

CE SAR REPORT

Applicant: Shenzhen Huafurui Technology Co., Ltd.

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Equipment Under Test (EUT)

Product Name: Smartphone

Model No.: KINGKONG MINI 2

Trade mark: CUBOT

Applicable standards: EN 50360:2017, EN 50566:2017
EN 62209-1:2016, EN 62209-2:2010
EN 50663:2017, EN 62479:2010

Date of sample receipt: 09 Sep., 2020

Date of Test: 11 Oct., 2020 ~ 17 Oct., 2020

Date of report issued: 28 Oct., 2020

Test Result: Maximum 10g SAR(W/kg)
Head: 0.566 Body: 0.907
Hotspot: 1.408 Limb: 2.891

Authorized Signature:



Bruce Zhang

Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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2 Version

Version No.	Date	Description
00	28 Oct., 2020	Original

Tested by:

Kim Li

Date:

28 Oct., 2020

Test Engineer

Reviewed by:

Tanet Wei

Date:

28 Oct., 2020

Project Engineer

3 Contents

1	COVER PAGE	1
2	VERSION	2
3	CONTENTS	3
4	SAR RESULTS SUMMARY	5
5	GENERAL INFORMATION	7
5.1	CLIENT INFORMATION	7
5.2	GENERAL DESCRIPTION OF EUT	7
5.3	MAXIMUM RF OUTPUT POWER	8
5.4	ENVIRONMENT OF TEST SITE	8
5.5	TEST LOCATION	8
6	INTRODUCTION	9
6.1	INTRODUCTION	9
6.2	SAR DEFINITION	9
7	RF EXPOSURE LIMITS	10
8	SAR MEASUREMENT SYSTEM	11
8.1	E-FIELD PROBE	12
8.2	DATA ACQUISITION ELECTRONICS (DAE)	12
8.3	ROBOT	13
8.4	MEASUREMENT SERVER	13
8.5	LIGHT BEAM UNIT	13
8.6	PHANTOM	14
8.7	DEVICE HOLDER	15
8.8	DATA STORAGE AND EVALUATION	16
8.9	TEST EQUIPMENT LIST	18
9	TISSUE SIMULATING LIQUIDS	19
10	SAR SYSTEM VERIFICATION	22
11	EUT TESTING POSITION	24
11.1	HANDSET REFERENCE POINTS	24
11.2	POSITIONING FOR CHEEK / TOUCH	25
11.3	POSITIONING FOR EAR / 15° TILT	25
11.4	BODY WORN ACCESSORY CONFIGURATIONS	26
11.5	HOTSPOT ACCESSORY CONFIGURATIONS	27
12	MEASUREMENT PROCEDURES	28
12.1	SPATIAL PEAK SAR EVALUATION	28
12.2	POWER REFERENCE MEASUREMENT	29
12.3	AREA SCAN PROCEDURES	29
12.4	ZOOM SCAN PROCEDURES	29
12.5	SAR AVERAGED METHODS	29
12.6	POWER DRIFT MONITORING	29
13	RF OUTPUT POWER	30
13.1	GSM CONDUCTED POWER	30
13.2	WCDMA CONDUCTED POWER	30
13.3	LTE CONDUCTED POWER	31
13.4	2.4GHz WLAN EIRP POWER	35
13.5	BLUETOOTH EIRP POWER	35
14	EUT ANTENNA LOCATIONS	36
15	BLOCK DIAGRAM OF THE TESTS TO BE PERFORMED	39
15.1	HEAD	39
15.2	BODY	40
16	SAR TEST RESULTS SUMMARY	41
16.1	HEAD SAR DATA	41
16.2	BODY WORN SAR DATA	44
16.3	HOTSPOT MODE SAR DATA	46

16.4	LIMB SAR DATA	50
16.5	SAR SIMULTANEOUS TRANSMISSION ANALYSIS.....	53
16.6	MEASUREMENT UNCERTAINTY	60
16.7	MEASUREMENT CONCLUSION.....	62
APPENDIX A: EUT PHOTOS		63
APPENDIX B: TEST SETUP PHOTOS.....		65
APPENDIX C: PLOTS OF SAR SYSTEM CHECK.....		69
APPENDIX D: PLOTS OF SAR TEST DATA.....		75
APPENDIX E: SYSTEM CALIBRATION CERTIFICATE		113

4 SAR Results Summary

The maximum results of Specific Absorption Rate (SAR) found during test as follows:

<Highest Reported standalone SAR Summary>

Exposure Position	Frequency Band	Reported 10-g SAR(W/kg)	Equipment Class	Highest Reported 10-g SAR (W/kg)
Head	GSM 900	0.371	PCE	0.566
	DCS1800	0.418		
	WCDMA Band I	0.566		
	WCDMA Band V III	0.501		
	LTE Band 1	0.298		
	LTE Band 3	0.349		
	LTE Band 7	0.507		
	LTE Band 8	0.286		
	LTE Band 20	0.252		
	WLAN 2.4GHz	0.088	DTS	
	Bluetooth	0.011	DSS	
Body (5 mm Gap)	GSM 900	0.302	PCE	0.907
	DCS1800	0.705		
	WCDMA Band I	0.907		
	WCDMA Band V III	0.510		
	LTE Band 1	0.749		
	LTE Band 3	0.658		
	LTE Band 7	0.762		
	LTE Band 8	0.404		
	LTE Band 20	0.356		
	WLAN 2.4GHz	0.077	DTS	
	Bluetooth	0.014	DSS	
Hotspot (5 mm Gap)	GSM 900	0.585	PCE	1.408
	DCS1800	1.408		
	WCDMA Band I	0.907		
	WCDMA Band V III	0.516		
	LTE Band 1	0.864		
	LTE Band 3	0.692		
	LTE Band 7	1.138		
	LTE Band 8	0.404		
	LTE Band 20	0.356		
	WLAN 2.4GHz	0.077	DTS	
	Bluetooth	0.014	DSS	
Limb (0 mm Gap)	GSM 900	1.208	PCE	2.891
	DCS1800	2.891		
	WCDMA Band I	2.145		
	WCDMA Band V III	0.994		
	LTE Band 1	1.865		
	LTE Band 3	1.184		
	LTE Band 7	2.030		
	LTE Band 8	0.747		

	LTE Band 20	0.623		
	WLAN 2.4GHz	0.181	DTS	
	Bluetooth	0.032	DSS	

<Highest Reported simultaneous SAR Summary>

Exposure Position	Frequency Band	Reported 10-g SAR (W/kg)	Equipment Class	Highest Reported Simultaneous Transmission 10-g SAR (W/kg)
Back	DCS1800	1.408	PCE	1.485
	WLAN 2.4GHz	0.077	DTS	
Limb	DCS1800	2.891	PCE	3.072
	WLAN 2.4GHz	0.181	DTS	

Note:

1. This device is compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (2.0W/kg for distance 5mm body SAR, 4.0W/kg for distance 0mm extremity SAR) specified in EN 50360:2017 and EN 50566:2017, and had been tested in accordance with the measurement methods and procedures specified in EN 62209-1:2016 and EN 62209-2:2010.

5 General Information

5.1 Client Information

Applicant:	Shenzhen Huafurui Technology Co., Ltd.
Address of Applicant:	Unit 1401 &1402, 14/F, Jinqi zhigu mansion (No. 4 building of Chongwen Garden), Crossing of the Liuxian street and Tangling road, Taoyuan street, Nanshan district, Shenzhen, P. R. China
Manufacturer:	Shenzhen Huafurui Technology Co., Ltd.
Address of Manufacturer:	Unit 1401 &1402, 14/F, Jinqi zhigu mansion (No. 4 building of Chongwen Garden), Crossing of the Liuxian street and Tangling road, Taoyuan street, Nanshan district, Shenzhen, P. R. China
Factory:	Shenzhen Huafurui Technology Co., Ltd.
Address of Factory:	Unit 1401 &1402, 14/F, Jinqi zhigu mansion (No. 4 building of Chongwen Garden), Crossing of the Liuxian street and Tangling road, Taoyuan street, Nanshan district, Shenzhen, P. R. China

5.2 General Description of EUT

Product Name:	Smartphone		
Model No.:	KINGKONG MINI 2		
Hardware Version:	LD936_MB_V1.0		
Software Version:	CUBOT_KINGKONGMINI2_A061_V02_20200825		
Category of device	Portable device		
Operation Frequency:	GSM 900:880 MHz ~ 915 MHz DCS 1800:1710 MHz ~ 1785 MHz WCDMA Band I: 1920 MHz ~1970 MHz WCDMA BandVIII :880MHz~915MHz FDD LTE Band 1 :1920MHz~1980MHz FDD LTE Band 3 :1710MHz~1785MHz FDD LTE Band 7 :2500MHz~2570MHz FDD LTE Band 8 :880MHz~915MHz FDD LTE Band 20 :832MHz~862MHz WLAN: 802.11b/g/n-HT20:2412 MHz ~2472 MHz 802.11n-HT40:2422 MHz ~2462 MHz Bluetooth: 2402 MHz ~2480 MHz		
Modulation technology:	GSM/GPRS: GMSK, EGPRS: 8PSK, WCDMA: QPSK LTE:QPSK/16QAM, WLAN: 802.11b: DSSS, 802.11g/n: OFDM Bluetooth: GFSK /π/4DQPSK/8DPSK BLE: GFSK		
Antenna Type:	Internal		
(E)GPRS Class:	(E)GPRS: Class 12		
Dimensions (L*W*H):	120mm (L)× 60mm (W)× 13mm (H)		
Accessories information:	Adapter: Model: HJ-0501000B3-E U Input: AC100-240V, 50/60Hz 0.15A Output: DC 5.0V, 1.0A	Battery: 3.85 V 3000mAh Rechargeable Li-ion Battery	Headset: Support (shipped without)

5.3 Maximum RF Output Power

Mode	Average Power (dBm)	
	GSM 900	DCS 1800
GSM (Voice)	32.85	31.03
GPRS (1 TX Slot)	32.84	31.03
GPRS (2 TX Slots)	31.28	29.66
GPRS (3 TX Slots)	30.19	28.82
GPRS (4 TX Slots)	29.17	27.25
EGPRS (1 TX Slot)	27.96	25.12
EGPRS (2 TX Slots)	25.89	24.26
EGPRS (3 TX Slots)	25.08	23.13
EGPRS (4 TX Slots)	24.66	22.57

Mode	Average Power (dBm)	
	WCDMA Band I	WCDMA Band VIII
RMC 12.2 kbps	22.63	23.51
HSDPA Sub-test 1	21.70	22.24
HSDPA Sub-test 2	20.98	21.71
HSDPA Sub-test 3	20.33	20.91
HSDPA Sub-test 4	20.36	20.99
HSUPA Sub-test 1	21.31	21.98
HSUPA Sub-test 2	21.59	22.47
HSUPA Sub-test 3	20.31	21.13
HSUPA Sub-test 4	21.69	22.54
HSUPA Sub-test 5	21.10	21.74

Mode	Average Power (dBm)				
	LTE Band 1	LTE Band 3	LTE Band 7	LTE Band 8	LTE Band 20
1.4 MHz	/	24.39	/	24.27	/
5 MHz	23.72	24.33	23.57	24.25	23.69
10 MHz	/	/	/	/	/
20 MHz	23.44	24.14	23.43	24.38	23.58

Mode	RF Output Power(dBm)
2.4GHz WIFI	15.70
Bluetooth	9.70
BLE	-1.40

5.4 Environment of Test Site

Temperature:	18°C~25°C
Humidity:	35%~75% RH
Atmospheric Pressure:	1011 mbar

5.5 Test Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd. Address: No.110~116, Building B, Jinyuan Business Building, Xixiang Road, Bao'an District, Shenzhen, Guangdong, China Tel: +86-755-23118282, Fax: +86-755-23116366 Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

6 Introduction

6.1 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.

6.2 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:

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

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

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

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

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

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

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength. However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

7 RF Exposure Limits

Limits for General Population/Uncontrolled Exposure (W/kg)

Type Exposure	Uncontrolled Environment Limit
Spatial Peak SAR (10g cube tissue for head and trunk)	2.00W/kg
Spatial Peak SAR (10g cube tissue for limbs)	4.00W/kg
Spatial Peak SAR (10g cube tissue for whole body)	0.08 W/kg

Note:

1. This limit is according to recommendation 1999/519/EC, Annex II (Basic Restrictions)
2. Occupational/Uncontrolled Environments are defined as locations where there is exposure that may be incurred by people who are aware of the potential for exposure, (i.e. as a result of employment or occupation)

8 SAR Measurement System

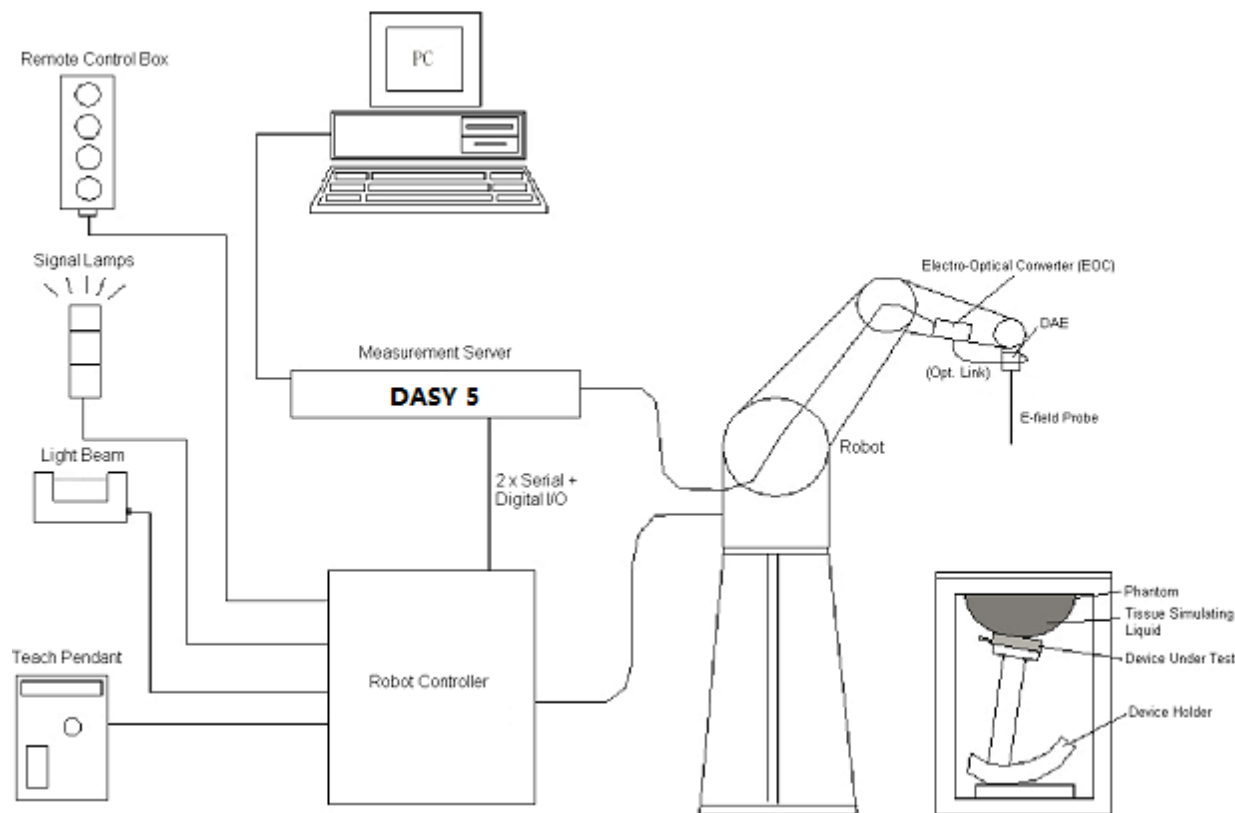


Fig.8.1 SPEAG DASY System Configurations

The DASY system 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
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom
- A device holder
- Tissue simulating liquid
- Dipole for evaluating the proper functioning of the system

Component details are described in the following sub-sections.

8.1 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 Directivity	10MHz to 6 GHz; Linearity: ± 0.2 dB ± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)	
Dynamic Range	10 μ W/g to 100 mW/g; Linearity: ± 0.2 dB (noise: typically < 1 μ W/g)	
Dimensions	Overall length: 330 mm (Tip: 20mm) Tip diameter: 2.5 mm (Body: 12mm) Typical distance from probe tip to dipole centers: 1 mm	

Fig.8.2 Photo of E-Field Probe

➤ E-Field Probe Calibration

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

8.2 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 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

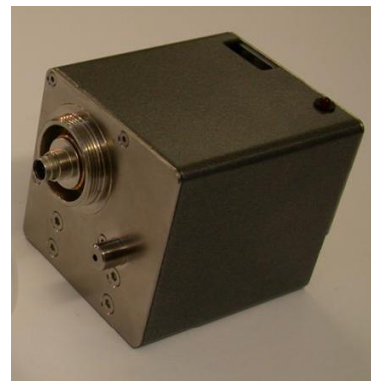


Fig. 8.3 Photo of DAE

8.3 Robot

The SPEAG DASY system uses the high precision robots (DASY5: TX60L) type from Stäubli SA (France). For the 6-axis controller system, the robot controller version (DASY5: CS8c) from Stäubli is used. The Stäubli robot series have many features that are important for our application:

- High precision (repeatability 0.02 mm)
- High reliability (industrial design)
- Low maintenance costs (virtually maintenance free due to direct drive gears; nobelt drives)
- Jerk-free straight movements
- Low ELF interference (motor control fields shielded via the closed metallic construction shields)



Fig. 8.4 Photo of Robot

8.4 Measurement Server

The measurement server is based on a PC/104 CPU board with CPU (DASY 5: 400MHz, Intel Celeron), chip-disk (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.



Fig. 8.5 Photo of Server for DASY5

8.5 Light Beam Unit

The light beam switch allows automatic "tooling" of the probe. During the process, the actual position of the probe tip with respect to the robot arm is measured, as well as the probe length and the horizontal probe offset. The software then corrects all movements, such that the robot coordinates are valid for the probe tip.

The repeatability of this process is better than 0.1 mm. If a position has been taught with an aligned probe, the same position will be reached with another aligned probe within 0.1 mm, even if the other probe has different dimensions. During probe rotations, the probe tip will keep its actual position.



Fig. 8.6 Photo of Light Beam

8.6 Phantom

<SAM Twin Phantom>

Shell Thickness	2 \pm 0.2 mm; Center ear point: 6 \pm 0.2 mm
Filling Volume Dimensions	Approx. 25 liters Length: 1000mm; Width: 500mm; Height: adjustable feet
Measurement Areas	Left Head, Right Head, Flat phantom



Fig. 8.7 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>

The ELI4 phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30MHz to 6 GHz. ELI4 is fully compatible with the latest draft of the standard IEC 62209-2 and all known tissue simulating liquids.

ELI4 has been optimized regarding its performance and can be integrated into a SPEAG standard phantom table. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom can be used with the following tissue simulating liquids:

- Water-sugar based liquids can be left permanently in the phantom. Always cover the liquid if the system is not in use; otherwise the parameters will change due to water evaporation.
- DGBE based liquids should be used with care. As DGBE is a softener for most plastics, the liquid should be taken out of the phantom and the phantom should be dried when the system is not in use (desirable at least once a week).
- Do not use other organic solvents without previously testing the phantom resistiveness.

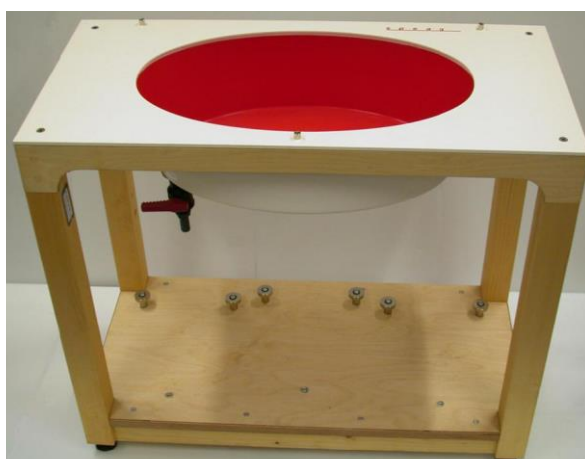


Fig.8.8 Photo of ELI4 Phantom

8.7 Device Holder

<Device Holder for SAM Twin Phantom>

The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source at 5 mm distance, a positioning uncertainty of ± 0.5 mm 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 $\epsilon = 3$ and loss tangent $\delta = 0.02$. 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.



Fig. 8.9 Photo of Device Holder

8.8 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 verifications 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], [mW/g]). Some of these units are not available in certain situations or give meaningless results, e.g., a SAR-output in a non-loss 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	ConvF _i
	- Diode compression point	dcp _i
Device Parameters:	- Frequency	f
	- Crest	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:

$$\text{E- Field Probes: } E_i = \sqrt{\frac{V_i}{\text{Norm}_i \text{ConvF}}}$$

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

With V_i = compensated signal of channel i, (i = x, y, z)
 Norm_i = sensor sensitivity of channel i, (i = x, y, z), $\mu\text{V}/(\text{V/m})^2$
 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):

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

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

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

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 = equipment 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.

