station simulator (if applicable) or engineering software to transmit RF power continuously (continuous Tx) in the middle channel.
(b) Keep EUT to radiate maximum output power or 100% duty factor (if applicable)
(c) Measure output power through RF cable and power meter.
(d) Place the EUT in the positions as setup photos demonstrates.
(e) Set scan area, grid size and other setting on the DASY software.
(f) Measure SAR transmitting at the middle channel for all applicable exposure positions.
(g) Identify the exposure position and device configuration resulting the highest SAR
(h) Measure SAR at the lowest and highest channels atthe worst exposure position and device configuration if applicable.

According to the 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

9.1 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 form 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

9.2 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.

9.3 Area & Zoom Scan Procedures

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing afine measurement around the hot spot. The sophisticated interpolation routines implemented in DASYsoftware can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB0 is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEEstandard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed inaccordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only theabsolute maximum will be taken as reference. For cases where multiple maximums are detected, the numberof 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: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

9.4 Zoom Scan Procedures

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.

Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{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	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.

* When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

9.5 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.

9.6 Power Drift Monitoring

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the same settings. This allows a user to monitor

the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

10.E.I.R.P Power

<FRS ERP Power>

According KDB 447498 D01 General RF Exposure Guidance v06 ection 4.1 2) states that "Unless it is specified differently in the published RF exposure KDB procedures, these requirements also apply to test reduction and test exclusion considerations. Time-averaged maximum conducted output power applies to SAR and, as required by § 2.1091(c), time-averaged ERP applies to MPE. When an antenna port is not available on the device to support conducted power measurement, such as FRS and certain Part 15 transmitters with built-in integral antennas, the maximum output power allowed for production units should be used to determine RF exposure test exclusion and compliance."

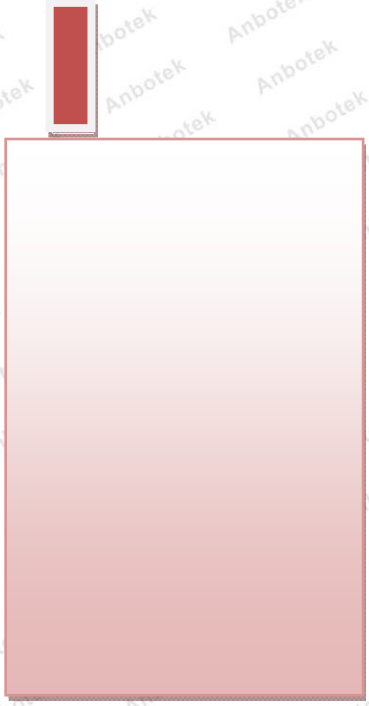
SAR may be scaled if radio is tested at lower power without overheating as invalid SAR results cannot be scaled to compensate for power droopaccording to October 2015TCB Workshop.

Modulation Type	Channel Separation	Test Frequency	Measured AverageERP Power	
			(dBm)	(Watts)
FM	12.5KHz	462.6375	26.13	0.4102
FM	12.5KHz	467.6375	25.70	0.3715

Manufacturing tolerance

	FRS (Average ERP Power)	
Frequency (MHz)	462.6375	467.6375
Target (dBm)	26.00	26.00
Tolerance ±(dB)	1.0	1.0

11. Transmit Antennas



12. Standalone SAR Test Exclusion Considerations

Per KDB447498 for standalone 1-g head or body SAR evaluation by measurement or numerical simulation is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)] ·[√ f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

●f(GHz) is the RF channel transmit frequency in GHz

●Power and distance are rounded to the nearest mW and mm before calculation

●The result is rounded to one decimal place for comparison

●3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

Standalone SAR test exclusion considerations							
Communication system	Frequency (MHz)	Configuration	Maximum Average Power (dBm)	Separation Distance (mm)	Calculation Result	SAR Exclusion Thresholds	Standalone SAR Exclusion
FRS	462.6375	Head Face	27	25	13.6	3.0	no
		Body worn	27	5	68.2	3.0	no
FRS	467.6375	Head Face	27	25	13.7	3.0	no
		Body worn	27	5	68.5	3.0	no

Remark: When the minimum test separation distance is < 5 mm, a distance of 5 mm applied to determine SAR test exclusion

13. SAR Test Results Summary

General Note:

The calculated SAR is obtained by the following formula:

Reported SAR=Measured SAR×$10^{(PTarget-PMeasured)/10}$

Where P_{Target} is the power of manufacturing upper limit;

$P_{Measured}$ is the measured power

Test Frequency MHz	Mode	Maximum Allowed Power (dBm)	Measured ERP (dBm)	Test Configuration	Measurement SAR_{1-g} (W/Kg)		Power drift	Scaling Factor	Reported SAR_{1-g} (W/kg)		SAR limit 1g (W/kg)	Ref. Plot
					100% Duty Cycle	50% Duty Cycle			100% Duty Cycle	50% Duty Cycle		
The EUT display towards ground for 12.5 KHz(Analog, face held)												
462.6375	FRS	27.00	26.13	Face Held	0.315	0.158	-0.05	1.22	0.385	0.193	1.60	1
467.6375	FRS	27.00	25.70	Face Held	0.247	0.124	-0.10	1.35	0.333	0.167	1.60	2
The EUT display towards ground for 12.5 KHz(Analog, Body-Worn)												
462.6375	FRS	27.00	26.13	Body Worn	0.790	0.395	-0.11	1.22	0.965	0.483	1.60	3
467.6375	FRS	27.00	25.70	Body Worn	0.544	0.272	-0.07	1.35	0.734	0.367	1.60	4

14. SAR Measurement Variability

SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. The following procedures are applied to determine if repeated measurements are required.

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

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

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

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

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.

Frequency (MHz)	Mode	Test Position	Repeated SAR (yes/no)	Highest Measured SAR_{1-g} (W/kg)	First Repeated	
					Measured SAR_{1-g} (W/kg)	Largest to Smallest SAR Ratio
462.6375	CW	Body-worn	yes	0.965	0.978	1.013

15. Simultaneous Transmission Analysis

The DUT, with FRS function and only one antenna equipped, no simultaneous transmission need consideration.

16. Measurement Uncertainty

NO	Source	Uncert. ai（%）	Prob. Dist.	Div. k	ci (1g)	ci (10g)	Stand.Uncert. ui (1g)	Stand.Uncert. ui (10g)	*Veff*
1	Repeat	0. 4	N	1	1	1	0. 4	0. 4	9
Instrument									
2	Probe calibration	7	N	2	1	1	3.5	3.5	∞
3	Axial isotropy	4.7	R	$\sqrt{3}$	0.7	0.7	1.9	1.9	∞
4	Hemispherical isotropy	9.4	R	$\sqrt{3}$	0.7	0.7	3.9	3.9	∞
5	Boundary effect	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
6	Linearity	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
7	Detection limits	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
8	Readout electronics	0.3	N	1	1	1	0.3	0.3	∞
9	Response time	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	∞
10	Integration time	2.6	R	$\sqrt{3}$	1	1	1.5	1.5	∞
11	Ambient noise	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	∞
12	Ambient reflections	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	∞
13	Probe positioner mech. restrictions	0.4	R	$\sqrt{3}$	1	1	0.2	0.2	∞
14	Probe positioning with respect to phantom shell	2.9	R	$\sqrt{3}$	1	1	1.7	1.7	∞

15	Max.SAR evaluation	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
Test sample related									
16	Device positioning	3.8	N	1	1	1	3.8	3.8	99
17	Device holder	5.1	N	1	1	1	5.1	5.1	5
18	Drift of output power	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and set-up									
19	Phantom uncertainty	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
20	Liquid conductivity (target)	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
21	Liquid conductivity (meas)	2.5	N	1	0.64	0.43	1.6	1.2	∞
22	Liquid Permittivity (target)	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.5	∞
23	Liquid Permittivity (meas)	2.5	N	1	0.6	0.49	1.5	1.2	∞
Combined standard			RSS	$U_c = \sqrt{\sum_{i=1}^{n} C_i^2 U_i^2}$			11.4%	11.3%	236
Expanded uncertainty(P=95%)		$U = k U_c$,k=2					**22.8%**	**22.6%**	

Appendix A. EUT Photos and Test Setup Photos

Face-held, the front of the EUT towards phantom (The distance was 25mm)

Body-worn, the front of the EUT towards ground (The distance was 0mm)

Appendix B. Plots of SAR System Check

System Performance Check at 450 MHz Head TSL

DUT: Dipole450 MHz; Type: D450V2; Serial: 1021
Date/Time: 08/05/2019
Communication System: PTT 450; Frequency: 450 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 450 MHz; σ = 0.85 S/m; ε_r = 43.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