8.9 Test Equipment List

Manufacturer	Equipment Description	Model	S/N	Cal. Information	
				Last Cal.	Due Date
SPEAG	835MHz System Validation Kit	D835V2	4d154	06.11.2019	06.10.2022
MVG	COMOSAR 1800 MHz REFERENCE DIPOLE	SID1800	SN 09/15 DIP 1G800-360	02.28.2018	02.27.2021
SPEAG	1900MHz System Validation Kit	D1900V2	5d175	06.11.2019	06.10.2022
SPEAG	2450MHz System Validation Kit	D2450V2	910	06.10.2019	06.09.2022
SPEAG	2600MHz System Validation Kit	D2600V2	1114	11.05.2018	11.04.2021
SPEAG	Data Acquisition Electronics	DAE4	1373	07.27.2020	07.26.2021
SPEAG	Dosimetric E-Field Probe	EX3DV4	3924	09.23.2020	09.22.2021
SPEAG	DASY 52 Measurement Software	DASY 52	Version: 52.8.8.1222	N.C.R	N.C.R
SPEAG	DASY 52 File Conversion Software	SEMCAD X	Version: 14.6.10 (7331)	N.C.R	N.C.R
SPEAG	Phantom	Twin Phantom	1765	N.C.R	N.C.R
SPEAG	Phantom	ELI V5.0	1208	N.C.R	N.C.R
SPEAG	Phone Positioner	N/A	N/A	N.C.R	N.C.R
Stäubli	Robot	TX60L	F13/5P6VB1/A/01	N.C.R	N.C.R
Anritsu	Universal Radio Communication Analyzer	MT8820C	6201060814	03.18.2020	03.17.2021
R&S	Universal Radio Communication Tester	CMU200	113097	03.18.2020	03.17.2021
HP	Network Analyzer	8753D	3410A06291	06.18.2020	06.17.2021
Agilent	Spectrum Analyzer	ESRP7	101070	03.18.2020	03.17.2021
R&S	Spectrum Analyzer	FSP30	101454	03.18.2020	03.17.2021
R&S	Signal Generator	N5182A	MY49060014	11.10.2019	11.09.2020
Huber Suhner	RF Cable	SUCOFLEX	12341	See Note 3	
Huber Suhner	RF Cable	SUCOFLEX	17268	See Note 3	
Huber Suhner	RF Cable	SUCOFLEX	2080	See Note 3	
Weinschel	Attenuator	23-3-34	BL5513	See Note 3	
Weinschel	Attenuator	23-3-34	BL5513	See Note 3	
N/A	Directional Coupler	SHWDCP-050180-10S	281	See Note 3	
SPEAG	Dielectric Assessment Kit	3.5 Probe	1119	See Note 4	
SPEAG	DAK Measurement Software	DAK	Version: DAK 3.5	N.C.R	
ERA	Wideband Amplifier	WDA-00100800-24P26	LNA-00500200-2515	See Note 5	

Note:

- The calibration certificate of DASY can be referred to appendix C of this report.
- Referring to KDB 865664 D01v01r04, the dipole calibration interval can be extended to 3 years with justification. The dipoles are also not physically damaged, or repaired during the interval.
- The Insertion Loss calibration of Dual Directional Coupler and Attenuator were characterized via the network analyzer and compensated during system check.
- 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 Speag.
- In system check we need to monitor the level on the spectrum analyzer, and adjust the power amplifier level to have precise power level to the dipole; the measured SAR will be normalized to 1 W input power according to the ratio of 1 W 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 spectrum analyzer is critical and we do have calibration for it.
- Attenuator insertion loss is calibrated by the network Analyzer, which the calibration is valid, before system check.
- N.C.R means No Calibration Requirement.

9 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. 9.1, for body SAR testing, the liquid height from the center of the flat phantom to liquid top surface is larger than 15 cm, which is shown in Fig. 9.2.

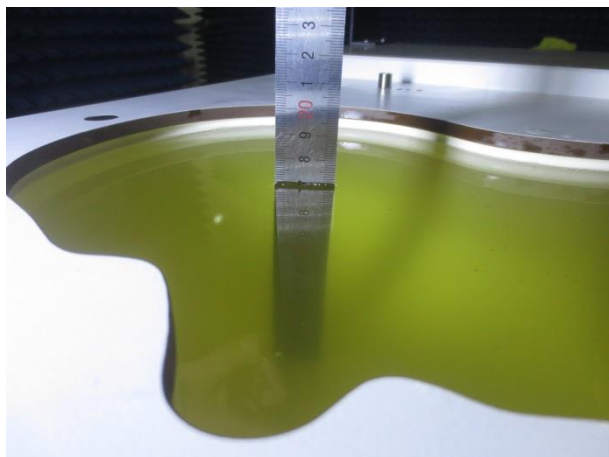


Fig. 9.1 Photo of Liquid Height for Head SAR (700MHz~1000MHz)(depth>15cm)

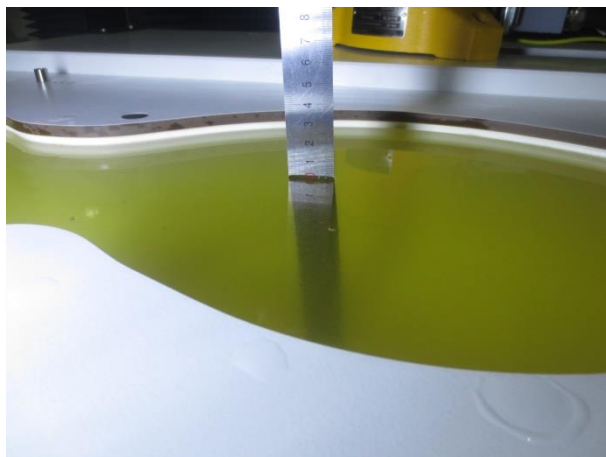


Fig. 9.2 Photo of Liquid Height for Body SAR (700MHz~1000MHz)(depth>15cm)

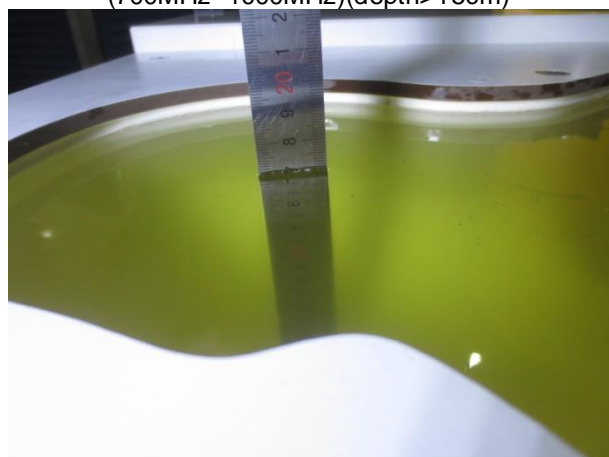


Fig. 9.3 Photo of Liquid Height for Head SAR (1700MHz~2000MHz)(depth>15cm)

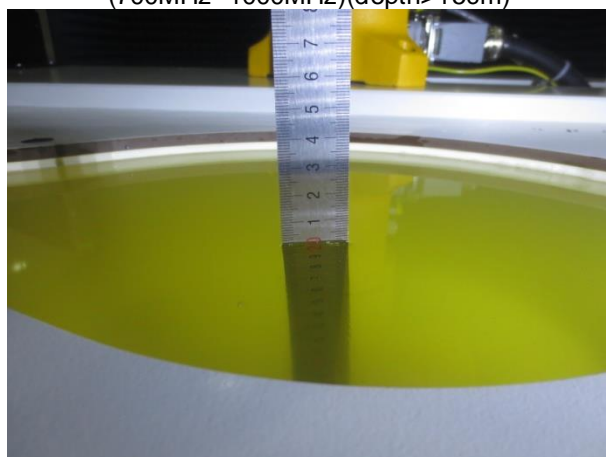


Fig. 9.4 Photo of Liquid Height for Body SAR (1700MHz~2000MHz) (depth>15cm)

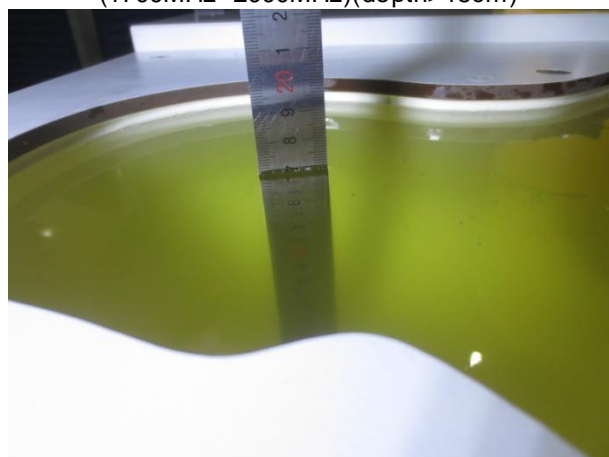


Fig. 9.5 Photo of Liquid Height for Head SAR (2000MHz~2600MHz)(depth>15cm)

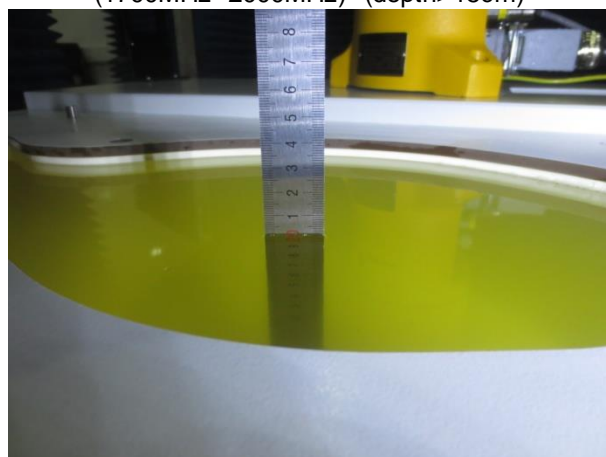


Fig. 9.6 Photo of Liquid Height for Body SAR (2000MHz~2600MHz)(depth>15cm)

The following table gives the recipes for tissue simulating liquid.

Frequency (MHz)	Real part of the complex relative permittivity, $\epsilon' r$	Conductivity, σ (S/m)
30	55.0	0.75
150	52.3	0.76
300	45.3	0.87
450	43.5	0.87
835	41.5	0.90
900	41.5	0.97
1450	40.5	1.20
1800	40.0	1.40
1900	40.0	1.40
1950	40.0	1.40
2000	40.0	1.40
2100	39.8	1.49
2450	39.2	1.80
2600	39.0	1.96
3000	38.5	2.40
4000	37.4	3.43
5000	36.2	4.45
5200	36.0	4.66
5400	35.8	4.86
5600	35.5	5.07
5800	35.3	5.27
6000	35.1	5.48

Note:

According to EN 62209-2:2010, the liquid parameters for head are the same as body requirements.

The dielectric parameters of liquids were verified prior to the SAR evaluation using a Speag Dielectric Probe Kit and an Agilent Network Analyzer.

The following table shows the measuring results for simulating liquid.

Frequency (MHz)	Liquid Temp. (°C)	Conductivity (σ)	Permittivity (ϵ_r)	Conductivity Target(σ)	Permittivity Target(ϵ_r)	Delta (σ)%	Delta (ϵ_r)%	Limit (%)	Date (mm/dd/yy)
835	22.7	0.92	41.25	0.90	41.5	2.22	-0.60	±5	10.16.2020
1800	22.9	1.40	39.63	1.40	40.0	0	-0.92	±5	10.11.2020
1900	22.9	1.43	39.15	1.40	40.0	2.14	-2.13	±5	10.11.2020
2450	23.0	1.78	39.76	1.80	39.2	-1.11	1.43	±5	10.14.2020
2600	23.0	1.99	38.48	1.96	39.0	1.53	-1.33	±5	10.14.2020

10 SAR System Verification

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:

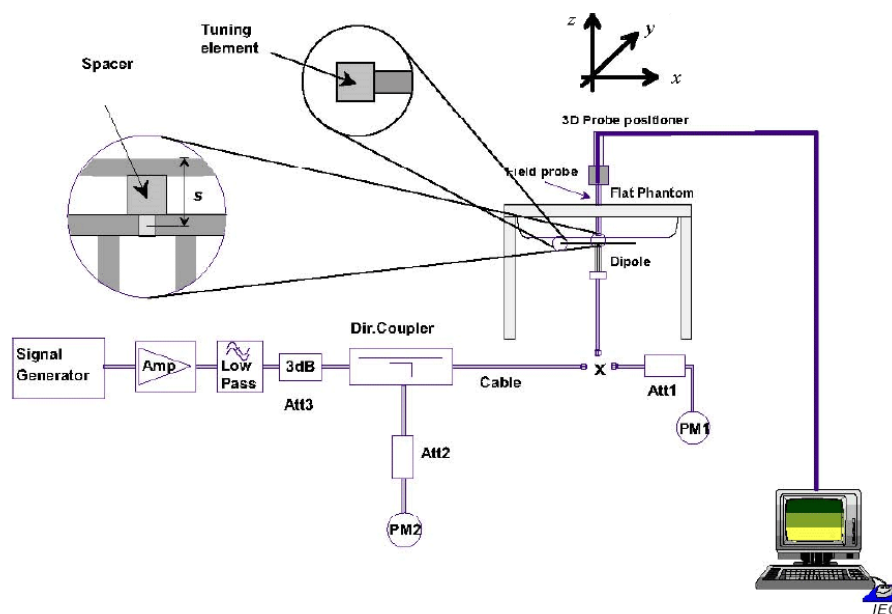


Fig.10.1 System Verification Setup Diagram



Fig.10.2 Photo of Dipole setup

➤ **System Verification Results**

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

Date (mm/dd/yy)	Frequency (MHz)	Power fed onto dipole (mW)	Measured 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Target 10g SAR (W/kg)	Deviation (%)
10.16.2020	835	80	0.514	6.43	6.33	1.58
10.11.2020	1800	40	0.821	20.53	20.29	1.18
10.11.2020	1900	40	0.838	20.95	20.4	2.70
10.14.2020	2450	40	2.14	53.5	52.6	1.71
10.14.2020	2600	40	2.28	57.0	56.3	1.24

11 EUT Testing Position

This EUT was tested in six different positions. They are right cheek/right tilted/left cheek/left tilted for head, Front/Back of the EUT with phantom 5 mm gap, as illustrated below, please refer to Appendix B for the test setup photos.

11.1 Handset Reference Points

- The vertical centreline 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.
- The horizontal line is perpendicular to the vertical centreline and passes the center of the acoustic output. The horizontal line is also tangential to the handset at point A.
- 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 centreline is not necessarily parallel to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.



Fig.11.1 Illustration for Front, Back and Side of SAM Phantom

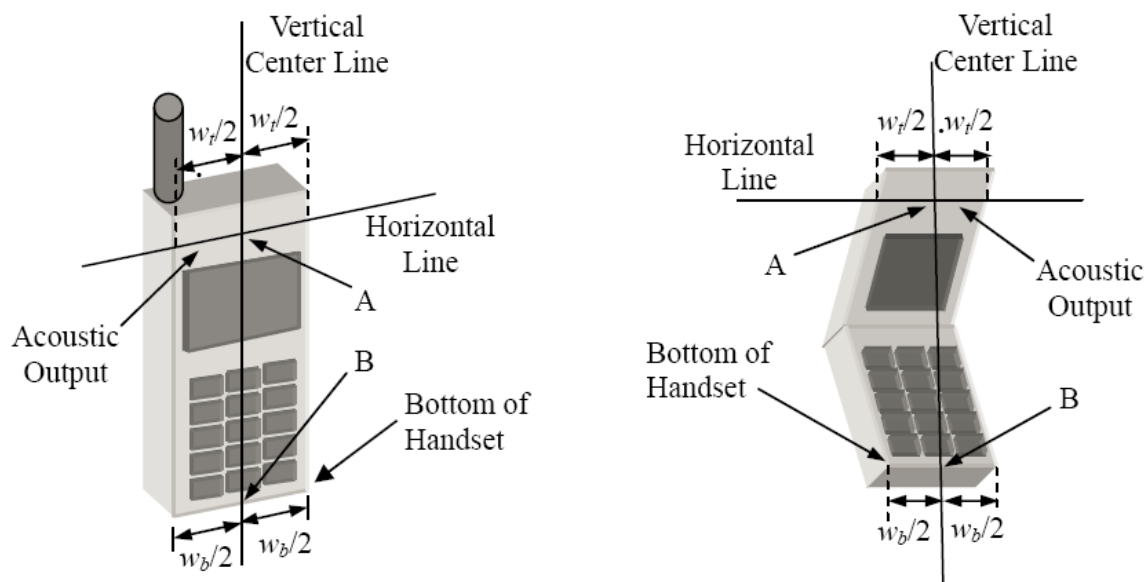


Fig. 11.2 Illustration for Handset Vertical and Horizontal Reference Lines

11.2 Positioning for Cheek / Touch

- 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.
- 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 (see below figure)



Fig. 11.3 Illustration for Cheek Position

11.3 Positioning for Ear / 15° Tilt

- To position the device in the “cheek” position described above.
- 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 figure below).



Fig.11.4 Illustration for Tilted Position

11.4 Body Worn Accessory Configurations

- To position the device parallel to the phantom surface with either keypad up or down.
- To adjust the device parallel to the flat phantom.
- To adjust the distance between the device surface and the flat phantom to 5 mm or holster surface and the flat phantom to 0 mm.

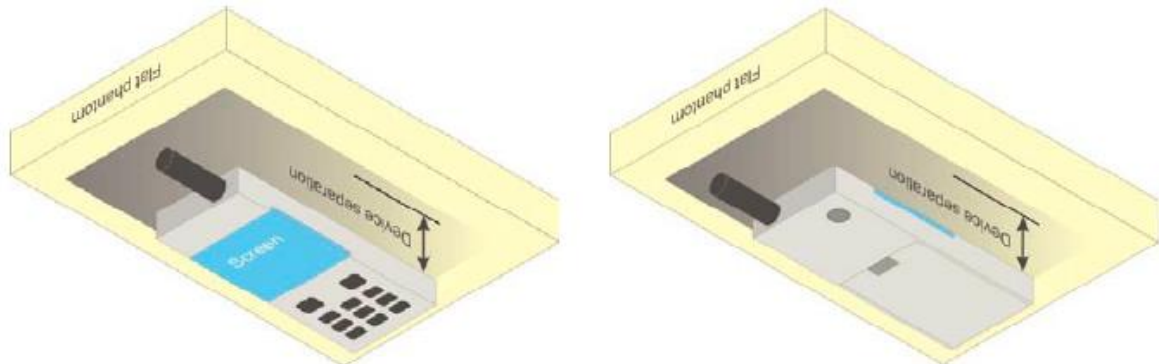


Fig.11.5 Illustration for Body Worn Position

11.5 Hotspot Accessory Configurations

- The SAR evaluation shall be performed for all surfaces of the DUT that are accessible during intended use, as indicated in Figure 11.6. The separation distance in testing shall correspond to the intended use distance as specified in the user instructions provided by the manufacturer.
- If the intended use is not specified, all surfaces of the DUT shall be tested directly against the flat phantom.
- The surface of the generic device (or the surface of the carry accessory holding the DUT) pointing towards the flat phantom shall be parallel to the surface of the phantom.
- For DUTs with multiple antennas, the same principles are applicable, and all the relevant combinations of antenna positions shall be tested. Annex C provides more insight on the way to reduce the number of combinations tested.

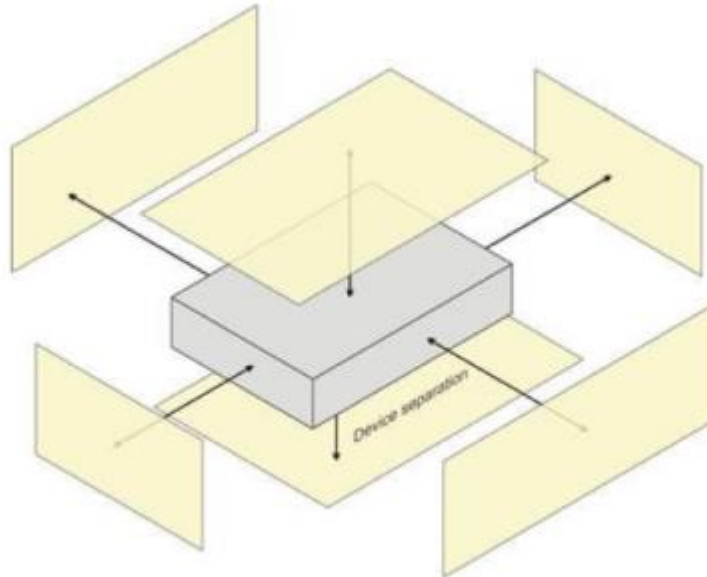


Fig.11.6 Illustration for Hotspot Position

12 Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

- For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
- Read the WWAN RF power level from the base station simulator.
- For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band.
- Connect EUT RF port through RF cable to the power meter or spectrum analyzer, and measure WLAN/BT output power.

<Conducted power measurement>

- Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
- Place the EUT in positions as Appendix B demonstrates.
- Set scan area, grid size and other setting on the DASY software.
- Measure SAR results for the highest power channel on each testing position.
- Find out the largest SAR result on these testing positions of each band.
- Measure SAR results for other channels in worst SAR testing position if the Reported SAR or highest power channel is larger than 1.0 W/kg.

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

- Power reference measurement
- Area scan
- Zoom scan
- Power drift measurement

12.1 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 10 g 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 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

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

12.2 Power Reference Measurement

The Power Reference Measurement and Power Drift Measurement 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.

12.3 Area Scan Procedures

Area scans are defined prior to the measurement process being executed with a user defined variable spacing between each measurement point (integral) allowing low uncertainty measurements to be conducted. Scans defined for FCC applications utilize a 10mm^2 step integral, with 1mm interpolation used to locate the peak SAR area used for zoom scan assessments.

When an Area Scan has measured all reachable points, it computes the field maxima 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 IEEE1528-2003, EN 50361 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan).

12.4 Zoom Scan Procedures

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. A density of 1000 kg/m^3 is used to represent the head and body tissue density and not the phantom liquid density, in order to be consistent with the definition of the liquid dielectric properties, i.e. the side length of the 1g cube is 10mm, with the side length of the 10 g cube 21,5mm. The zoom scan integer steps can be user defined so as to reduce uncertainty, but normal practice for typical test applications utilize a physical step of $5 \times 5 \times 7$ (8mmx8mmx5mm) providing a volume of 32mm in the X & Y axis, and 30mm in the Z axis.