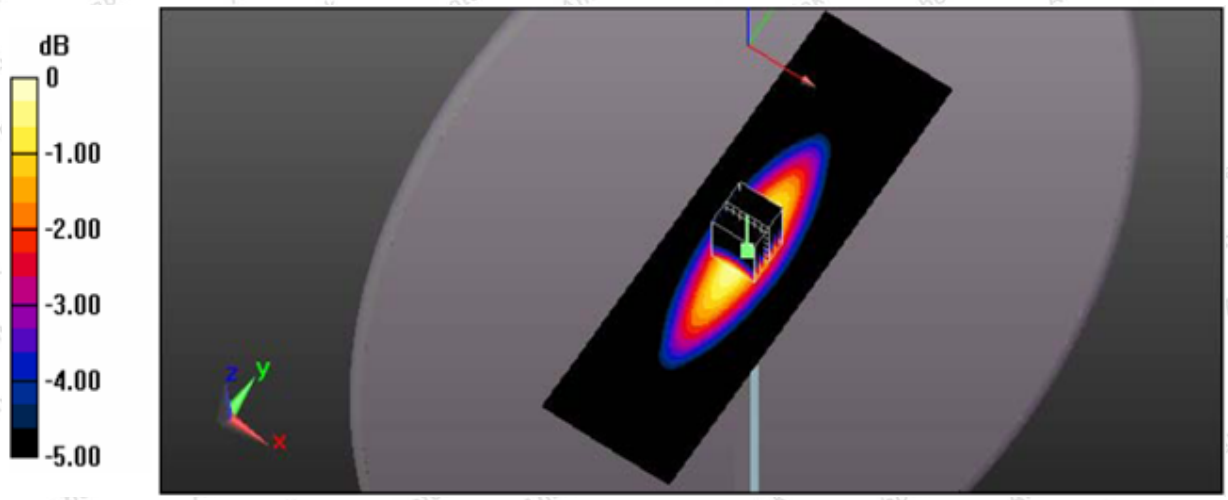
- Probe: EX3DV4 - SN7396; ConvF(7.12, 7.12, 7.12); Calibrated: 06,05.2019;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 06.09.2018
- Phantom: SAM; Type: QD000P40CD; Serial: TP:1670;
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.10 (7164)

Area Scan (61x201x1): Interpolated grid: dx=1.500 mm, dy=1.50 mm
Maximum value of SAR (interpolated) = 1.37mW/g

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 39.85 V/m; Power Drift = -0.03dB
Peak SAR (extrapolated) = 1.54mW/g

SAR(1 g) =1.166 mW/g; SAR(10 g) = 0.780 mW/g

Maximum value of SAR (measured) = 1.57mW/g



0 dB = 1.57 mW/g

System Performance Check 450MHz Body 250mW

System Performance Check at 450 MHz Body TSL

DUT: Dipole450 MHz; Type: D450V2; Serial: 1021
Date/Time: 08/05/2019
Communication System: PTT 450; Frequency: 450 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 450 MHz; σ = 0.96 S/m; ε_r = 56.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

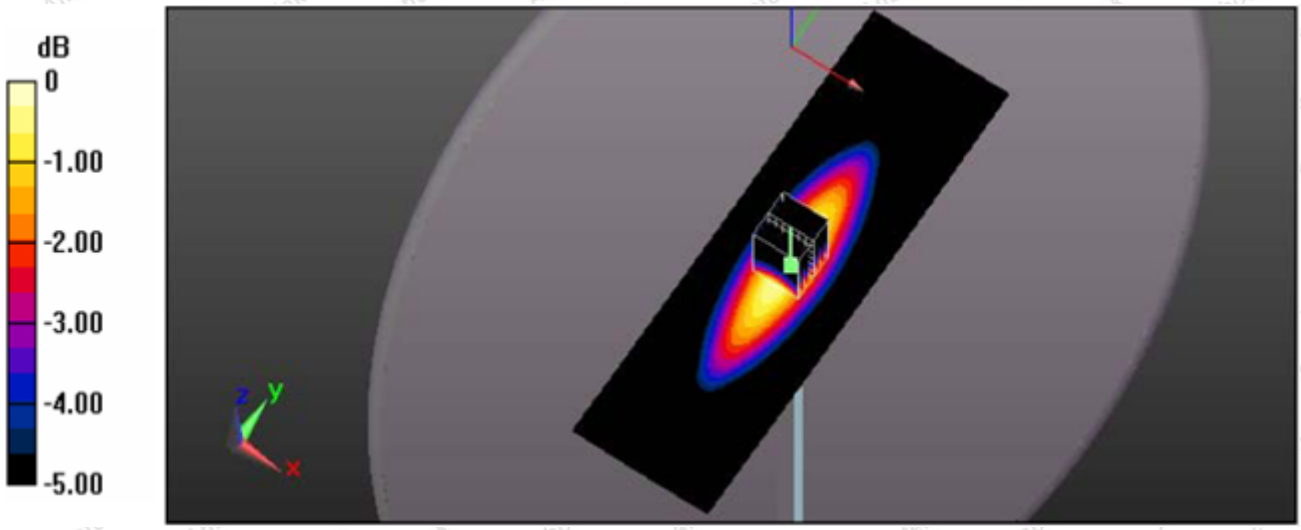
- Probe: EX3DV4 - SN7396; ConvF(7.33, 7.33, 7.33); Calibrated: 06,05.2019;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 06.09.2018
- Phantom: SAM; Type: QD000P40CD; Serial: TP:1670;
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.10 (7164)

Area Scan (61x201x1): Interpolated grid: dx=1.500 mm, dy=1.50 mm
Maximum value of SAR (interpolated) = 1.42mW/g

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 41.55 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 1.61mW/g

SAR(1 g) = 1.147 mW/g; SAR(10 g) = 0.765 mW/g

Maximum value of SAR (measured) = 1.75mW/g



0 dB = 1.75mW/g

System Performance Check 450MHz Body 250mW

Appendix C. Plots of SAR Test Data

SAR plots for **the highest measured SAR** in each exposure configuration, wireless mode and frequency band combination according to FCC KDB 865664 D02

Face Held for FM Modulation at 12.5KHz Channel Separation, Front towards Phantom 462.6375MHz

Date: 08/05/2019

Communication System: PTT 450; Frequency: 462.6375 MHz;Duty Cycle:1:1

Medium parameters used (interpolated): f = 463.0 MHz; σ = 0.88 S/m; ε_r = 43.7; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(7.12, 7.12, 7.12); Calibrated: 06,05.2019;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 06.09.2018
- Phantom: SAM; Type: QD000P40CD; Serial: TP:1670;
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.10 (7164)

Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.340 W/kg

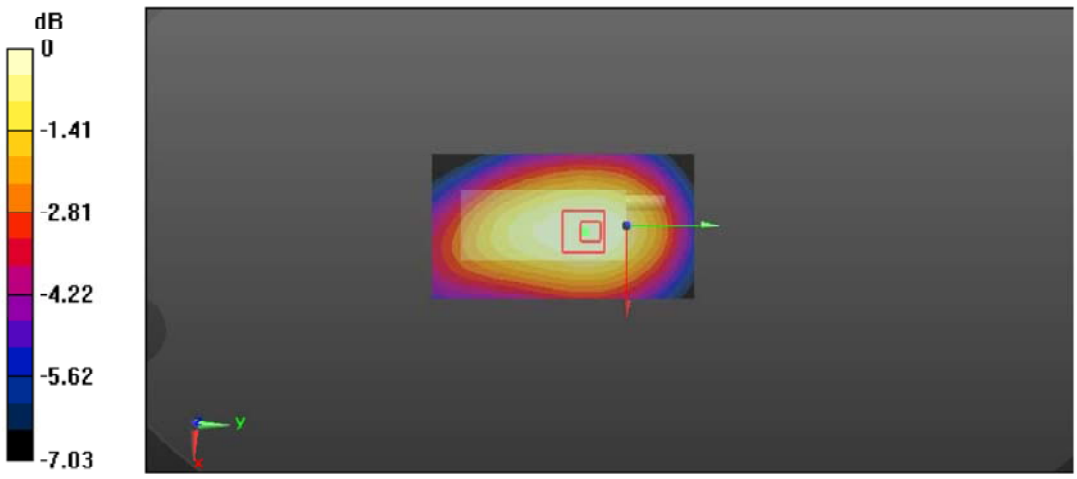
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 18.56 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.403 W/kg