12.5 SAR Averaged Methods

In DASY, the interpolation and extrapolation are both based on the modified Quadratic Sheppard'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 1g and 10g cubes, the extrapolation distance should not be larger than 5 mm.

12.6 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.

13 RF Output Power

13.1 GSM Conducted Power

SIM 1:

Band	GSM 900			DCS 1800		
Channel	975	60	124	512	700	885
Frequency	880.2	902	914.8	1710.2	1747.8	1784.8
GSM	32.36	32.85	32.43	30.94	30.89	31.03
GPRS (1 TX Slot)	32.36	32.84	32.43	30.93	30.89	31.03
GPRS (2 TX Slots)	30.89	31.28	31.09	29.66	29.38	29.54
GPRS (3 TX Slots)	30.19	29.88	29.74	28.27	28.61	28.82
GPRS (4 TX Slots)	28.67	29.17	28.86	26.83	27.25	26.94
EGPRS (1 TX Slot)	27.56	27.96	27.43	25.12	24.98	24.76
EGPRS (2 TX Slots)	25.89	25.36	25.13	24.26	24.21	24.16
EGPRS (3 TX Slots)	25.08	24.84	24.30	23.00	23.13	22.88
EGPRS (4 TX Slots)	24.66	24.47	24.59	22.57	22.49	22.12

Note:

1. Cuz the conducted Power of SIM 2 less than SIM 1, we chose SIM 1 to perform a SAR test.

13.2 WCDMA Conducted Power

Band	WCDMA Band I			WCDMA Band VIII		
Channel	9612	9750	9888	2712	2788	2863
Frequency	1922.4	1950	1977.6	882.4	897.6	912.6
WCDMA	22.60	22.63	22.60	23.51	23.22	23.04
HSDPA Sub-test 1	21.40	21.70	21.66	21.37	22.24	22.06
HSDPA Sub-test 2	20.96	20.98	21.07	21.71	21.65	21.33
HSDPA Sub-test 3	20.04	20.14	20.33	20.84	20.91	20.71
HSDPA Sub-test 4	19.83	20.04	20.36	20.99	20.82	20.87
HSUPA Sub-test 1	19.38	21.31	21.24	19.76	21.98	21.52
HSUPA Sub-test 2	21.44	21.59	21.54	22.47	22.10	21.86
HSUPA Sub-test 3	20.25	20.31	20.16	21.13	21.12	20.70
HSUPA Sub-test 4	21.58	21.69	21.62	22.54	22.25	22.08
HSUPA Sub-test 5	20.85	20.94	21.10	21.74	21.70	21.35

13.3 LTE Conducted Power

Band	Modulation	Bandwidth (MHz)	UL Channel	Frequency	RB Size	RB Position	Power (dBm)
1	QPSK	5	18025	1922.5	1	#0	23.39
					1	#Max	23.40
					8	#0	23.46
					8	#Max	23.50
			18300	1950.0	1	#0	23.59
					1	#Max	23.60
					8	#0	23.72
					8	#Max	23.68
			18575	1977.5	1	#0	23.30
					1	#Max	23.41
					8	#0	23.51
					8	#Max	23.55
		20	18100	1930.0	1	#0	23.32
					1	#Max	23.29
					18	#0	23.44
					18	#Max	23.29
			18300	1950.0	1	#0	23.42
					1	#Max	23.33
					18	#0	23.41
					18	#Max	23.34
			18500	1970.0	1	#0	23.25
					1	#Max	23.28
					18	#0	23.32
					18	#Max	23.32

Band	Modulation	Bandwidth (MHz)	UL Channel	Frequency	RB Size	RB Position	Power (dBm)
3	QPSK	1.4	19207	1710.7	1	#0	24.26
					1	#Max	24.19
					5	#0	24.39
					5	#Max	24.37
			19575	1747.5	1	#0	23.50
					1	#Max	23.49
					5	#0	23.53
					5	#Max	23.53
			19943	1784.3	1	#0	24.03
					1	#Max	24.04
					5	#0	24.06
					5	#Max	24.01
		5	19225	1712.5	1	#0	24.22
					1	#Max	24.09
					8	#0	24.33
					8	#Max	24.19
			19575	1747.5	1	#0	23.35
					1	#Max	23.37
					8	#0	23.50
					8	#Max	23.49
			19925	1782.5	1	#0	23.56
					1	#Max	23.42
					8	#0	23.42
					8	#Max	23.46
		20	19300	1720.0	1	#0	24.14
					1	#Max	23.64
					18	#0	24.12
					18	#Max	23.62
			19575	1747.5	1	#0	22.73
					1	#Max	22.89
					18	#0	22.81
					18	#Max	22.95
			19850	1775.0	1	#0	22.69
					1	#Max	23.25
					18	#0	22.88
					18	#Max	23.34

Band	Modulation	Bandwidth (MHz)	UL Channel	Frequency	RB Size	RB Position	Power (dBm)
7	QPSK	5	20775	2502.5	1	#0	23.22
					1	#Max	23.18
					8	#0	23.23
					8	#Max	23.31
			21100	2535.0	1	#0	23.47
					1	#Max	23.51
					8	#0	23.50
					8	#Max	23.57
			21425	2567.5	1	#0	23.24
					1	#Max	23.29
					8	#0	23.39
					8	#Max	23.44
		20	20850	2510.0	1	#0	23.16
					1	#Max	23.12
					18	#0	23.19
					18	#Max	23.19
			21100	2535.0	1	#0	23.32
					1	#Max	23.43
					18	#0	23.38
					18	#Max	23.43
			21350	2560.0	1	#0	23.22
					1	#Max	23.24
					18	#0	23.31
					18	#Max	23.34

Band	Modulation	Bandwidth (MHz)	UL Channel	Frequency	RB Size	RB Position	Power (dBm)
8	QPSK	1.4	21457	880.7	1	#0	24.22
					1	#Max	24.25
					5	#0	24.27
					5	#Max	24.26
			21625	897.5	1	#0	23.98
					1	#Max	23.93
					5	#0	24.01
					5	#Max	24.07
			21793	21793	1	#0	23.81
					1	#Max	23.83
					5	#0	23.84
					5	#Max	23.85
		5	21475	882.5	1	#0	24.09
					1	#Max	24.21
					8	#0	24.25
					8	#Max	24.25
			21625	897.5	1	#0	23.98
					1	#Max	23.95
					8	#0	24.01
					8	#Max	23.95
			21775	912.5	1	#0	23.60
					1	#Max	23.67
					8	#0	23.78
					8	#Max	23.69
		10	21500	885.0	1	#0	24.25
					1	#Max	24.35
					12	#0	24.23
					12	#Max	24.38
			21625	897.5	1	#0	24.14
					1	#Max	23.87
					12	#0	24.09
					12	#Max	23.89
			21750	910.0	1	#0	23.74
					1	#Max	23.83
					12	#0	23.74
					12	#Max	23.66

Band	Modulation	Bandwidth (MHz)	UL Channel	Frequency	RB Size	RB Position	Power (dBm)
20	QPSK	5	24175	834.5	1	#0	23.61
					1	#Max	23.56
					8	#0	23.69
					8	#Max	23.76
			24300	847.0	1	#0	23.54
					1	#Max	23.50
					8	#0	23.59
					8	#Max	23.61
			24425	859.5	1	#0	23.47
					1	#Max	23.52
					8	#0	23.58
					8	#Max	23.54
		20	24250	842.0	1	#0	23.54
					1	#Max	23.43
					18	#0	23.52
					18	#Max	23.58
			24300	847.0	1	#0	23.43
					1	#Max	23.33
					18	#0	23.53
					18	#Max	23.45
			24350	852.0	1	#0	23.28
					1	#Max	23.37
					18	#0	23.45
					18	#Max	23.33

13.4 2.4GHz WLAN EIRP Power

Average Power (dBm)				
Channel	Frequency (MHz)	802.11b	802.11g	802.11n-HT20
CH 01	2412	15.42	14.37	13.22
CH 07	2442	15.25	14.40	13.72
CH 13	2472	15.70	14.47	13.36

Average Power (dBm)		
Channel	Frequency (MHz)	802.11n-HT40
CH 03	2422	12.49
CH 07	2442	12.17
CH 11	2462	12.87

Note:

- When the EUT in continuously transmitting mode, the actual duty cycle is 98.2%, so the duty cycle factor is 1.02

13.5 Bluetooth EIRP Power

Bluetooth Average Power (dBm)				
Channel	Modulation	GFSK	$\pi/4$ -DQPSK	8DPSK
CH 01	2402	9.70	8.01	8.26
CH 39	2441	9.88	8.06	8.23
CH 78	2480	9.26	8.02	8.15

Average Power (dBm)		
Channel	Frequency (MHz)	BLE
CH 00	2402	-2.08
CH 20	2442	-1.60
CH 39	2480	-1.40

Note:

2. The maximum permissible duty cycle of this device determined by the handset manufacturer is 90%, the actual duty cycle is 76.63%, so the duty cycle factor is 1.17.

14 EUT Antenna Locations





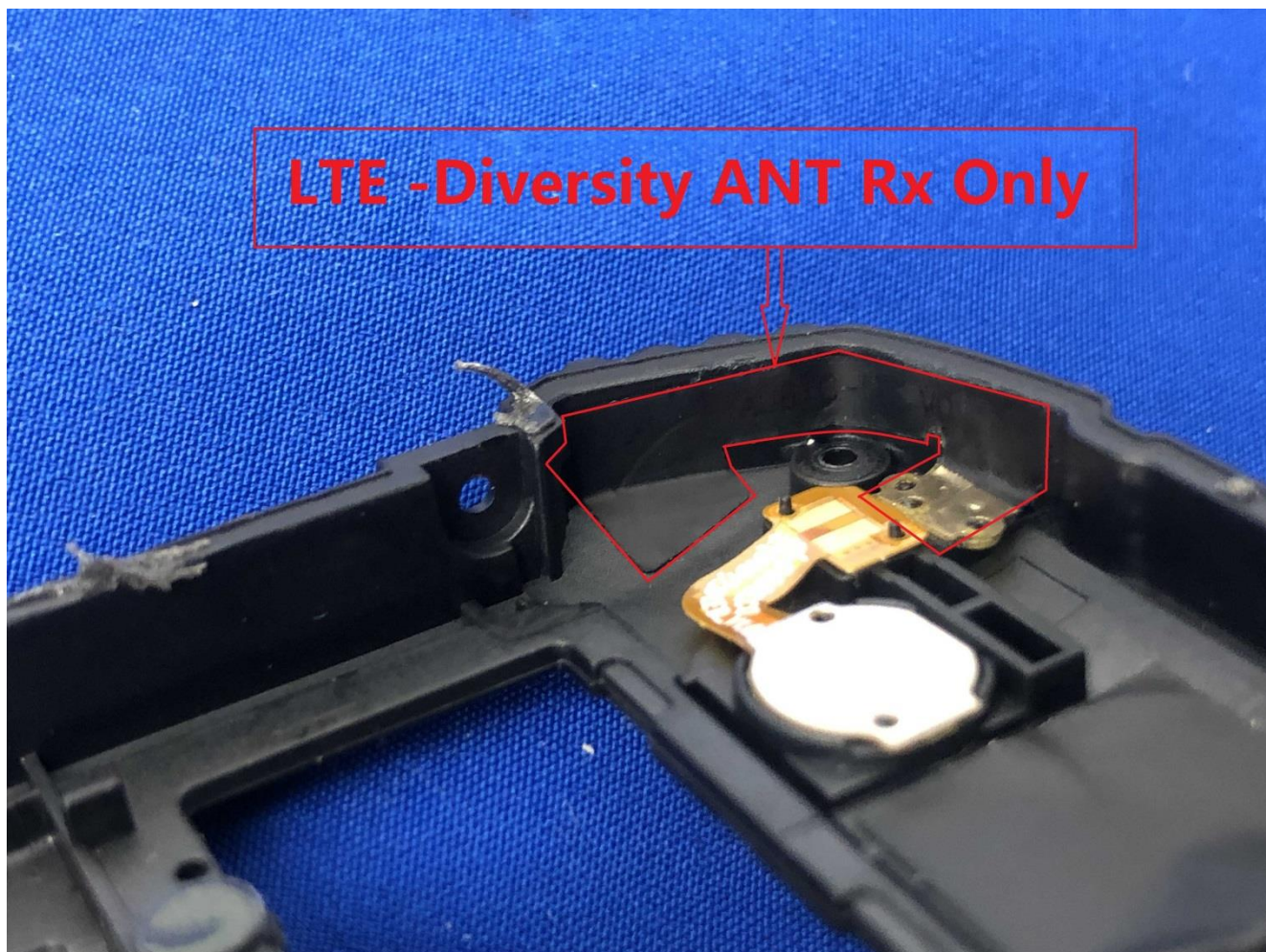
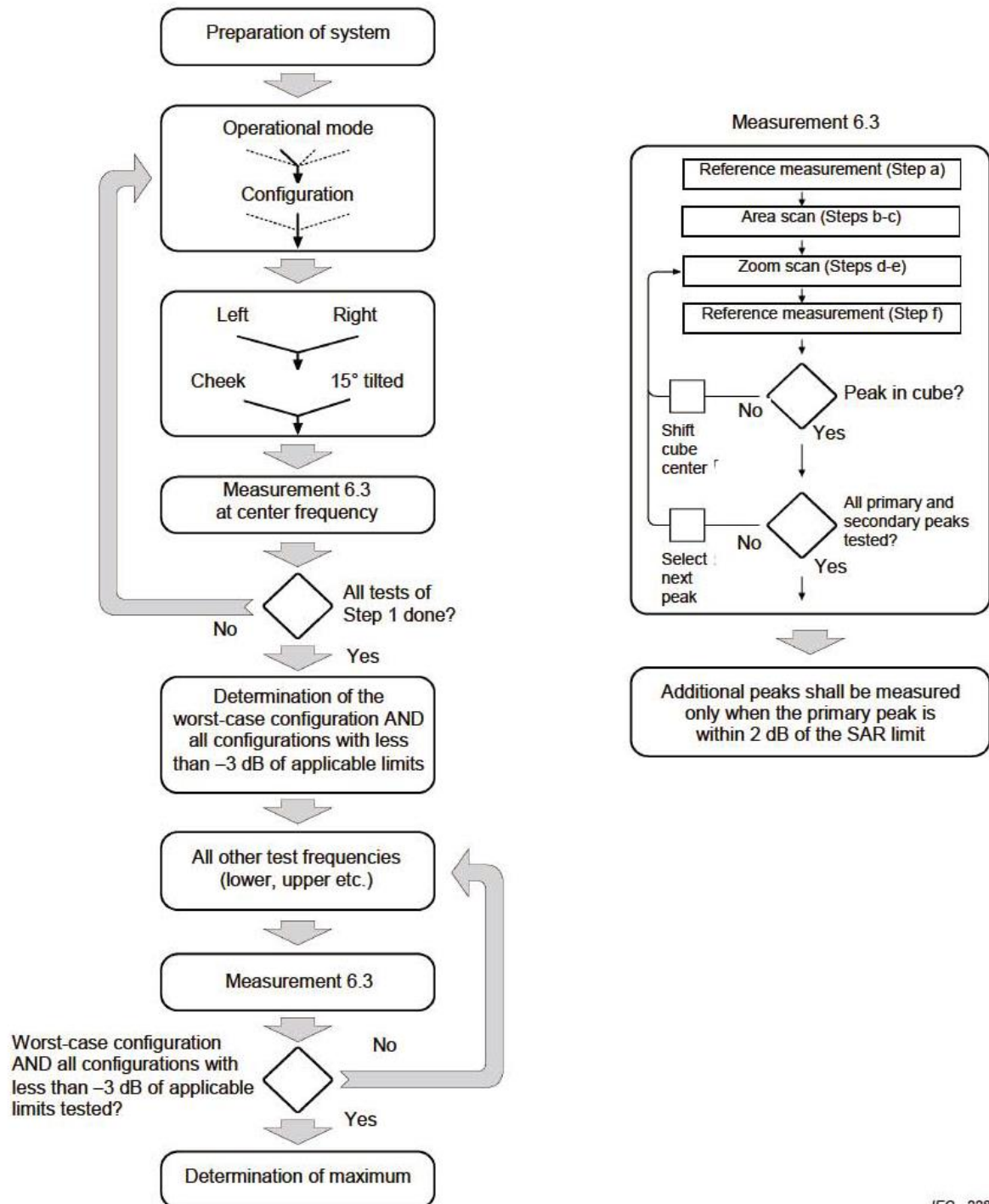


Fig.14.1 EUT Antenna Locations

15 Block diagram of the tests to be Performed

15.1 Head



IEC 228/05

15.2 Body

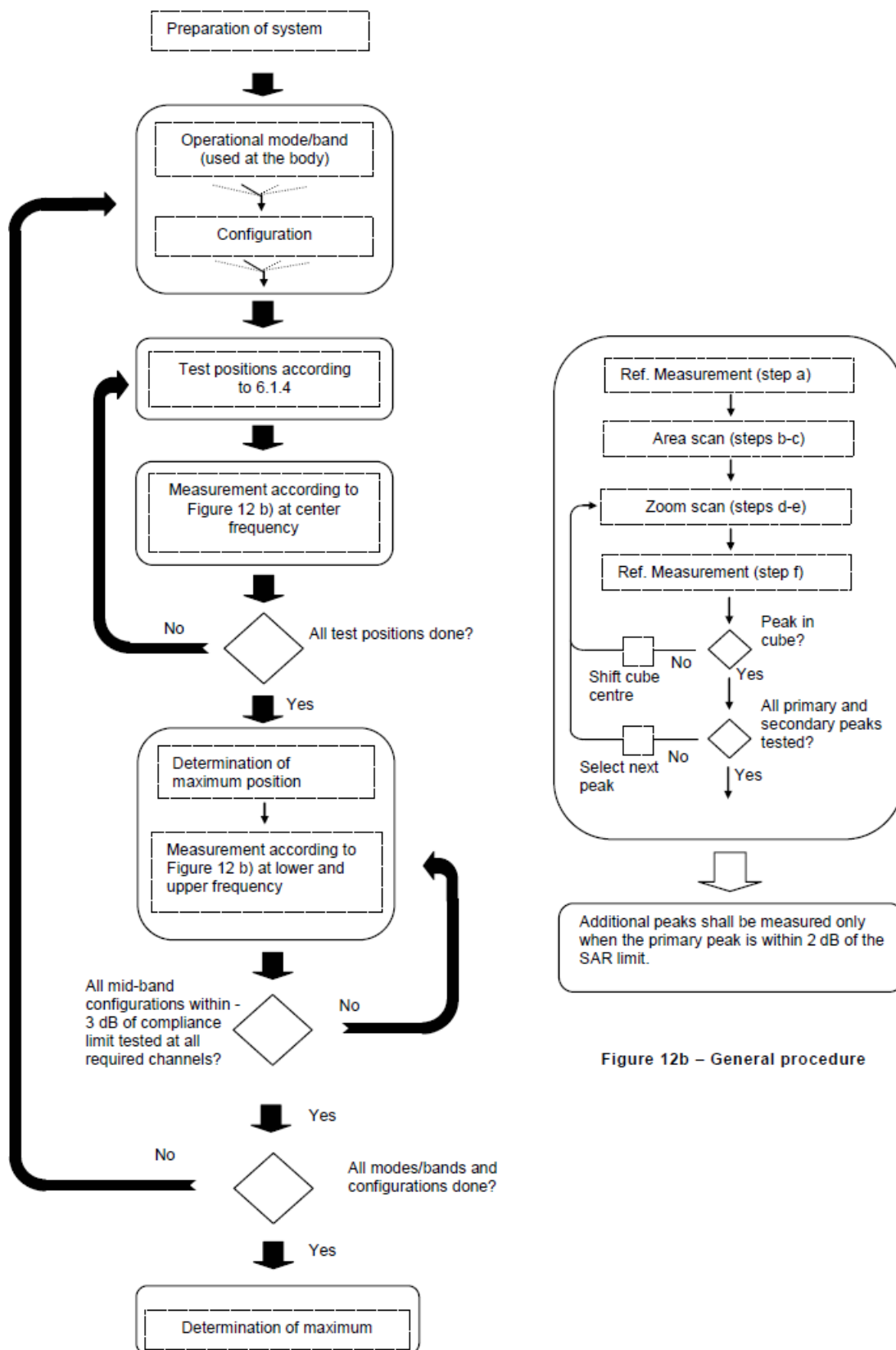


Figure 12b – General procedure

16 SAR Test Results Summary

16.1 Head SAR Data

➤ GSM Head SAR

Plot No.	Band/Mode	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{10g} (W/kg)	Scaling Factor	Reported SAR _{10g} (W/kg)
1	GSM900/Voice	Right Cheek	60	902	32.85	0.08	33.0	0.358	1.035	0.371
	GSM900/Voice	Right Tilted	60	902	32.85	0.01	33.0	0.148	1.035	0.153
	GSM900/Voice	Left Cheek	60	902	32.85	0.03	33.0	0.288	1.035	0.298
	GSM900/Voice	Left Tilted	60	902	32.85	-0.05	33.0	0.110	1.035	0.114
	GSM900/Voice	Right Cheek	975	880.2	32.36	-0.10	32.5	0.347	1.033	0.358
	GSM900/Voice	Right Cheek	124	914.8	32.43	-0.01	32.5	0.336	1.016	0.341
2	GSM1800/Voice	Right Cheek	700	1747.8	30.89	0.04	31.0	0.382	1.026	0.392
	GSM1800/Voice	Right Tilted	700	1747.8	30.89	-0.02	31.0	0.164	1.026	0.168
	GSM1800/Voice	Left Cheek	700	1747.8	30.89	0.06	31.0	0.215	1.026	0.221
	GSM1800/Voice	Left Tilted	700	1747.8	30.89	0.01	31.0	0.105	1.026	0.108
	GSM1800/Voice	Right Cheek	512	1710.2	30.94	0.08	31.0	0.368	1.014	0.373
	GSM1800/Voice	Right Cheek	885	1784.8	31.03	0.02	31.5	0.375	1.114	0.418
SAR LIMIT					2.0 W/kg (mW/g)					
Uncontrolled Exposure/General Population					Averaged over 10g					

➤ WCDMA Head SAR

Plot No.	Band/Mode	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{10g} (W/kg)	Scaling Factor	Reported SAR _{10g} (W/kg)
3	WCDMA Band I	Right Cheek	9750	1950	22.63	-0.02	23.0	0.520	1.089	0.566
	WCDMA Band I	Right Tilted	9750	1950	22.63	-0.13	23.0	0.354	1.089	0.386
	WCDMA Band I	Left Cheek	9750	1950	22.63	-0.26	23.0	0.411	1.089	0.448
	WCDMA Band I	Left Tilted	9750	1950	22.63	-0.04	23.0	0.258	1.089	0.281
	WCDMA Band I	Right Cheek	9612	1922.4	22.60	0.05	23.0	0.512	1.096	0.561
	WCDMA Band I	Right Cheek	9888	1977.6	22.60	0.01	23.0	0.504	1.096	0.552
4	WCDMA Band VIII	Right Cheek	2788	897.6	23.22	-0.13	23.5	0.452	1.067	0.482
	WCDMA Band VIII	Right Tilted	2788	897.6	23.22	0.02	23.5	0.216	1.067	0.230
	WCDMA Band VIII	Left Cheek	2788	897.6	23.22	-0.05	23.5	0.352	1.067	0.376
	WCDMA Band VIII	Left Tilted	2788	897.6	23.22	0.01	23.5	0.186	1.067	0.198
	WCDMA Band VIII	Right Cheek	2712	882.4	23.51	-0.02	24.0	0.448	1.119	0.501
	WCDMA Band VIII	Right Cheek	2863	912.6	23.04	0.10	23.5	0.433	1.112	0.481
SAR LIMIT					2.0 W/kg (mW/g)					
Uncontrolled Exposure/General Population					Averaged over 10g					

➤ LTE Head SAR

Plot No.	Band/Mode	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{10g} (W/kg)	Scaling Factor	Reported SAR _{10g} (W/kg)
5	LTE Band 1 /1RB#0 20M	Right Cheek	18300	1950.0	23.42	0.08	23.5	0.292	1.019	0.298
	LTE Band 1 /1RB#0 20M	Right Tilted	18300	1950.0	23.42	0.12	23.5	0.108	1.019	0.110
	LTE Band 1 /1RB#0 20M	Left Cheek	18300	1950.0	23.42	-0.02	23.5	0.165	1.019	0.168
	LTE Band 1 /1RB#0 20M	Left Tilted	18300	1950.0	23.42	-0.03	23.5	0.078	1.019	0.079
	LTE Band 1 /1RB#0 20M	Right Cheek	18100	1930.0	23.44	-0.04	23.5	0.275	1.014	0.279
	LTE Band 1 /1RB#0 20M	Right Cheek	18500	1970.0	23.32	0.03	23.5	0.281	1.042	0.293

6	LTE Band 3 /1RB#0 20M	Right Cheek	19575	1747.5	22.95	0.13	23.0	0.329	1.012	0.333
	LTE Band 3 /1RB#0 20M	Right Tilted	19575	1747.5	22.95	0.02	23.0	0.174	1.012	0.176
	LTE Band 3 /1RB#0 20M	Left Cheek	19575	1747.5	22.95	0.07	23.0	0.228	1.012	0.231
	LTE Band 3 /1RB#0 20M	Left Tilted	19575	1747.5	22.95	-0.05	23.0	0.135	1.012	0.137
	LTE Band 3 /1RB#0 20M	Right Cheek	19300	1720.0	24.14	0.11	24.5	0.321	1.086	0.349
	LTE Band 3 /1RB#0 20M	Right Cheek	19850	1775.0	23.34	-0.02	23.5	0.317	1.038	0.329
	LTE Band 7 /1RB#0 20M	Right Cheek	21100	2535.0	23.43	0.18	23.5	0.214	1.016	0.217
	LTE Band 7 /1RB#0 20M	Right Tilted	21100	2535.0	23.43	0.08	23.5	0.162	1.016	0.165
7	LTE Band 7 /1RB#0 20M	Left Cheek	21100	2535.0	23.43	0.09	23.5	0.490	1.016	0.498
	LTE Band 7 /1RB#0 20M	Left Tilted	21100	2535.0	23.43	-0.04	23.5	0.308	1.016	0.313
	LTE Band 7 /1RB#0 20M	Left Cheek	20850	2510.0	23.19	-0.06	23.5	0.472	1.074	0.507
	LTE Band 7 /1RB#0 20M	Left Cheek	21350	2560.0	23.34	0.01	23.5	0.481	1.038	0.499
8	LTE Band 8 /1RB#0 10M	Right Cheek	21625	897.5	24.14	0.15	24.5	0.263	1.086	0.286
	LTE Band 8 /1RB#0 10M	Right Tilted	21625	897.5	24.14	0.11	24.5	0.132	1.086	0.143
	LTE Band 8 /1RB#0 10M	Left Cheek	21625	897.5	24.14	0.08	24.5	0.203	1.086	0.220
	LTE Band 8 /1RB#0 10M	Left Tilted	21625	897.5	24.14	-0.03	24.5	0.114	1.086	0.124
	LTE Band 8 /1RB#0 10M	Right Cheek	21500	885.0	24.38	0.10	24.5	0.258	1.028	0.265
	LTE Band 8 /1RB#0 10M	Right Cheek	21750	910.0	23.83	0.07	24.0	0.247	1.040	0.257
9	LTE Band 20 /1RB#0 20M	Right Cheek	24300	847.0	23.53	-0.05	24.0	0.226	1.114	0.252
	LTE Band 20 /1RB#0 20M	Right Tilted	24300	847.0	23.53	0.02	24.0	0.108	1.114	0.120
	LTE Band 20 /1RB#0 20M	Left Cheek	24300	847.0	23.53	-0.13	24.0	0.174	1.114	0.194
	LTE Band 20 /1RB#0 20M	Left Tilted	24300	847.0	23.53	-0.01	24.0	0.088	1.114	0.098
	LTE Band 20 /1RB#0 20M	Right Cheek	24250	842.0	23.58	0.02	24.0	0.203	1.102	0.224
	LTE Band 20 /1RB#0 20M	Right Cheek	24350	852.0	23.45	-0.03	23.5	0.211	1.012	0.214
SAR LIMIT					2.0 W/kg (mW/g)					
Uncontrolled Exposure/General Population					Averaged over 10g					

➤ WLAN 2.4 GHz Head SAR

Plot No.	Band/Mode	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{1g} (W/kg)
10	802.11b	Right Cheek	07	2442	15.25	-0.13	15.5	0.075	1.059	1.02	0.081
	802.11b	Right Tilted	07	2442	15.25	0.07	15.5	0.055	1.059	1.01	0.059
	802.11b	Left Cheek	07	2442	15.25	-0.12	15.5	0.061	1.059	1.02	0.066
	802.11b	Left Tilted	07	2442	15.25	0.05	15.5	0.044	1.059	1.02	0.048
	802.11b	Right Cheek	01	2412	15.42	0.03	15.5	0.068	1.019	1.02	0.071

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Page 42 of 170

802.11b	Right Cheek	13	2472	15.70	0.15	16.5	0.072	1.202	1.02	0.088
SAR LIMIT				2.0 W/kg (mW/g)						
Uncontrolled Exposure/General Population				Averaged over 10g						

Plot No.	Band/Mode	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{1g} (W/kg)
	GFSK	Right Cheek	39	2441	9.88	-0.27	10.0	0.009	1.028	1.17	0.011
	GFSK	Right Tilted	39	2441	9.88	0.12	10.0	0.007	1.028	1.17	0.008
11	GFSK	Left Cheek	39	2441	9.88	0.03	10.0	0.006	1.028	1.17	0.007
	GFSK	Left Tilted	39	2441	9.88	0.11	10.0	0.005	1.028	1.17	0.006
	GFSK	Right Cheek	01	2402	9.70	-0.06	10.0	0.008	1.072	1.17	0.010
	GFSK	Right Cheek	78	2480	9.26	0.03	9.5	0.008	1.057	1.17	0.010
SAR LIMIT					2.0 W/kg (mW/g)						
Uncontrolled Exposure/General Population					Averaged over 10g						

Note:

1. Determination of the worst-case configuration and all configurations with less than 3 dB of applicable limits.
2. When 10g SAR ≤ 1.0 W/kg, testing for low and high channel is optional.
3. According to EN62209-1 section 6.3, the drift should be kept within ±5%, the units of Power Drift Value measured are V/m, converting to dB should be kept in ±0.42 dB.

16.2 Body Worn SAR Data

> GSM Body SAR

Plot No.	Band/Mode	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{10g} (W/kg)	Scaling Factor	Reported SAR _{10g} (W/kg)
12	GSM900/Voice	Front	60	902	32.85	0.04	33.0	0.292	1.035	0.302
	GSM900/Voice	Back	60	902	32.85	-0.04	33.0	0.268	1.035	0.277
	GSM1800/Voice	Front	700	1747.8	30.89	0.15	31.0	0.517	1.026	0.530
13	GSM1800/Voice	Back	700	1747.8	30.89	-0.04	31.0	0.687	1.026	0.705
SAR LIMIT					2.0 W/kg (mW/g)					
Uncontrolled Exposure/General Population					Averaged over 10g					

> WCDMA Body SAR

Plot No.	Band/Mode	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{10g} (W/kg)	Scaling Factor	Reported SAR _{10g} (W/kg)
	WCDMA Band I	Front	9750	1950.0	22.63	-0.13	23.0	0.476	1.089	0.518
14	WCDMA Band I	Back	9750	1950.0	22.63	-0.10	23.0	0.833	1.089	0.907
	WCDMA Band VIII	Front	2788	897.6	23.22	-0.00	23.5	0.387	1.067	0.413
15	WCDMA Band VIII	Back	2788	897.6	23.22	-0.02	23.5	0.478	1.067	0.510
SAR LIMIT					2.0 W/kg (mW/g)					
Uncontrolled Exposure/General Population					Averaged over 10g					

> LTE Body SAR

Plot No.	Band/Mode	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{10g} (W/kg)	Scaling Factor	Reported SAR _{10g} (W/kg)
	LTE Band 1 /1RB#0 20M	Front	18300	1950.0	23.42	-0.38	23.5	0.388	1.019	0.395
16	LTE Band 1 /1RB#0 20M	Back	18300	1950.0	23.42	-0.05	23.5	0.735	1.019	0.749
	LTE Band 3 /1RB#0 20M	Front	19575	1747.5	22.95	0.20	23.0	0.469	1.012	0.475
17	LTE Band 3 /1RB#0 20M	Back	19575	1747.5	22.95	0.01	23.0	0.650	1.012	0.658
	LTE Band 7 /1RB#0 20M	Front	21100	2535.0	23.43	0.01	23.5	0.631	1.016	0.641
18	LTE Band 7 /1RB#0 20M	Back	21100	2535.0	23.43	-0.17	23.5	0.750	1.016	0.762
	LTE Band 8 /1RB#0 10M	Front	21625	897.5	24.14	-0.12	24.5	0.263	1.086	0.286
19	LTE Band 8 /1RB#0 10M	Back	21625	897.5	24.14	-0.07	24.5	0.372	1.086	0.404
	LTE Band 20 /1RB#0 20M	Front	24300	847.0	23.53	-0.13	24.0	0.204	1.114	0.227
20	LTE Band 20 /1RB#0 20M	Back	24300	847.0	23.53	-0.05	24.0	0.320	1.114	0.356
SAR LIMIT					2.0 W/kg (mW/g)					
Uncontrolled Exposure/General Population					Averaged over 10g					

➤ **WLAN Body SAR**

Plot No.	Band/Mode	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{10g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{10g} (W/kg)
	802.11b	Front	07	2442	15.25	0.11	15.5	0.056	1.059	1.02	0.060
21	802.11b	Back	07	2442	15.25	-0.16	15.5	0.071	1.059	1.02	0.077
SAR LIMIT Uncontrolled Exposure/General Population					2.0 W/kg (mW/g) Averaged over 10g						

Plot No.	Band/Mode	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{10g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{10g} (W/kg)
	GFSK	Front	39	2441	9.88	0.03	10.0	0.004	1.028	1.17	0.005
22	GFSK	Back	39	2441	9.88	-0.16	10.0	0.012	1.028	1.17	0.014
SAR LIMIT Uncontrolled Exposure/General Population					2.0 W/kg (mW/g) Averaged over 10g						

Note:

1. Body-worn SAR testing was performed at 5mm separation, and this distance is determined by the handset manufacturer that there will be body-worn accessories that users may acquire at the time of equipment certification, to enable users to purchase aftermarket body-worn accessories with the required minimum separation.
2. Determination of the worst-case configuration and all configurations with less than 3 dB of applicable limits.
3. When 10g SAR ≤ 1.0 W/kg, testing for low and high channel is optional.
4. According to EN62209-1 section 6.3, the drift should be kept within ±5%, the units of Power Drift Value measured are V/m, converting to dB should be kept in ±0.42 dB.

16.3 Hotspot mode SAR Data

➤ GSM Body SAR in Hotspot mode

Plot No.	Band/Mode	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{10g} (W/kg)	Scaling Factor	Reported SAR _{10g} (W/kg)
	GPRS900/2 slots	Front	60	902	31.28	0.12	31.5	0.254	1.052	0.267
	GPRS900/2 slots	Back	60	902	31.28	0.03	31.5	0.493	1.052	0.519
	GPRS900/3 slots	Back	60	902	29.88	-0.01	30.0	0.528	1.028	0.543
23	GPRS900/4 slots	Back	60	902	29.17	-0.28	29.5	0.542	1.079	0.585
	GPRS900/4 slots	Left	60	902	29.17	0.10	29.5	0.134	1.079	0.145
	GPRS900/4 slots	Right	60	902	29.17	-0.02	29.5	0.167	1.079	0.180
	GPRS900/4 slots	Top	60	902	29.17	0.08	29.5	0.082	1.079	0.088
	GPRS900/4 slots	Bottom	60	902	29.17	0.03	29.5	0.433	1.079	0.467
	GPRS900/4 slots	Back	975	880.2	28.67	0.01	29.0	0.538	1.079	0.581
	GPRS900/4 slots	Back	124	914.8	28.86	-0.01	29.0	0.540	1.033	0.558
	GPRS1800/2 slots	Front	700	1747.8	29.38	0.12	29.5	0.752	1.028	0.773
	GPRS1800/2 slots	Back	700	1747.8	29.38	-0.03	29.5	1.140	1.028	1.172
	GPRS1800/2 slots	Back	512	1710.2	29.66	-0.07	30.0	1.020	1.081	1.103
	GPRS1800/2 slots	Back	885	1784.8	29.54	0.02	30.0	0.971	1.112	1.080
	GPRS1800/3 slots	Back	700	1747.8	28.61	0.06	29.0	1.270	1.094	1.389
	GPRS1800/3 slots	Back	512	1710.2	28.27	0.09	28.5	1.140	1.054	1.202
	GPRS1800/3 slots	Back	885	1784.8	28.82	0.05	29.0	1.060	1.042	1.105
24	GPRS1800/4 slots	Back	700	1747.8	27.25	-0.21	27.5	1.330	1.059	1.408
	GPRS1800/4 slots	Back	512	1710.2	26.83	-0.01	27.0	1.310	1.040	1.362
	GPRS1800/4 slots	Back	885	1784.8	26.94	-0.06	27.0	1.290	1.014	1.308
	GPRS1800/4 slots	Left	700	1747.8	27.25	0.02	27.5	0.325	1.059	0.344
	GPRS1800/4 slots	Right	700	1747.8	27.25	0.13	27.5	0.348	1.059	0.369
	GPRS1800/4 slots	Top	700	1747.8	27.25	0.11	27.5	0.113	1.059	0.120
	GPRS1800/4 slots	Bottom	700	1747.8	27.25	-0.26	27.5	0.941	1.059	0.997
SAR LIMIT					2.0 W/kg (mW/g)					
Uncontrolled Exposure/General Population					Averaged over 10g					

➤ WCDMA Body SAR in Hotspot mode

Plot No.	Band/Mode	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{10g} (W/kg)	Scaling Factor	Reported SAR _{10g} (W/kg)
	WCDMA Band I	Front	9750	1950.0	22.63	-0.13	23.0	0.476	1.089	0.518
14	WCDMA Band I	Back	9750	1950.0	22.63	-0.10	23.0	0.833	1.089	0.907
	WCDMA Band I	Left	9750	1950.0	22.63	0.05	23.0	0.221	1.089	0.241
	WCDMA Band I	Right	9750	1950.0	22.63	0.11	23.0	0.205	1.089	0.223
	WCDMA Band I	Top	9750	1950.0	22.63	0.07	23.0	0.062	1.089	0.068
	WCDMA Band I	Bottom	9750	1950.0	22.63	-0.04	23.0	0.652	1.089	0.710
	WCDMA Band I	Back	9612	1922.4	22.60	0.02	23.0	0.824	1.096	0.903
	WCDMA Band I	Back	9888	1977.6	22.60	-0.01	23.0	0.810	1.096	0.888
	WCDMA Band VIII	Front	2788	897.6	23.22	-0.00	23.5	0.387	1.067	0.413
15	WCDMA Band VIII	Back	2788	897.6	23.22	-0.02	23.5	0.478	1.067	0.510
	WCDMA Band VIII	Left	2788	897.6	23.22	0.11	23.5	0.106	1.067	0.113
	WCDMA Band VIII	Right	2788	897.6	23.22	-0.06	23.5	0.056	1.067	0.060
	WCDMA Band VIII	Top	2788	897.6	23.22	0.03	23.5	0.008	1.067	0.009
	WCDMA Band VIII	Bottom	2788	897.6	23.22	-0.01	23.5	0.214	1.067	0.228
	WCDMA Band VIII	Back	2712	882.4	23.51	0.10	24.0	0.458	1.119	0.513
	WCDMA Band VIII	Back	2863	912.6	23.04	0.03	23.5	0.464	1.112	0.516
SAR LIMIT					2.0 W/kg (mW/g)					
Uncontrolled Exposure/General Population					Averaged over 10g					

➤ LTE Body SAR in Hotspot mode

Plot	Band/Mode	Test Position	CH.	Freq.	Ave.	Power	Tune-Up	Meas.	Scaling	Reported
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Page 46 of 170

No.				(MHz)	Power (dBm)	Drift (dB)	Limit (dBm)	SAR _{10g} (W/kg)	Factor	SAR _{10g} (W/kg)
	LTE Band 1 /1RB#0 20M	Front	18300	1950.0	23.42	-0.38	23.5	0.388	1.019	0.395
	LTE Band 1 /1RB#0 20M	Back	18300	1950.0	23.42	-0.05	23.5	0.735	1.019	0.749
	LTE Band 1 /1RB#0 20M	Left	18300	1950.0	23.42	0.12	23.5	0.268	1.019	0.273
	LTE Band 1 /1RB#0 20M	Right	18300	1950.0	23.42	-0.01	23.5	0.120	1.019	0.122
	LTE Band 1 /1RB#0 20M	Top	18300	1950.0	23.42	0.04	23.5	0.051	1.019	0.052
25	LTE Band 1 /1RB#0 20M	Bottom	18300	1950.0	23.42	-0.15	23.5	0.839	1.019	0.855
	LTE Band 1 /1RB#0 20M	Bottom	18100	1930.0	23.44	0.01	23.5	0.821	1.014	0.832
	LTE Band 1 /1RB#0 20M	Bottom	18500	1970.0	23.32	0.03	23.5	0.829	1.042	0.864
	LTE Band 3 /1RB#0 20M	Front	19575	1747.5	22.95	0.20	23.0	0.469	1.012	0.475
17	LTE Band 3 /1RB#0 20M	Back	19575	1747.5	22.95	0.01	23.0	0.650	1.012	0.658
	LTE Band 3 /1RB#0 20M	Left	19575	1747.5	22.95	-0.05	23.0	0.215	1.012	0.218
	LTE Band 3 /1RB#0 20M	Right	19575	1747.5	22.95	0.10	23.0	0.134	1.012	0.136
	LTE Band 3 /1RB#0 20M	Top	19575	1747.5	22.95	0.07	23.0	0.075	1.012	0.076
	LTE Band 3 /1RB#0 20M	Bottom	19575	1747.5	22.95	-0.25	23.0	0.408	1.012	0.413
	LTE Band 3 /1RB#0 20M	Back	19300	1720.0	24.14	0.06	24.5	0.637	1.086	0.692
	LTE Band 3 /1RB#0 20M	Back	19850	1775.0	23.34	-0.03	23.5	0.642	1.038	0.666
	LTE Band 7 /1RB#0 20M	Front	21100	2535.0	23.43	0.01	23.5	0.631	1.016	0.641
	LTE Band 7 /1RB#0 20M	Back	21100	2535.0	23.43	-0.17	23.5	0.750	1.016	0.762
	LTE Band 7 /1RB#0 20M	Left	21100	2535.0	23.43	0.20	23.5	0.369	1.016	0.375
	LTE Band 7 /1RB#0 20M	Right	21100	2535.0	23.43	0.11	23.5	0.183	1.016	0.186
	LTE Band 7 /1RB#0 20M	Top	21100	2535.0	23.43	0.13	23.5	0.058	1.016	0.059
26	LTE Band 7 /1RB#0 20M	Bottom	21100	2535.0	23.43	0.06	23.5	1.120	1.016	1.138
	LTE Band 7 /1RB#0 20M	Bottom	20850	2510.0	23.19	0.13	23.5	1.010	1.074	1.085
	LTE Band 7 /1RB#0 20M	Bottom	21350	2560.0	23.34	0.04	23.5	1.050	1.038	1.090
	LTE Band 8 /1RB#0 10M	Front	21625	897.5	24.14	-0.12	24.5	0.263	1.086	0.286
19	LTE Band 8 /1RB#0 10M	Back	21625	897.5	24.14	-0.07	24.5	0.372	1.086	0.404
	LTE Band 8 /1RB#0 10M	Left	21625	897.5	24.14	0.20	24.5	0.126	1.086	0.137
	LTE Band 8 /1RB#0 10M	Right	21625	897.5	24.14	0.13	24.5	0.098	1.086	0.106
	LTE Band 8 /1RB#0 10M	Top	21625	897.5	24.14	0.08	24.5	0.005	1.086	0.005