SAR(1 g) = 0.315 W/kg; SAR(10 g) = 0.240 W/kg

Maximum value of SAR (measured) = 0.328 W/kg



0 dB = 0.328 W/kg

Figure 1: Face held for FM Modulation at 12.5KHz Channel Separation Front towards Phantom

462.6375 MHz

Face Held for FM Modulation at 12.5KHz Channel Separation, Front towards Phantom 467.6375MHz

Date: 08/05/2019
Communication System: PTT 450; Frequency: 467.6375 MHz;Duty Cycle:1:1
Medium parameters used (interpolated): f = 468.0 MHz; σ = 0.89 S/m; ε_r = 43.8; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

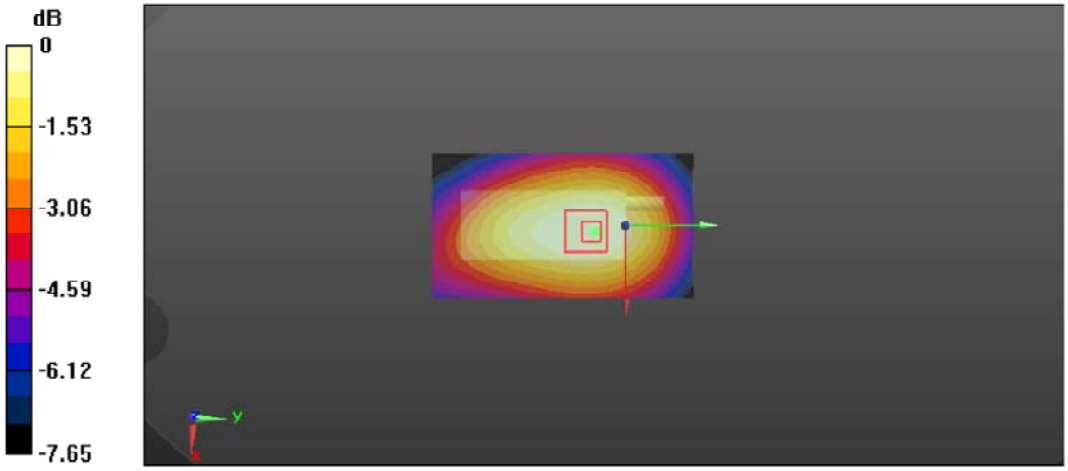
- Probe: EX3DV4 - SN7396; ConvF(7.12, 7.12, 7.12); Calibrated: 06,05.2019;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 06.09.2018
- Phantom: SAM; Type: QD000P40CD; Serial: TP:1670;
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.10 (7164)

Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.271 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.87 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.318 W/kg

SAR(1 g) = 0.247 W/kg; SAR(10 g) = 0.191 W/kg

Maximum value of SAR (measured) = 0.266 W/kg



0 dB = 0.266 W/kg

Figure 2: Face held for FM Modulation at 12.5KHz Channel Separation Front towards Phantom 467.6375 MHz

Body- Worn FM Modulation at 12.5KHz Channel Separation, Front towards Ground 462.6375MHz

Date: 08/05/2019

Communication System: PTT 450; Frequency: 462.6375 MHz;Duty Cycle:1:1

Medium parameters used (interpolated): f = 463.0 MHz; σ = 0.97S/m; ε_r = 56.8; ρ = 1000 kg/m^3

Phantom section : Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(7.33, 7.33, 7.33); Calibrated: 06,05.2019;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 06.09.2018
- Phantom: SAM; Type: QD000P40CD; Serial: TP:1670;
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.10 (7164)

Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.875 W/kg

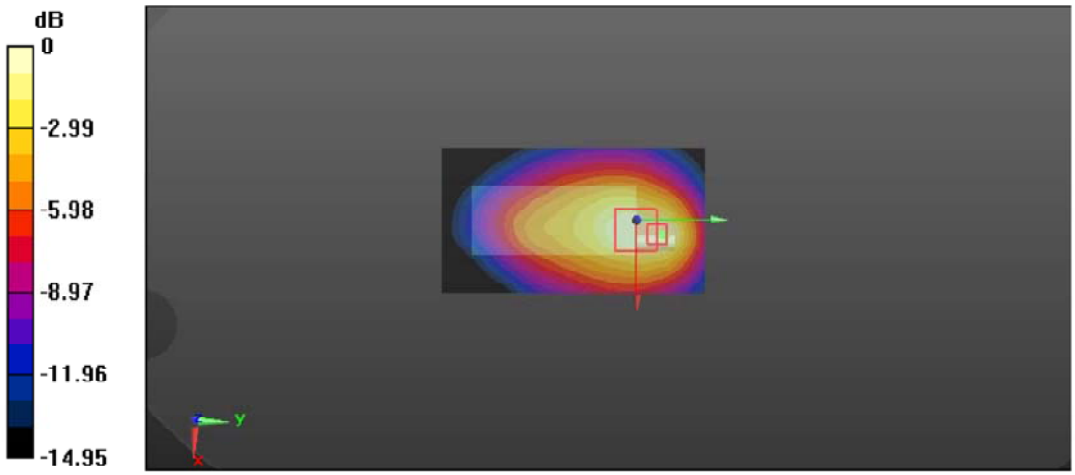
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.05 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 1.35 W/kg