	LTE Band 8 /1RB#0 10M	Bottom	21625	897.5	24.14	-0.12	24.5	0.179	1.086	0.194
	LTE Band 8 /1RB#0 10M	Back	21500	885.0	24.38	0.02	24.5	0.363	1.028	0.373
	LTE Band 8 /1RB#0 10M	Back	21750	910.0	23.83	-0.03	24.0	0.359	1.040	0.373
	LTE Band 20 /1RB#0 20M	Front	24300	847.0	23.53	-0.13	24.0	0.204	1.114	0.227
20	LTE Band 20 /1RB#0 20M	Back	24300	847.0	23.53	-0.05	24.0	0.320	1.114	0.356
	LTE Band 20 /1RB#0 20M	Left	24300	847.0	23.53	0.02	24.0	0.088	1.114	0.098
	LTE Band 20 /1RB#0 20M	Right	24300	847.0	23.53	0.08	24.0	0.104	1.114	0.116
	LTE Band 20 /1RB#0 20M	Top	24300	847.0	23.53	0.07	24.0	0.009	1.114	0.010
	LTE Band 20 /1RB#0 20M	Bottom	24300	847.0	23.53	-0.04	24.0	0.186	1.114	0.207
	LTE Band 20 /1RB#0 20M	Back	24250	842.0	23.58	0.06	24.0	0.305	1.102	0.336
	LTE Band 20 /1RB#0 20M	Back	24350	852.0	23.45	0.01	23.5	0.311	1.012	0.315
SAR LIMIT						2.0 W/kg (mW/g)				
Uncontrolled Exposure/General Population						Averaged over 10g				

➤ WLAN Body SAR in Hotspot mode

Plot No.	Band/Mode	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{10g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{10g} (W/kg)
	802.11b	Front	07	2442	15.25	0.11	15.5	0.056	1.059	1.02	0.060
21	802.11b	Back	07	2442	15.25	-0.16	15.5	0.071	1.059	1.02	0.077
	802.11b	Left	07	2442	15.25	0.09	15.5	0.018	1.059	1.02	0.019
	802.11b	Right	07	2442	15.25	0.21	15.5	0.049	1.059	1.02	0.053
	802.11b	Top	07	2442	15.25	-0.30	15.5	0.035	1.059	1.02	0.038
	802.11b	Bottom	07	2442	15.25	0.14	15.5	0.002	1.059	1.02	0.002
	802.11b	Back	01	2412	15.42	0.03	15.5	0.066	1.019	1.02	0.069
	802.11b	Back	13	2472	15.70	0.08	16.0	0.062	1.072	1.02	0.068
SAR LIMIT Uncontrolled Exposure/General Population					2.0 W/kg (mW/g) Averaged over 10g						

Plot No.	Band/Mode	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{10g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{10g} (W/kg)
	GFSK	Front	39	2441	9.88	0.03	10.0	0.004	1.028	1.17	0.005
22	GFSK	Back	39	2441	9.88	-0.16	10.0	0.012	1.028	1.17	0.014
	GFSK	Left	39	2441	9.88	0.18	10.0	0.002	1.028	1.17	0.002
	GFSK	Right	39	2441	9.88	-0.09	10.0	0.003	1.028	1.17	0.004
	GFSK	Top	39	2441	9.88	-0.04	10.0	0.005	1.028	1.17	0.006
	GFSK	Bottom	39	2441	9.88	0.21	10.0	0.001	1.028	1.17	0.001
	GFSK	Back	01	2402	9.70	0.05	10.0	0.010	1.072	1.17	0.013
	GFSK	Back	78	2480	9.26	0.14	9.5	0.009	1.057	1.17	0.011
SAR LIMIT Uncontrolled Exposure/General Population					2.0 W/kg (mW/g) Averaged over 10g						

Note:

- Hotspot mode SAR testing was performed at 5mm separation, and this distance is determined by the handset manufacture.
- Determination of the worst-case configuration and all configurations with less than 3 dB of applicable limits.
- When 10g SAR ≤ 1.0 W/kg, testing for low and high channel is optional.

8. According to EN 62209-1 section 6.3, the drift should be kept within $\pm 5\%$, the units of Power Drift Value measured are V/m, converting to dB should be kept in ± 0.42 dB.

16.4 Limb SAR Data

➤ GSM Limb SAR

Plot No.	Band/Mode	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{10g} (W/kg)	Scaling Factor	Reported SAR _{10g} (W/kg)
27	GPRS900/4 slots	Front	60	902	29.17	0.02	29.5	0.680	1.079	0.734
	GPRS900/4 slots	Back	60	902	29.17	-0.06	29.5	1.120	1.079	1.208
	GPRS900/4 slots	Left	60	902	29.17	0.05	29.5	0.287	1.079	0.310
	GPRS900/4 slots	Right	60	902	29.17	0.12	29.5	0.312	1.079	0.337
	GPRS900/4 slots	Top	60	902	29.17	0.09	29.5	0.107	1.079	0.115
	GPRS900/4 slots	Bottom	60	902	29.17	0.04	29.5	0.867	1.079	0.935
	GPRS900/4 slots	Back	975	880.2	28.67	-0.02	29.0	1.020	1.079	1.101
	GPRS900/4 slots	Back	124	914.8	28.86	0.18	29.0	1.050	1.033	1.085
SAR LIMIT					4.0 W/kg (mW/g)					
Uncontrolled Exposure/General Population					Averaged over 10g					
28	GPRS900/4 slots	Front	700	1747.8	27.25	0.10	27.5	1.220	1.059	1.292
	GPRS900/4 slots	Back	700	1747.8	27.25	0.03	27.5	2.730	1.059	2.891
	GPRS900/4 slots	Left	700	1747.8	27.25	-0.03	27.5	0.652	1.059	0.690
	GPRS900/4 slots	Right	700	1747.8	27.25	0.09	27.5	0.674	1.059	0.714
	GPRS900/4 slots	Top	700	1747.8	27.25	0.10	27.5	0.286	1.059	0.303
	GPRS900/4 slots	Bottom	700	1747.8	27.25	0.02	27.5	1.870	1.059	1.980
	GPRS900/4 slots	Back	512	1710.2	26.83	-0.01	27.0	2.680	1.040	2.787
	GPRS900/4 slots	Back	885	1784.8	26.94	0.04	27.0	2.700	1.014	2.738

➤ WCDMA Limb SAR

Plot No.	Band/Mode	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{10g} (W/kg)	Scaling Factor	Reported SAR _{10g} (W/kg)
29	WCDMA Band I	Front	9750	1950.0	22.63	0.02	23.0	1.050	1.089	1.143
	WCDMA Band I	Back	9750	1950.0	22.63	-0.22	23.0	1.970	1.089	2.145
	WCDMA Band I	Left	9750	1950.0	22.63	-0.03	23.0	0.451	1.089	0.491
	WCDMA Band I	Right	9750	1950.0	22.63	0.05	23.0	0.428	1.089	0.466
	WCDMA Band I	Top	9750	1950.0	22.63	0.07	23.0	0.157	1.089	0.171
	WCDMA Band I	Bottom	9750	1950.0	22.63	0.09	23.0	1.520	1.089	1.655
	WCDMA Band I	Back	9612	1922.4	22.60	0.04	23.0	1.950	1.096	2.137
	WCDMA Band I	Back	9888	1977.6	22.60	0.01	23.0	1.900	1.096	2.082
30	WCDMA Band VIII	Front	2788	897.6	23.22	0.12	23.5	0.658	1.067	0.702
	WCDMA Band VIII	Back	2788	897.6	23.22	0.04	23.5	0.899	1.067	0.959
	WCDMA Band VIII	Left	2788	897.6	23.22	-0.10	23.5	0.213	1.067	0.227
	WCDMA Band VIII	Right	2788	897.6	23.22	-0.05	23.5	0.127	1.067	0.136
	WCDMA Band VIII	Top	2788	897.6	23.22	0.15	23.5	0.074	1.067	0.079
	WCDMA Band VIII	Bottom	2788	897.6	23.22	0.07	23.5	0.512	1.067	0.546
	WCDMA Band VIII	Back	2712	882.4	23.51	0.05	24.0	0.888	1.119	0.994
	WCDMA Band VIII	Back	2863	912.6	23.04	0.01	23.5	0.891	1.112	0.991
SAR LIMIT					4.0 W/kg (mW/g)					
Uncontrolled Exposure/General Population					Averaged over 10g					

➤ LTE Limb SAR

Plot No.	Band/Mode	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{10g} (W/kg)	Scaling Factor	Reported SAR _{10g} (W/kg)
	LTE Band 1 /1RB#0 20M	Front	18300	1950.0	23.42	0.04	23.5	0.825	1.019	0.841
	LTE Band 1 /1RB#0 20M	Back	18300	1950.0	23.42	0.05	23.5	1.524	1.019	1.553
	LTE Band 1 /1RB#0 20M	Left	18300	1950.0	23.42	0.02	23.5	0.424	1.019	0.432
	LTE Band 1 /1RB#0 20M	Right	18300	1950.0	23.42	-0.15	23.5	0.214	1.019	0.218

	LTE Band 1 /1RB#0 20M	Top	18300	1950.0	23.42	0.18	23.5	0.097	1.019	0.099
31	LTE Band 1 /1RB#0 20M	Bottom	18300	1950.0	23.42	-0.14	23.5	1.830	1.019	1.865
	LTE Band 1 /1RB#0 20M	Bottom	18100	1930.0	23.44	-0.02	23.5	1.710	1.014	1.734
	LTE Band 1 /1RB#0 20M	Bottom	18500	1970.0	23.32	0.01	23.5	1.750	1.042	1.824
	LTE Band 3 /1RB#0 20M	Front	19575	1747.5	22.95	0.02	23.0	0.825	1.012	0.835
32	LTE Band 3 /1RB#0 20M	Back	19575	1747.5	22.95	0.08	23.0	1.170	1.012	1.184
	LTE Band 3 /1RB#0 20M	Left	19575	1747.5	22.95	-0.04	23.0	0.403	1.012	0.408
	LTE Band 3 /1RB#0 20M	Right	19575	1747.5	22.95	0.06	23.0	0.289	1.012	0.292
	LTE Band 3 /1RB#0 20M	Top	19575	1747.5	22.95	0.11	23.0	0.103	1.012	0.104
	LTE Band 3 /1RB#0 20M	Bottom	19575	1747.5	22.95	0.14	23.0	0.931	1.012	0.942
	LTE Band 3 /1RB#0 20M	Back	19300	1720.0	24.14	0.01	24.5	1.080	1.086	1.173
	LTE Band 3 /1RB#0 20M	Back	19850	1775.0	23.34	-0.05	23.5	1.130	1.038	1.173
	LTE Band 7 /1RB#0 20M	Front	21100	2535.0	23.43	0.08	23.5	1.090	1.016	1.107
	LTE Band 7 /1RB#0 20M	Back	21100	2535.0	23.43	0.17	23.5	1.350	1.016	1.372
	LTE Band 7 /1RB#0 20M	Left	21100	2535.0	23.43	-0.04	23.5	0.568	1.016	0.577
	LTE Band 7 /1RB#0 20M	Right	21100	2535.0	23.43	0.10	23.5	0.303	1.016	0.308
	LTE Band 7 /1RB#0 20M	Top	21100	2535.0	23.43	0.13	23.5	0.162	1.016	0.165
33	LTE Band 7 /1RB#0 20M	Bottom	21100	2535.0	23.43	-0.01	23.5	1.980	1.016	2.012
	LTE Band 7 /1RB#0 20M	Bottom	20850	2510.0	23.19	0.13	23.5	1.890	1.074	2.030
	LTE Band 7 /1RB#0 20M	Bottom	21350	2560.0	23.34	0.24	23.5	1.940	1.038	2.014
	LTE Band 8 /1RB#0 10M	Front	21625	897.5	24.14	0.11	24.5	0.413	1.086	0.449
34	LTE Band 8 /1RB#0 10M	Back	21625	897.5	24.14	0.01	24.5	0.688	1.086	0.747
	LTE Band 8 /1RB#0 10M	Left	21625	897.5	24.14	-0.23	24.5	0.244	1.086	0.265
	LTE Band 8 /1RB#0 10M	Right	21625	897.5	24.14	-0.12	24.5	0.156	1.086	0.169
	LTE Band 8 /1RB#0 10M	Top	21625	897.5	24.14	0.17	24.5	0.072	1.086	0.078
	LTE Band 8 /1RB#0 10M	Bottom	21625	897.5	24.14	0.08	24.5	0.388	1.086	0.421
	LTE Band 8 /1RB#0 10M	Back	21500	885.0	24.38	0.01	24.5	0.682	1.028	0.701
	LTE Band 8 /1RB#0 10M	Back	21750	910.0	23.83	0.03	24.0	0.676	1.040	0.703
	LTE Band 20 /1RB#0 20M	Front	24300	847.0	23.53	0.03	24.0	0.387	1.114	0.431
35	LTE Band 20	Back	24300	847.0	23.53	-0.04	24.0	0.559	1.114	0.623

	/1RB#0 20M									
	LTE Band 20	Left	24300	847.0	23.53	-0.01	24.0	0.138	1.114	0.154
	/1RB#0 20M									
	LTE Band 20	Right	24300	847.0	23.53	0.08	24.0	0.185	1.114	0.206
	/1RB#0 20M									
	LTE Band 20	Top	24300	847.0	23.53	0.11	24.0	0.086	1.114	0.096
	/1RB#0 20M									
	LTE Band 20	Bottom	24300	847.0	23.53	0.02	24.0	0.383	1.114	0.427
	/1RB#0 20M									
	LTE Band 20	Back	24250	842.0	23.58	0.15	24.0	0.545	1.102	0.601
	/1RB#0 20M									
	LTE Band 20	Back	24350	852.0	23.45	0.12	23.5	0.551	1.012	0.558
	/1RB#0 20M									
SAR LIMIT						4.0 W/kg (mW/g)				
Uncontrolled Exposure/General Population						Averaged over 10g				

➤ WLAN Limb SAR

Plot No.	Band/Mode	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{10g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{10g} (W/kg)
36	802.11b	Front	07	2442	15.25	0.11	15.5	0.121	1.059	1.02	0.131
	802.11b	Back	07	2442	15.25	-0.04	15.5	0.168	1.059	1.02	0.181
	802.11b	Left	07	2442	15.25	0.13	15.5	0.022	1.059	1.02	0.024
	802.11b	Right	07	2442	15.25	0.10	15.5	0.095	1.059	1.02	0.103
	802.11b	Top	07	2442	15.25	-0.03	15.5	0.076	1.059	1.02	0.082
	802.11b	Bottom	07	2442	15.25	0.19	15.5	0.007	1.059	1.02	0.008
	802.11b	Back	01	2412	15.42	0.15	15.5	0.163	1.019	1.02	0.169
	802.11b	Back	13	2472	15.70	-0.01	16.0	0.159	1.072	1.02	0.174
SAR LIMIT Uncontrolled Exposure/General Population					4.0 W/kg (mW/g) Averaged over 10g						

Plot No.	Band/Mode	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{10g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{10g} (W/kg)
37	GFSK	Front	39	2441	9.88	0.03	10.0	0.010	1.028	1.17	0.012
	GFSK	Back	39	2441	9.88	0.04	10.0	0.027	1.028	1.17	0.032
	GFSK	Left	39	2441	9.88	0.08	10.0	0.004	1.028	1.17	0.005
	GFSK	Right	39	2441	9.88	-0.09	10.0	0.008	1.028	1.17	0.010
	GFSK	Top	39	2441	9.88	-0.04	10.0	0.011	1.028	1.17	0.013
	GFSK	Bottom	39	2441	9.88	0.11	10.0	0.002	1.028	1.17	0.002
	GFSK	Back	01	2402	9.70	0.05	10.0	0.025	1.072	1.17	0.031
	GFSK	Back	78	2480	9.26	0.14	9.5	0.019	1.057	1.17	0.023
SAR LIMIT Uncontrolled Exposure/General Population					4.0 W/kg (mW/g) Averaged over 10g						

Note:

- Limb SAR testing was performed at 0mm separation, and this distance is determined by the handset manufacturer to enable users to use the device with the required minimum separation.
- Determination of the worst-case configuration and all configurations with less than 3 dB of applicable limits.
- When 10g SAR ≤ 2.0 W/kg, testing for low and high channel is optional.
- According to EN62209-1 section 6.3, the drift should be kept within ±5%, the units of Power Drift Value measured are V/m, converting to dB should be kept in ±0.42 dB.

16.5 SAR Simultaneous Transmission Analysis

➤ Head Simultaneous Transmission

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	ΣSAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	ΣSAR (W/kg)
GSM900	Right Cheek	0.371	0.088	0.459	GSM900	Right Cheek	0.371	0.011	0.382
	Right Tilted	0.153	0.059	0.212		Right Tilted	0.153	0.008	0.161
	Left Cheek	0.298	0.066	0.364		Left Cheek	0.298	0.007	0.305
	Left Tilted	0.114	0.048	0.162		Left Tilted	0.114	0.006	0.120

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	ΣSAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	ΣSAR (W/kg)
GSM 1800	Right Cheek	0.392	0.088	0.480	GSM 1800	Right Cheek	0.392	0.011	0.403
	Right Tilted	0.168	0.059	0.227		Right Tilted	0.168	0.008	0.176
	Left Cheek	0.221	0.066	0.287		Left Cheek	0.221	0.007	0.228
	Left Tilted	0.108	0.048	0.156		Left Tilted	0.108	0.006	0.114

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	ΣSAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	ΣSAR (W/kg)
WCDMA Band I	Right Cheek	0.566	0.088	0.654	WCDMA Band I	Right Cheek	0.566	0.011	0.577
	Right Tilted	0.386	0.059	0.445		Right Tilted	0.386	0.008	0.394
	Left Cheek	0.448	0.066	0.514		Left Cheek	0.448	0.007	0.455
	Left Tilted	0.281	0.048	0.329		Left Tilted	0.281	0.006	0.287

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	ΣSAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	ΣSAR (W/kg)
WCDMA Band VIII	Right Cheek	0.501	0.088	0.589	WCDMA Band VIII	Right Cheek	0.501	0.011	0.512
	Right Tilted	0.230	0.059	0.289		Right Tilted	0.230	0.008	0.238
	Left Cheek	0.376	0.066	0.442		Left Cheek	0.376	0.007	0.383
	Left Tilted	0.198	0.048	0.246		Left Tilted	0.198	0.006	0.204

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	ΣSAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	ΣSAR (W/kg)
LTE Band 1	Right Cheek	0.298	0.088	0.386	LTE Band 1	Right Cheek	0.298	0.011	0.309
	Right Tilted	0.110	0.059	0.169		Right Tilted	0.110	0.008	0.118
	Left Cheek	0.168	0.066	0.234		Left Cheek	0.168	0.007	0.175
	Left Tilted	0.079	0.048	0.127		Left Tilted	0.079	0.006	0.085

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	ΣSAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	ΣSAR (W/kg)
LTE Band 3	Right Cheek	0.349	0.088	0.437	LTE Band 3	Right Cheek	0.349	0.011	0.360
	Right Tilted	0.176	0.059	0.235		Right Tilted	0.176	0.008	0.184
	Left Cheek	0.231	0.066	0.297		Left Cheek	0.231	0.007	0.238
	Left Tilted	0.137	0.048	0.185		Left Tilted	0.137	0.006	0.143

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	ΣSAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	ΣSAR (W/kg)
LTE Band 7	Right Cheek	0.217	0.088	0.305	LTE Band 7	Right Cheek	0.217	0.011	0.228
	Right Tilted	0.165	0.059	0.224		Right Tilted	0.165	0.008	0.173
	Left Cheek	0.507	0.066	0.573		Left Cheek	0.507	0.007	0.514
	Left Tilted	0.313	0.048	0.361		Left Tilted	0.313	0.006	0.319

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	ΣSAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	ΣSAR (W/kg)
LTE Band 8	Right Cheek	0.286	0.088	0.374	LTE Band 8	Right Cheek	0.286	0.011	0.297
	Right Tilted	0.143	0.059	0.202		Right Tilted	0.143	0.008	0.151
	Left Cheek	0.220	0.066	0.286		Left Cheek	0.220	0.007	0.227
	Left Tilted	0.124	0.048	0.172		Left Tilted	0.124	0.006	0.130

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	ΣSAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	ΣSAR (W/kg)
LTE Band 20	Right Cheek	0.252	0.088	0.340	LTE Band 20	Right Cheek	0.252	0.011	0.263
	Right Tilted	0.120	0.059	0.179		Right Tilted	0.120	0.008	0.128
	Left Cheek	0.194	0.066	0.260		Left Cheek	0.194	0.007	0.201
	Left Tilted	0.098	0.048	0.146		Left Tilted	0.098	0.006	0.104

➤ Body worn Simultaneous Transmission

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
GSM900	Front	0.302	0.060	0.362	GSM900	Front	0.302	0.005	0.307
	Back	0.277	0.077	0.354		Back	0.277	0.014	0.291

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
GSM 1800	Front	0.530	0.060	0.590	GSM 1800	Front	0.530	0.005	0.535
	Back	0.705	0.077	0.782		Back	0.705	0.014	0.719