SAR(1 g) = 0.790 W/kg; SAR(10 g) = 0.493 W/kg

Maximum value of SAR (measured) = 0.857 W/kg



0 dB = 0.857 W/kg

Figure 3: Body-worn for FM Modulation at 12.5KHz Channel Separation; Front towards Ground 462.6375 MHz

Body- Worn FM Modulation at 12.5KHz Channel Separation, Front towards Ground 467.6375MHz

Date: 08/05/2019

Communication System: PTT 450; Frequency: 467.6375 MHz;Duty Cycle:1:1

Medium parameters used (interpolated): f = 468.0 MHz; σ = 0.98S/m; ε_r = 56.9; ρ = 1000 kg/m^3

Phantom section : Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(7.33, 7.33, 7.33); Calibrated: 06,05.2019;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 06.09.2018
- Phantom: SAM; Type: QD000P40CD; Serial: TP:1670;
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.10 (7164)

Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.625 W/kg

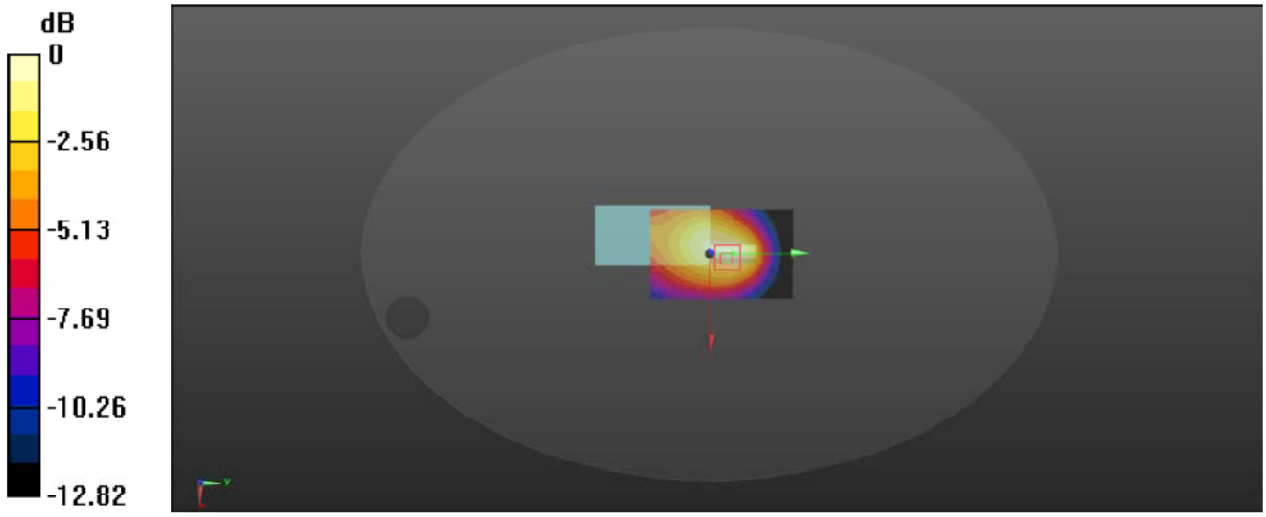
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 20.59 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 1.38 W/kg

SAR(1 g) = 0.544 W/kg; SAR(10 g) = 0.336 W/kg

Maximum value of SAR (measured) = 0.611 W/kg



0 dB =0.611 W/kg

Figure 4: Body-worn for FM Modulation at 12.5KHz Channel Separation; Front towards Ground 467.6375 MHz