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
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							(W/kg)	
WCDMA Band I	Front	0.518	0.060	0.578	WCDMA Band I	Front	0.518	0.523
	Back	0.907	0.077	0.984		Back	0.907	0.921

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
WCDMA Band VIII	Front	0.413	0.060	0.473	WCDMA Band VIII	Front	0.413	0.005	0.418
	Back	0.510	0.077	0.587		Back	0.510	0.014	0.524

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
LTE Band 1	Front	0.395	0.060	0.455	LTE Band 1	Front	0.395	0.005	0.400
	Back	0.749	0.077	0.826		Back	0.749	0.014	0.763

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
LTE Band 3	Front	0.475	0.060	0.535	LTE Band 3	Front	0.475	0.005	0.480
	Back	0.658	0.077	0.735		Back	0.658	0.014	0.672

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
LTE Band 7	Front	0.641	0.060	0.701	LTE Band 7	Front	0.641	0.005	0.646
	Back	0.762	0.077	0.839		Back	0.762	0.014	0.776

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
LTE Band 8	Front	0.286	0.060	0.346	LTE Band 8	Front	0.286	0.005	0.291
	Back	0.404	0.077	0.481		Back	0.404	0.014	0.418

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
LTE Band 20	Front	0.227	0.060	0.287	LTE Band 20	Front	0.227	0.005	0.232
	Back	0.356	0.077	0.433		Back	0.356	0.014	0.370

> Hotspot mode Simultaneous Transmission

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
GSM900	Front	0.267	0.060	0.327	GSM900	Front	0.267	0.005	0.272
	Back	0.585	0.077	0.662		Back	0.585	0.014	0.599
	Left	0.145	0.019	0.164		Left	0.145	0.002	0.147

	Right	0.180	0.053	0.233		Right	0.180	0.004	0.184
	Top	0.088	0.038	0.126		Top	0.088	0.006	0.094
	Bottom	0.467	0.002	0.469		Bottom	0.467	0.001	0.468

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
GSM 1800	Front	0.773	0.060	0.833	GSM 1800	Front	0.773	0.005	0.778
	Back	1.408	0.077	1.485		Back	1.408	0.014	1.422
	Left	0.344	0.019	0.363		Left	0.344	0.002	0.346
	Right	0.369	0.053	0.422		Right	0.369	0.004	0.373
	Top	0.120	0.038	0.158		Top	0.120	0.006	0.126
	Bottom	0.997	0.002	0.999		Bottom	0.997	0.001	0.998

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
WCDMA Band I	Front	0.518	0.060	0.578	WCDMA Band I	Front	0.518	0.005	0.523
	Back	0.907	0.077	0.984		Back	0.907	0.014	0.921
	Left	0.241	0.019	0.260		Left	0.241	0.002	0.243
	Right	0.223	0.053	0.276		Right	0.223	0.004	0.227
	Top	0.068	0.038	0.106		Top	0.068	0.006	0.074
	Bottom	0.710	0.002	0.712		Bottom	0.710	0.001	0.711

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
WCDMA Band VIII	Front	0.413	0.060	0.473	WCDMA Band VIII	Front	0.413	0.005	0.418
	Back	0.510	0.077	0.587		Back	0.510	0.014	0.524
	Left	0.113	0.019	0.132		Left	0.113	0.002	0.115
	Right	0.060	0.053	0.113		Right	0.060	0.004	0.064
	Top	0.009	0.038	0.047		Top	0.009	0.006	0.015
	Bottom	0.228	0.002	0.230		Bottom	0.228	0.001	0.229

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
LTE Band 1	Front	0.395	0.060	0.455	LTE Band 1	Front	0.395	0.005	0.400
	Back	0.749	0.077	0.826		Back	0.749	0.014	0.763
	Left	0.273	0.019	0.292		Left	0.273	0.002	0.275
	Right	0.122	0.053	0.175		Right	0.122	0.004	0.126
	Top	0.052	0.038	0.090		Top	0.052	0.006	0.058
	Bottom	0.864	0.002	0.866		Bottom	0.864	0.001	0.865

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
LTE	Front	0.475	0.060	0.535	LTE	Front	0.475	0.005	0.480

Band 3	Back	0.692	0.077	0.769	Band 3	Back	0.692	0.014	0.706
	Left	0.218	0.019	0.237		Left	0.218	0.002	0.220
	Right	0.136	0.053	0.189		Right	0.136	0.004	0.140
	Top	0.076	0.038	0.114		Top	0.076	0.006	0.082
	Bottom	0.413	0.002	0.415		Bottom	0.413	0.001	0.414

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
LTE Band 7	Front	0.641	0.060	0.701	LTE Band 7	Front	0.641	0.005	0.646
	Back	0.762	0.077	0.839		Back	0.762	0.014	0.776
	Left	0.375	0.019	0.394		Left	0.375	0.002	0.377
	Right	0.186	0.053	0.239		Right	0.186	0.004	0.190
	Top	0.059	0.038	0.097		Top	0.059	0.006	0.065
	Bottom	1.138	0.002	1.140		Bottom	1.138	0.001	1.139

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
LTE Band 8	Front	0.286	0.060	0.346	LTE Band 8	Front	0.286	0.005	0.291
	Back	0.404	0.077	0.481		Back	0.404	0.014	0.418
	Left	0.137	0.019	0.156		Left	0.137	0.002	0.139
	Right	0.106	0.053	0.159		Right	0.106	0.004	0.110
	Top	0.005	0.038	0.043		Top	0.005	0.006	0.011
	Bottom	0.194	0.002	0.196		Bottom	0.194	0.001	0.195

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
LTE Band 20	Front	0.227	0.060	0.287	LTE Band 20	Front	0.227	0.005	0.232
	Back	0.356	0.077	0.433		Back	0.356	0.014	0.370
	Left	0.098	0.019	0.117		Left	0.098	0.002	0.100
	Right	0.116	0.053	0.169		Right	0.116	0.004	0.120
	Top	0.010	0.038	0.048		Top	0.010	0.006	0.016
	Bottom	0.207	0.002	0.209		Bottom	0.207	0.001	0.208

➤ Limb Simultaneous Transmission

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)	WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
GSM900	Front	0.734	0.131	0.865	GSM900	Front	0.734	0.012	0.746
	Back	1.208	0.181	1.389		Back	1.208	0.032	1.240
	Left	0.310	0.024	0.334		Left	0.310	0.005	0.315
	Right	0.337	0.103	0.440		Right	0.337	0.010	0.347
	Top	0.115	0.082	0.197		Top	0.115	0.013	0.128
	Bottom	0.935	0.008	0.943		Bottom	0.935	0.002	0.937

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)
GSM 1800	Front	1.292	0.131	1.423
	Back	2.891	0.181	3.072
	Left	0.690	0.024	0.714
	Right	0.714	0.103	0.817
	Top	0.303	0.082	0.385
	Bottom	1.980	0.008	1.988

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
GSM 1800	Front	1.292	0.012	1.304
	Back	2.891	0.032	2.923
	Left	0.690	0.005	0.695
	Right	0.714	0.010	0.724
	Top	0.303	0.013	0.316
	Bottom	1.980	0.002	1.982

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)
WCDMA Band I	Front	1.143	0.131	1.274
	Back	2.145	0.181	2.326
	Left	0.491	0.024	0.515
	Right	0.466	0.103	0.569
	Top	0.171	0.082	0.253
	Bottom	1.655	0.008	1.663

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
WCDMA Band I	Front	1.143	0.012	1.155
	Back	2.145	0.032	2.177
	Left	0.491	0.005	0.496
	Right	0.466	0.010	0.476
	Top	0.171	0.013	0.184
	Bottom	1.655	0.002	1.657

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)
WCDMA Band VIII	Front	0.702	0.131	0.833
	Back	0.994	0.181	1.175
	Left	0.227	0.024	0.251
	Right	0.136	0.103	0.239
	Top	0.079	0.082	0.161
	Bottom	0.546	0.008	0.554

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
WCDMA Band VIII	Front	0.702	0.012	0.714
	Back	0.994	0.032	1.026
	Left	0.227	0.005	0.232
	Right	0.136	0.010	0.146
	Top	0.079	0.013	0.092
	Bottom	0.546	0.002	0.548

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)
LTE Band 1	Front	0.841	0.131	0.972
	Back	1.553	0.181	1.734
	Left	0.432	0.024	0.456
	Right	0.218	0.103	0.321
	Top	0.099	0.082	0.181
	Bottom	1.865	0.008	1.873

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
LTE Band 1	Front	0.841	0.012	0.853
	Back	1.553	0.032	1.585
	Left	0.432	0.005	0.437
	Right	0.218	0.010	0.228
	Top	0.099	0.013	0.112
	Bottom	1.865	0.002	1.867

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)
LTE Band 3	Front	0.835	0.131	0.966
	Back	1.184	0.181	1.365
	Left	0.408	0.024	0.432

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
LTE Band 3	Front	0.835	0.012	0.847
	Back	1.184	0.032	1.216
	Left	0.408	0.005	0.413

	Right	0.292	0.103	0.395
	Top	0.104	0.082	0.186
	Bottom	0.942	0.008	0.950

	Right	0.292	0.010	0.302
	Top	0.104	0.013	0.117
	Bottom	0.942	0.002	0.944

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)
LTE Band 7	Front	1.107	0.131	1.238
	Back	1.372	0.181	1.553
	Left	0.577	0.024	0.601
	Right	0.308	0.103	0.411
	Top	0.165	0.082	0.247
	Bottom	2.030	0.008	2.038

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
LTE Band 7	Front	1.107	0.012	1.119
	Back	1.372	0.032	1.404
	Left	0.577	0.005	0.582
	Right	0.308	0.010	0.318
	Top	0.165	0.013	0.178
	Bottom	2.030	0.002	2.032

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)
LTE Band 8	Front	0.449	0.131	0.580
	Back	0.747	0.181	0.928
	Left	0.265	0.024	0.289
	Right	0.169	0.103	0.272
	Top	0.078	0.082	0.160
	Bottom	0.421	0.008	0.429

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
LTE Band 8	Front	0.449	0.012	0.461
	Back	0.747	0.032	0.779
	Left	0.265	0.005	0.270
	Right	0.169	0.010	0.179
	Top	0.078	0.013	0.091
	Bottom	0.421	0.002	0.423

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	WLAN SAR _{10g} (W/kg)	Σ SAR (W/kg)
LTE Band 20	Front	0.431	0.131	0.562
	Back	0.623	0.181	0.804
	Left	0.154	0.024	0.178
	Right	0.206	0.103	0.309
	Top	0.096	0.082	0.178
	Bottom	0.427	0.008	0.435

WWAN Mode	Position	WWAN SAR _{10g} (W/kg)	Bluetooth Estimated SAR _{10g} (W/kg)	Σ SAR (W/kg)
LTE Band 20	Front	0.431	0.012	0.443
	Back	0.623	0.032	0.655
	Left	0.154	0.005	0.159
	Right	0.206	0.010	0.216
	Top	0.096	0.013	0.109
	Bottom	0.427	0.002	0.429

Note:

1. WLAN 2.4GHz Band and Bluetooth share the same antenna, and cannot transmit simultaneously.
2. GSM/WCDMA/LTE shares the same antenna, and cannot transmit simultaneously.

➤ Simultaneous Transmission Conclusion

The above numerical summed SAR results for all the case simultaneous transmission conditions were below the SAR limit. Therefore, the above analysis is sufficient to determine that simultaneous transmission cases will not exceed the SAR limit and therefore no measured volumetric simultaneous SAR summation is require

16.6 Measurement Uncertainty

The component of uncertainty may generally be categorized according to the methods used to evaluate them. The evaluation of uncertainty by the statistical analysis of a series of observations is termed a Type A evaluation of uncertainty. The evaluation of uncertainty by means other than the statistical analysis of a series of observation is termed a Type B evaluation of uncertainty. Each component of uncertainty, however evaluated, is represented by an estimated standard deviation, termed standard uncertainty, which is determined by the positive square root of the estimated variance.

A Type A evaluation of standard uncertainty may be based on any valid statistical method for treating data. This includes calculating the standard deviation of the mean of a series of independent observations; using the method of least squares to fit a curve to the data in order to estimate the parameter of the curve and their standard deviations; or carrying out an analysis of variance in order to identify and quantify random effects in certain kinds of measurement.

A Type B evaluation of standard uncertainty is typically based on scientific judgment using all of the relevant information available. These may include previous measurement data, experience, and knowledge of the behavior and properties of relevant materials and instruments, manufacture's specification, data provided in calibration reports and uncertainties assigned to reference data taken from handbooks. Broadly speaking, the uncertainty is either obtained from an outdoor source or obtained from an assumed distribution, such as the normal distribution, rectangular or triangular distributions indicated in below Table.

Uncertainty Distributions	Normal	Rectangular	Triangular	U-Shape
Multi-plying Factor	$1/k(b)$	$1/\sqrt{3}$	$1/\sqrt{6}$	$1/\sqrt{2}$

Standard Uncertainty for Assumed Distribution

The combined standard uncertainty of the measurement result represents the estimated standard deviation of the result. It is obtained by combining the individual standard uncertainties of both Type A and Type B evaluation using the usual "root-sum-squares" (RSS) methods of combining standard deviations by taking the positive square root of the estimated variances.

Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. Typically, the coverage factor ranges from 2 to 3. Using a coverage factor allows the true value of a measured quantity to be specified with a defined probability within the specified uncertainty range. For purpose of this document, a coverage factor two is used, which corresponds to confidence interval of about 95 %. The DASY uncertainty Budget is shown in the following tables.

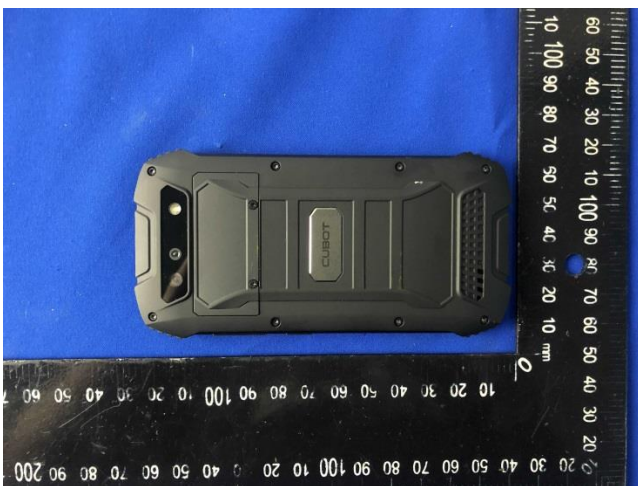
Uncertainty Component	Uncertainty Value	Probability Distribution	Divisor	Ci (1 g)	Ci (10 g)	Standard Uncertainty (1 g)	Standard Uncertainty (10 g)
Measurement System							
Probe Calibration	±7.4%	N	1	1	1	±7.4%	±7.4%
Axial Isotropy	±1.2%	R	$\sqrt{3}$	0.7	0.7	±0.49%	±0.49%
Hemispherical Isotropy	±0.9%	R	$\sqrt{3}$	0.7	0.7	±0.36%	±0.36%
Boundary Effects	±1.0%	R	$\sqrt{3}$	1	1	±0.58%	±0.58%
Linearity	±0.9%	R	$\sqrt{3}$	1	1	±0.52%	±0.52%
System Detection Limits	±0.25%	R	$\sqrt{3}$	1	1	±0.14%	±0.14%
Readout Electronics	±0.3%	N	1	1	1	±0.3%	±0.3%
Response Time	±0.8%	R	$\sqrt{3}$	1	1	±0.46%	±0.46%
Integration Time	±2.6%	R	$\sqrt{3}$	1	1	±1.5%	±1.5%
RF Ambient Noise	±3.0%	R	$\sqrt{3}$	1	1	±1.73%	±1.73%
RF Ambient Reflections	±3.0%	R	$\sqrt{3}$	1	1	±1.73%	±1.73%
Probe Positioner	±0.4%	R	$\sqrt{3}$	1	1	±0.23%	±0.23%
Probe Positioning	±2.9%	R	$\sqrt{3}$	1	1	±1.68%	±1.68%
Max. SAR Eval.	±1.0%	R	$\sqrt{3}$	1	1	±0.58%	±0.58%
Test Sample Related							
Device Positioning	±4.6%	N	1	1	1	±4.6%	±4.6%
Device Holder	±5.2%	N	1	1	1	±5.2%	±5.2%
Power Drift	±5.0%	R	$\sqrt{3}$	1	1	±2.89%	±2.89%
Phantom and Setup							
Phantom Uncertainty	±4.0%	R	$\sqrt{3}$	1	1	±2.31%	±2.31%
Liquid conductivity (measured value)	±3.33%	N	1	0.78	0.71	±2.6%	±2.6%
Liquid dielectric constant (measured value)	±3.25%	N	1	0.23	0.26	±0.75%	±0.85%
Liquid Conductivity - Temperature Uncertainty	±1.3%	R	$\sqrt{3}$	0.78	0.71	±0.59%	±0.53%
Liquid Dielectric Constant - Temperature Uncertainty	±1.1%	R	$\sqrt{3}$	0.23	0.26	±0.15%	±0.17%
Combined Standard Uncertainty						±11.56%	±11.50%
Expanded Uncertainty (95% Confidence Level, k = 2)						±23.11%	±23.0%

Uncertainty Budget for frequency range 300 MHz to 3 GHz

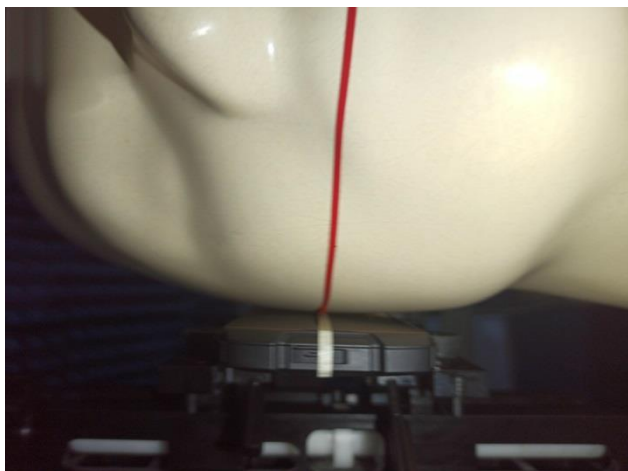
16.7 Measurement Conclusion

The SAR evaluation indicates that the EUT complies with the RF radiation exposure limits of the CE, with respect to all parameters subject to this test. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested. Please note that the absorption and distribution of electromagnetic energy in the body are very complex phenomena that depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role in possible biological effects are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease). Because various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables.

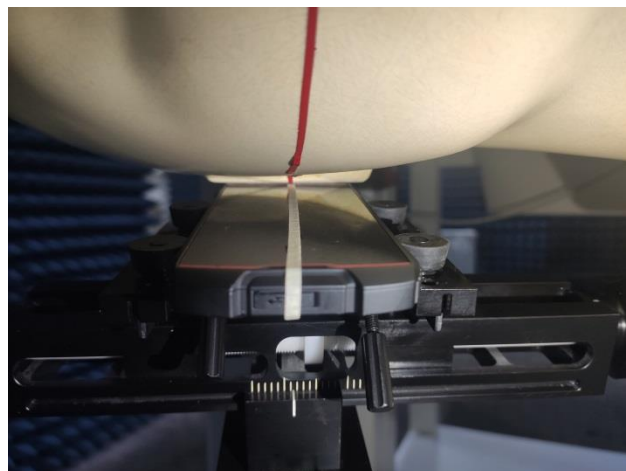
Appendix A: EUT Photos



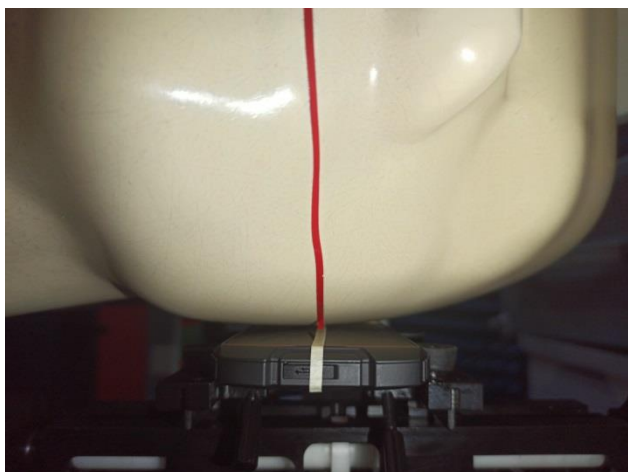
Appendix B: Test Setup Photos



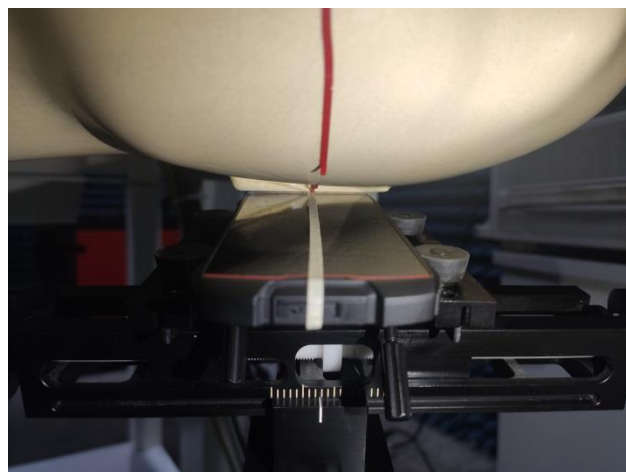
Right Cheek



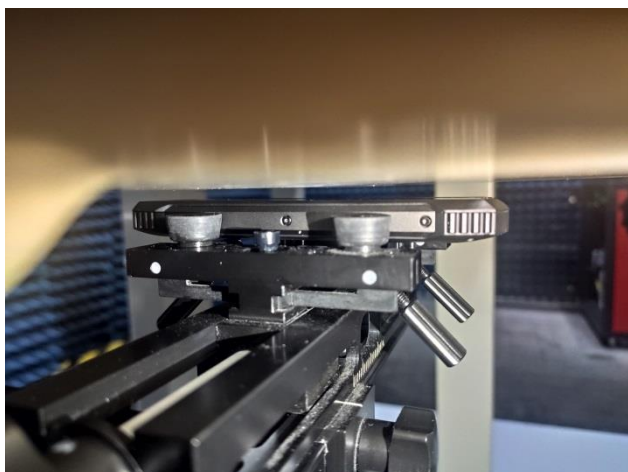
Right Tilted



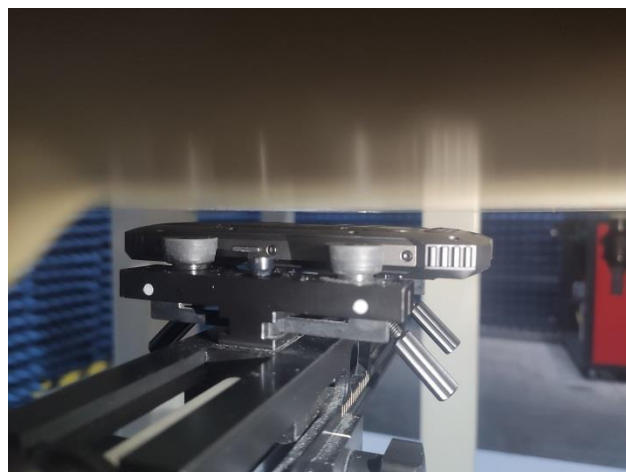
Left Cheek



Left Tilted



Body worn – Front
(Test distance: 5mm, Thickness of DUT: 13mm)



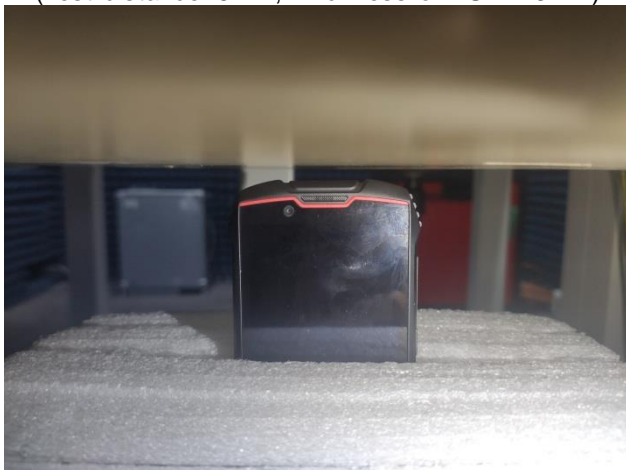
Body worn – Back
(Test distance: 5mm, Thickness of DUT: 13mm)



Body worn – Left
(Test distance: 5mm, Thickness of DUT: 13mm)



Body worn – Right
(Test distance: 5mm, Thickness of DUT: 13mm)



Body worn – Top
(Test distance: 5mm, Thickness of DUT: 13mm)



Body worn – Bottom
(Test distance: 5mm, Thickness of DUT: 13mm)



Limb – Front
(Test distance: 0mm, Thickness of DUT: 13mm)



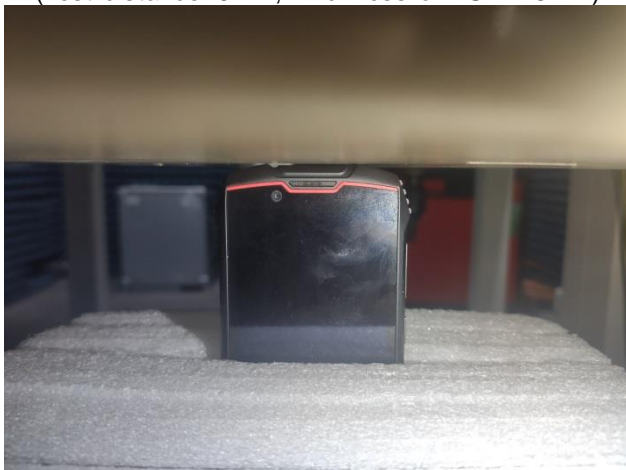
Limb – Back
(Test distance: 0mm, Thickness of DUT: 13mm)



Limb – Left
(Test distance: 0mm, Thickness of DUT: 13mm)



Limb – Right
(Test distance: 0mm, Thickness of DUT: 13mm)



Limb – Top
(Test distance: 0mm, Thickness of DUT: 13mm)



Limb – Bottom
(Test distance: 0mm, Thickness of DUT: 13mm)

Appendix C: Plots of SAR System Check

Test Laboratory: CCIS

Date/Time: 10.16.2020 08:11:25

DUT: Dipole 835 MHz; Type: D835V2; Serial: SN:4d154

Communication System: UID 0, CW (0); Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.921 \text{ S/m}$; $\epsilon_r = 41.246$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(9.71, 9.71, 9.71); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

System Performance Check at Frequency 835 MHz Head Tissue/d=15mm, Pin=80 mW, dist=2.0mm (EX-Probe)/Area Scan (41x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.09 W/kg

System Performance Check at Frequency 835 MHz Head Tissue/d=15mm, Pin=80 mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x7) (5x5x7)/Cube 0:

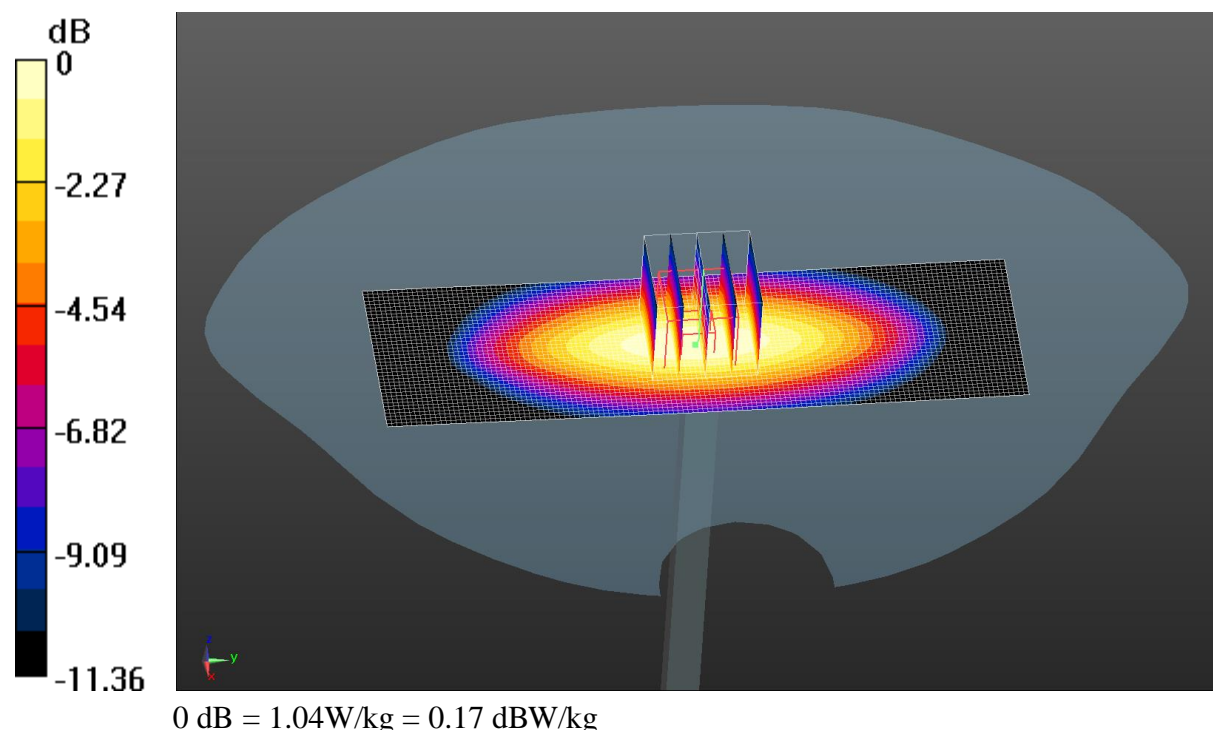
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.60 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 1.18 W/kg

SAR(1 g) = 0.769 W/kg; SAR(10 g) = 0.514 W/kg

Maximum value of SAR (measured) = 1.04 W/kg



Test Laboratory: CCIS

Date/Time: 10.11.2020 08:09:28

DUT: Dipole 1800 MHz; Type: SID1800; Serial: SN:09/15 DIP IG800-360

Communication System: UID 0, CW (0); Frequency: 1800 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1800 \text{ MHz}$; $\sigma = 1.398 \text{ S/m}$; $\epsilon_r = 39.634$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(8.43, 8.43, 8.43); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

System Performance Check at Frequency 1800MHz Head Tissue/d=10mm, Pin=40 mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x7) (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 41.54 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 3.28 W/kg

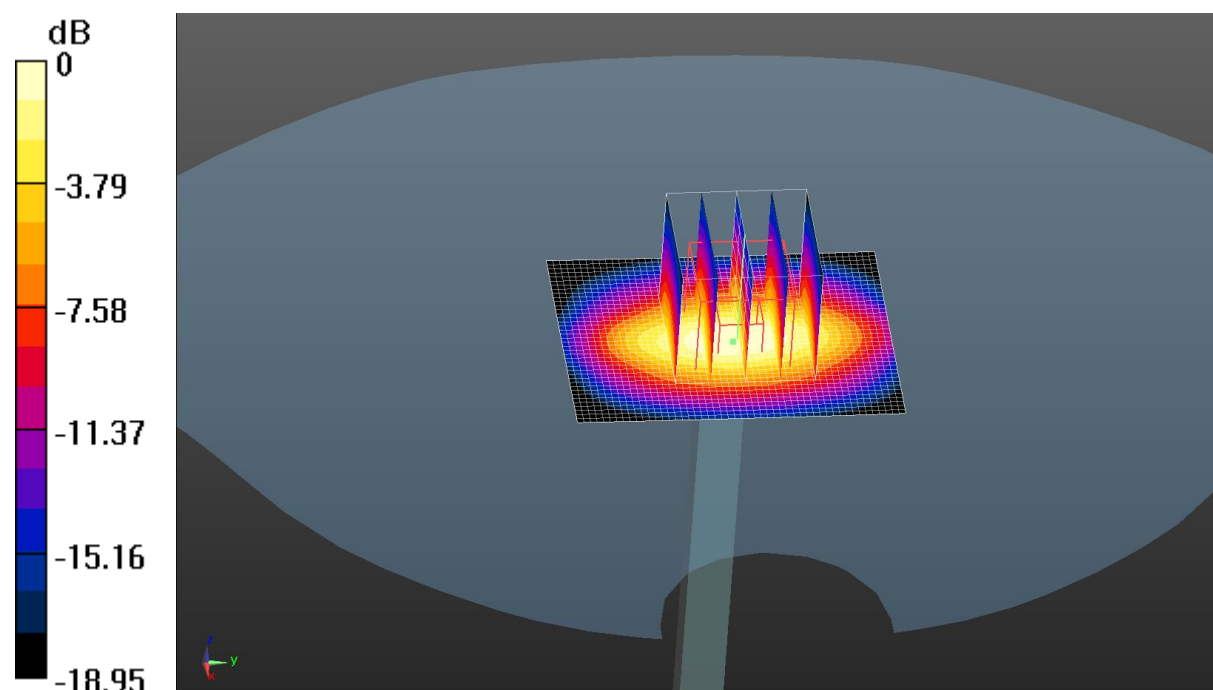
SAR(1 g) = 1.56 W/kg; SAR(10 g) = 0.821 W/kg

Maximum value of SAR (measured) = 2.31 W/kg

System Performance Check at Frequency 1800MHz Head Tissue/d=10mm, Pin=40 mW, dist=2.0mm (EX-Probe)/Area Scan (41x51x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.57 W/kg



0 dB = 2.57 W/kg = 4.10 dBW/kg

Test Laboratory: CCIS

Date/Time: 10.11.2020 08:17:15

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d175

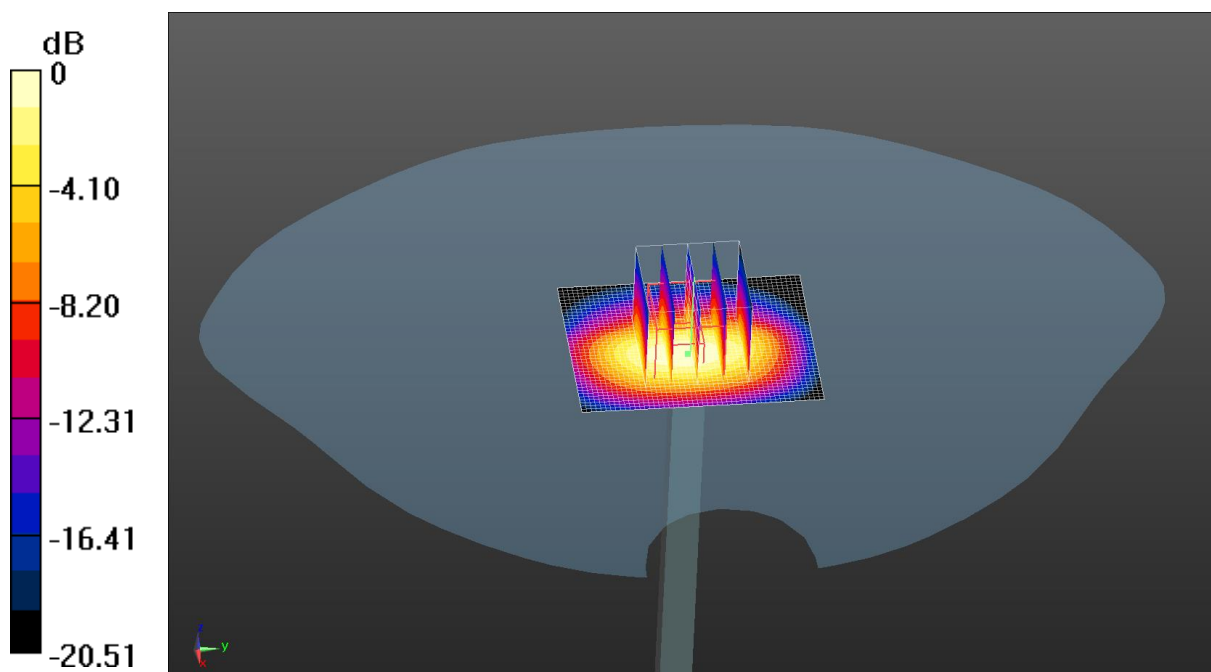
Communication System: UID 0, CW (0); Frequency: 1900 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1900$ MHz; $\sigma = 1.427$ S/m; $\epsilon_r = 39.153$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(8.14, 8.14, 8.14); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

System Performance Check at Frequency 1900MHz Head Tissue/d=10mm, Pin=40 mW, dist=2.0mm (EX-Probe)/Area Scan (41x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.58 W/kg

System Performance Check at Frequency 1900MHz Head Tissue/d=10mm, Pin=40 mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x7) (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 40.36 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 3.42 W/kg
SAR(1 g) = 1.57 W/kg; SAR(10 g) = 0.838 W/kg
Maximum value of SAR (measured) = 2.39 W/kg



0 dB = 2.39 W/kg = 3.78 dBW/kg

Test Laboratory: CCIS

Date/Time: 10.14.2020 08:21:35

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: SN:910

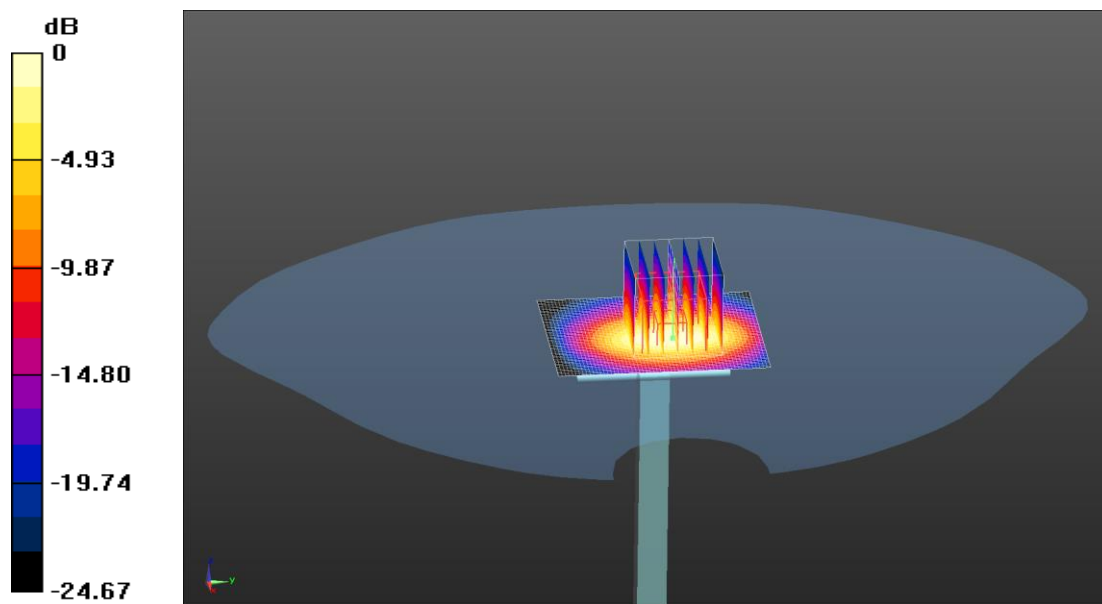
Communication System: UID 0, CW (0); Frequency: 2450 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 2450$ MHz; $\sigma = 1.778$ S/m; $\epsilon_r = 39.762$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(7.58, 7.58, 7.58); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

System Performance Check at Frequency 2450MHz Head Tissue/d=10mm, Pin=40 mW, dist=2.0mm (EX-Probe)/Area Scan (51x61x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 3.54 W/kg

System Performance Check at Frequency 2450MHz Head Tissue/d=10mm, Pin=40 mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 39.86 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 4.38 W/kg
SAR(1 g) = 2.14 W/kg; SAR(10 g) = 0.968 W/kg
Maximum value of SAR (measured) = 3.32 W/kg



0 dB = 3.32 W/kg = 5.21 dBW/kg

Test Laboratory: CCIS

Date/Time: 10.14.2020 08:43:14

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: SN: 1114

Communication System: UID 0, CW (0); Frequency: 2600 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 2600$ MHz; $\sigma = 1.992$ S/m; $\epsilon_r = 38.481$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 – SN3924; ConvF(7.35, 7.35, 7.35); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

System Performance Check at Frequency 2600MHz Head Tissue/d=10mm, Pin=40 mW, dist=2.0mm (EX-Probe)/Zoom Scan(7X7X7) (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 42.96 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 4.89 W/kg

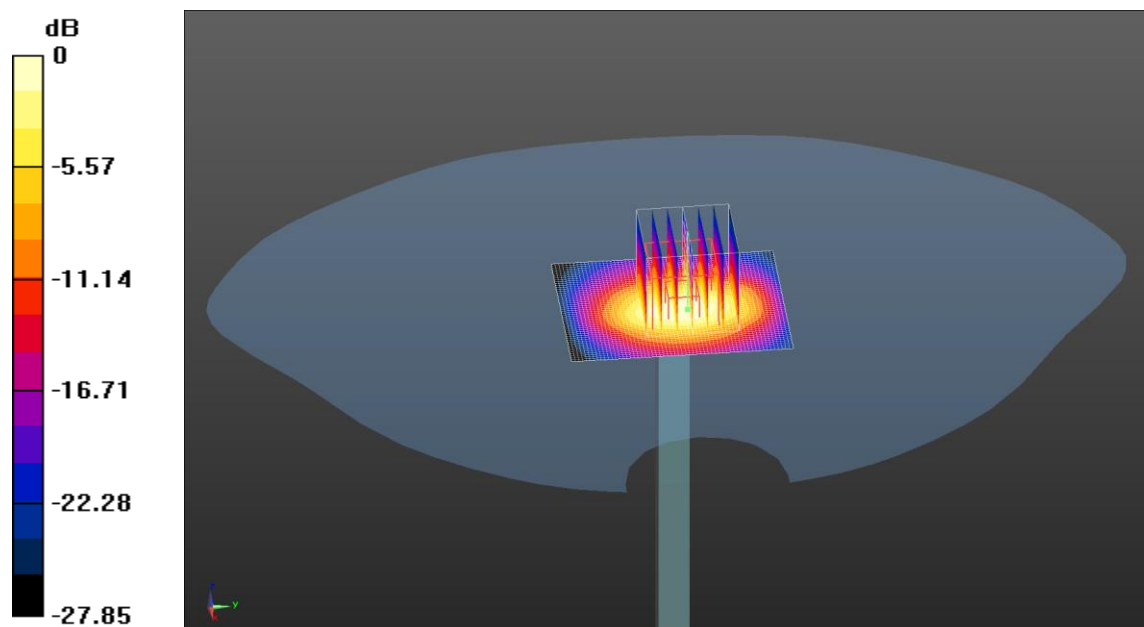
SAR(1 g) = 2.28 W/kg; SAR(10 g) = 0.986 W/kg

Maximum value of SAR (measured) = 3.74 W/kg

System Performance Check at Frequency 2600MHz Head Tissue/d=10mm, Pin=40 mW, dist=2.0mm (EX-Probe)/Area Scan (51x61x1): Interpolated grid:

dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 4.21 W/kg



0 dB = 4.21 W/kg = 6.24 dBW/kg

Appendix D: Plots of SAR Test Data

Test Laboratory: CCIS

Date/Time: 10.16.2020 08:55:12

DUT: Smartphone; Type: KINGKONG MINI2; Serial: 6#

Communication System: UID 0, GSM (0); Frequency: 902 MHz; Duty Cycle: 1:8.30042

Medium parameters used (interpolated): $f = 902$ MHz; $\sigma = 0.991$ S/m; $\epsilon_r = 40.871$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(9.67, 9.67, 9.67); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

GSM 900 Right Cheek/Middle Channel/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.468 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.777 W/kg

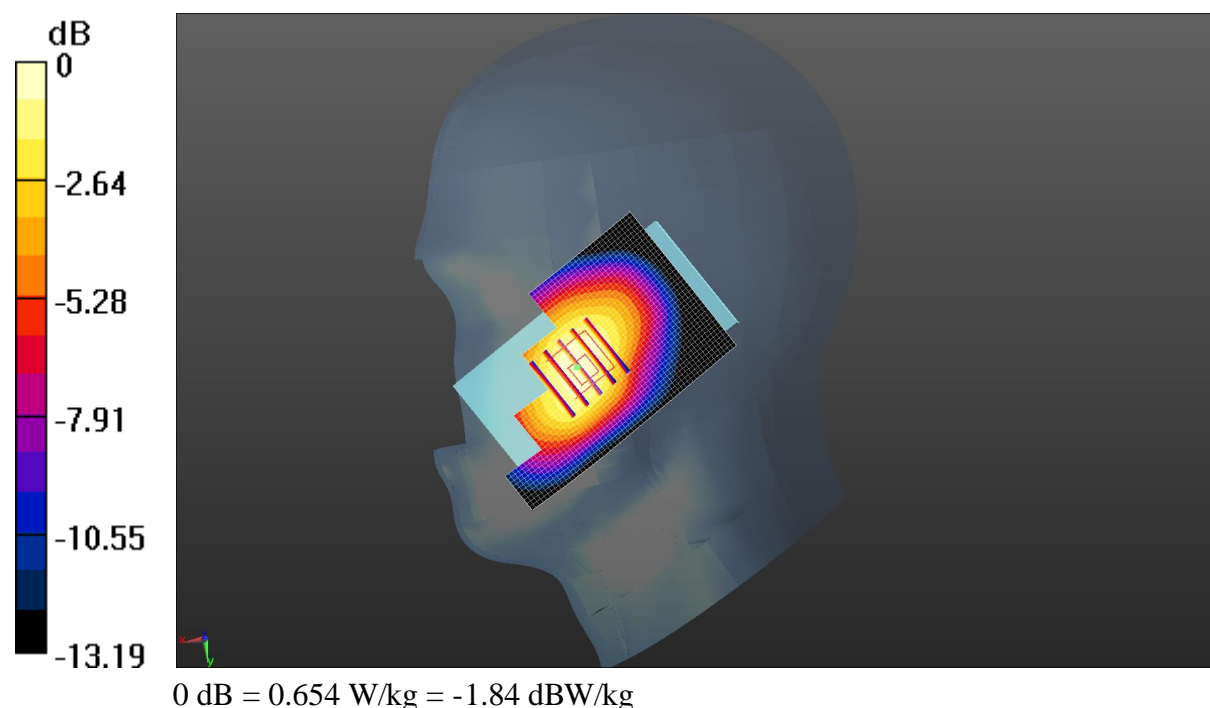
SAR(1 g) = 0.536 W/kg; SAR(10 g) = 0.358 W/kg

Maximum value of SAR (measured) = 0.665 W/kg

GSM 900 Right Cheek/Middle Channel/Area Scan (41x61x1): Interpolated grid:

dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 0.654 W/kg



Test Laboratory: CCIS

Date/Time: 10.11.2020 08:47:07

DUT: Smartphone; Type: KINGKONG MINI2; Serial: 6#

Communication System: UID 0, GSM (0); Frequency: 1747.8 MHz; Duty Cycle: 1:8.30042

Medium parameters used (interpolated): $f = 1747.8$ MHz; $\sigma = 1.361$ S/m; $\epsilon_r = 40.198$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(8.43, 8.43, 8.43); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

GSM 1800 Right Cheek/Middle Channel/Area Scan (41x61x1): Interpolated grid:

dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 0.837 W/kg

GSM 1800 Right Cheek/Middle Channel/Zoom Scan (5x5x7)/Cube 0:

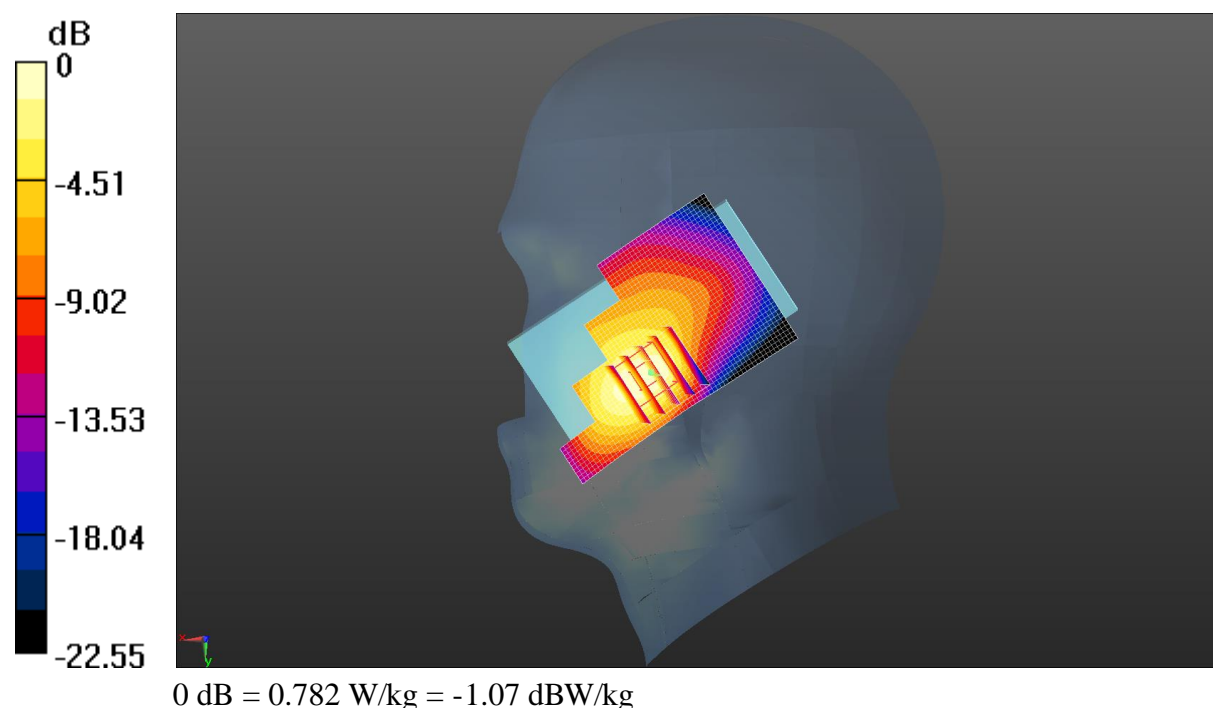
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.304 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.04 W/kg

SAR(1 g) = 0.651 W/kg; SAR(10 g) = 0.382 W/kg

Maximum value of SAR (measured) = 0.782 W/kg



Test Laboratory: CCIS

Date/Time: 10.11.2020 14:53:35

DUT: Smartphone; Type: KINGKONG MINI2; Serial: 6#

Communication System: UID 0, UMTS-FDD(WCDMA) (0); Frequency: 1950 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1950$ MHz; $\sigma = 1.439$ S/m; $\epsilon_r = 39.107$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(8.14, 8.14, 8.14); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

WCDMA 2100 Right Cheek/Middle Channel/Area Scan (41x61x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 1.09 W/kg

WCDMA 2100 Right Cheek/Middle Channel/Zoom Scan (5x5x7)/Cube 0:

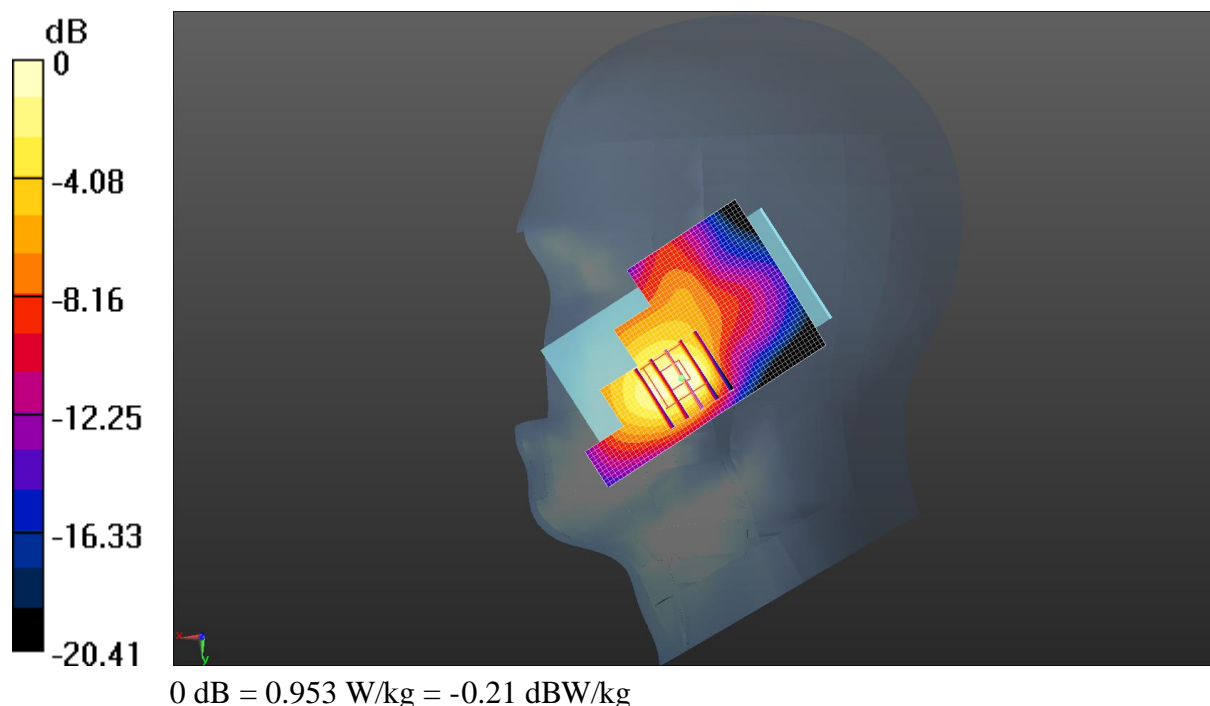
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.987 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 1.37 W/kg

SAR(1 g) = 0.814 W/kg; SAR(10 g) = 0.452 W/kg

Maximum value of SAR (measured) = 0.953 W/kg



Test Laboratory: CCIS

Date/Time: 10.16.2020 15:04:02

DUT: Smartphone; Type: KINGKONG MINI2; Serial: 6#

Communication System: UID 0, UMTS-FDD(WCDMA) (0); Frequency: 897.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 897.6$ MHz; $\sigma = 0.986$ S/m; $\epsilon_r = 40.962$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(9.67, 9.67, 9.67); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

WCDMA 900 Right Cheek/Middle Channel/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.537 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.16 W/kg

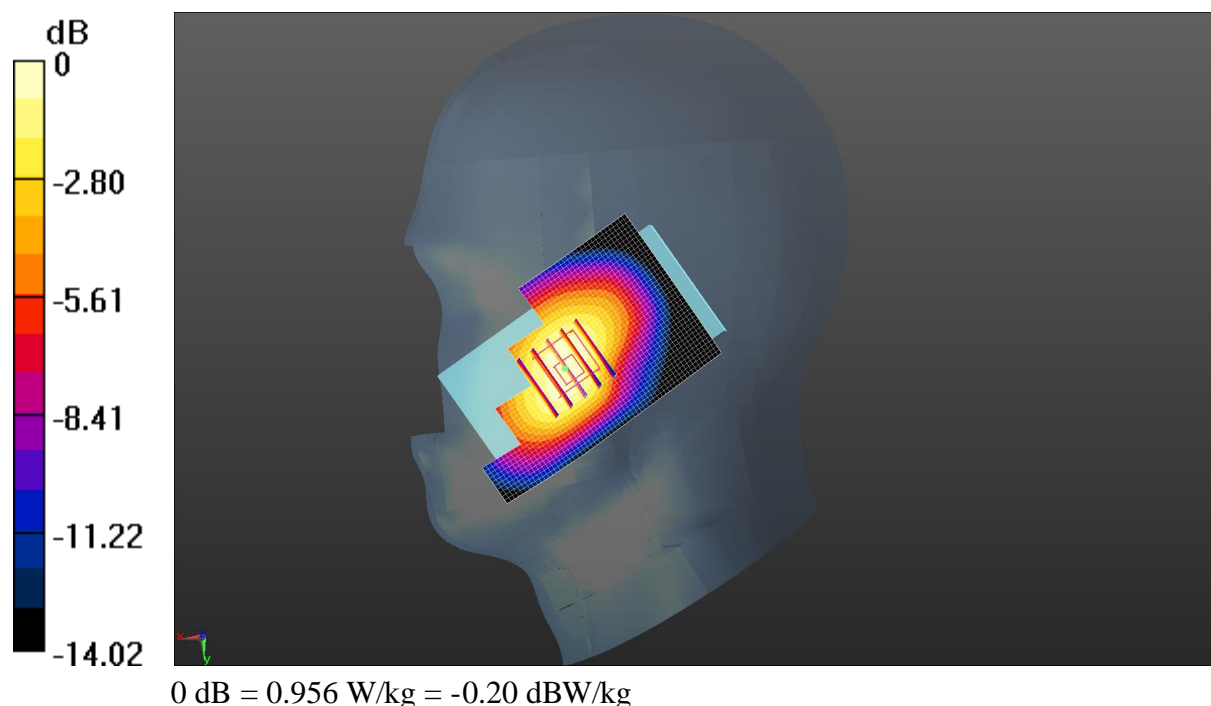
SAR(1 g) = 0.783 W/kg; SAR(10 g) = 0.520 W/kg

Maximum value of SAR (measured) = 0.979 W/kg

WCDMA 900 Right Cheek/Middle Channel/Area Scan (41x61x1): Interpolated

grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 0.956 W/kg



Test Laboratory: CCIS

Date/Time: 10.11.2020 20:14:35

DUT: Smartphone; Type: KINGKONG MINI2; Serial: 6#

Communication System: UID 0, LTE-FDD(EU) (0); Frequency: 1950 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1950 \text{ MHz}$; $\sigma = 1.439 \text{ S/m}$; $\epsilon_r = 39.107$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(8.14, 8.14, 8.14); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

LTE Band 1 1RB(20MHz) Right Cheek/Middle Channel/Zoom Scan

(5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.973 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.869 W/kg

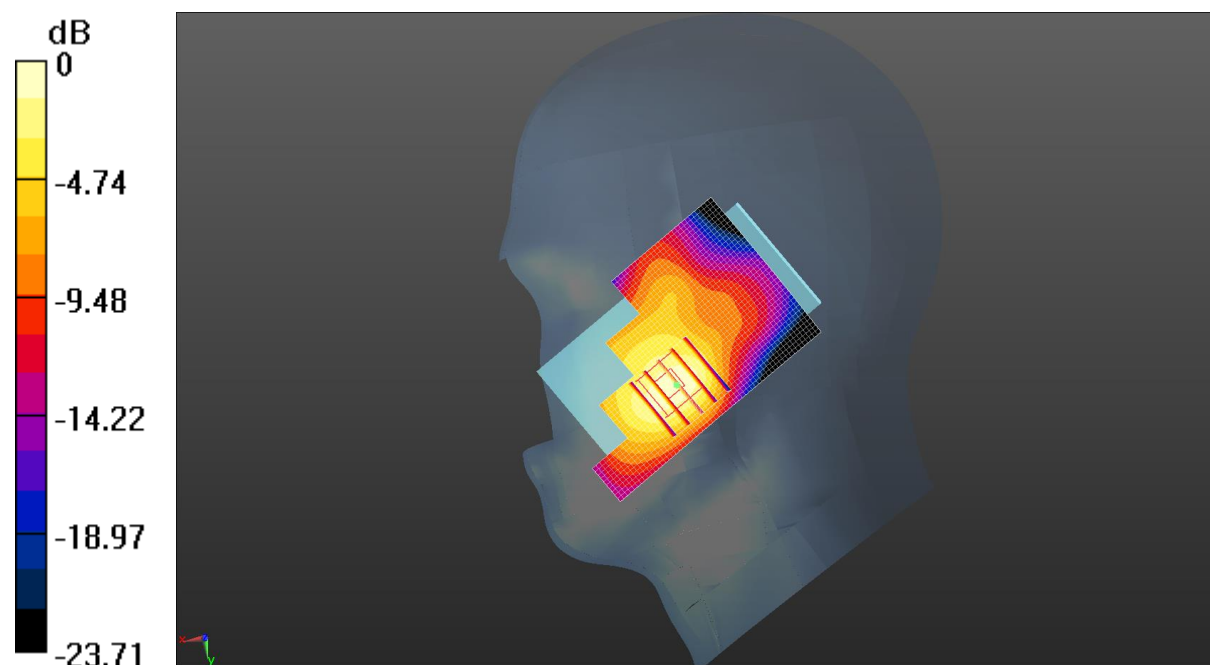
SAR(1 g) = 0.517 W/kg; SAR(10 g) = 0.292 W/kg

Maximum value of SAR (measured) = 0.719 W/kg

LTE Band 1 1RB(20MHz) Right Cheek/Middle Channel/Area Scan (41x61x1):

Interpolated grid: $dx=2.000 \text{ mm}$, $dy=2.000 \text{ mm}$

Maximum value of SAR (interpolated) = 0.691 W/kg



0 dB = 0.691 W/kg = -1.61 dBW/kg

Test Laboratory: CCIS

Date/Time: 10.12.2020 01:13:27

DUT: Smartphone; Type: KINGKONG MINI2; Serial: 6#

Communication System: UID 0, LTE-FDD(EU) (0); Frequency: 1747.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1747.5$ MHz; $\sigma = 1.361$ S/m; $\epsilon_r = 40.198$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(8.43, 8.43, 8.43); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

LTE Band 3 1RB(20MHz) Right Cheek/Middle Channel/Zoom Scan

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

Reference Value = 3.937 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.833 W/kg

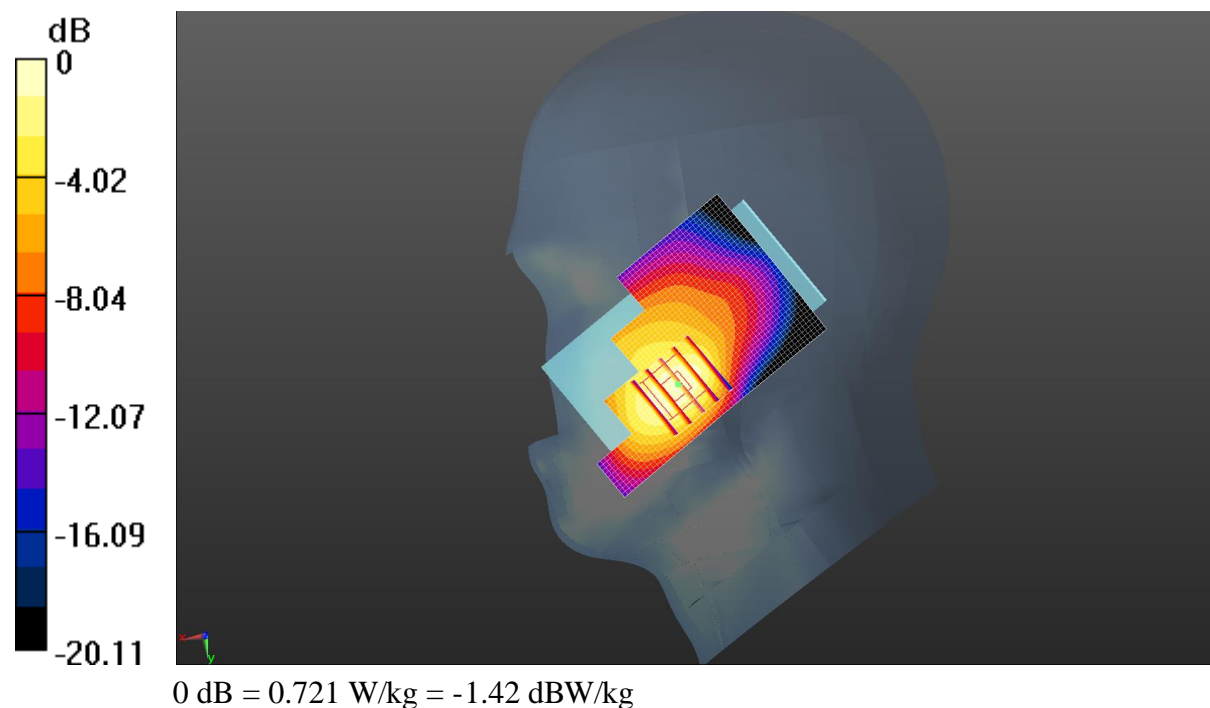
SAR(1 g) = 0.535 W/kg; SAR(10 g) = 0.329 W/kg

Maximum value of SAR (measured) = 0.727 W/kg

LTE Band 3 1RB(20MHz) Right Cheek/Middle Channel/Area Scan (41x61x1):

Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 0.721 W/kg



Test Laboratory: CCIS

Date/Time: 10.14.2020 18:20:16

DUT: Smartphone; Type: KINGKONG MINI2; Serial: 6#

Communication System: UID 0, LTE-FDD(EU) (0); Frequency: 2535 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 2535$ MHz; $\sigma = 1.871$ S/m; $\epsilon_r = 39.193$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(7.35, 7.35, 7.35); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

LTE Band 7 1RB(20MHz) Left Cheek/Middle Channel/Zoom Scan

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

Reference Value = 4.113 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 1.92 W/kg

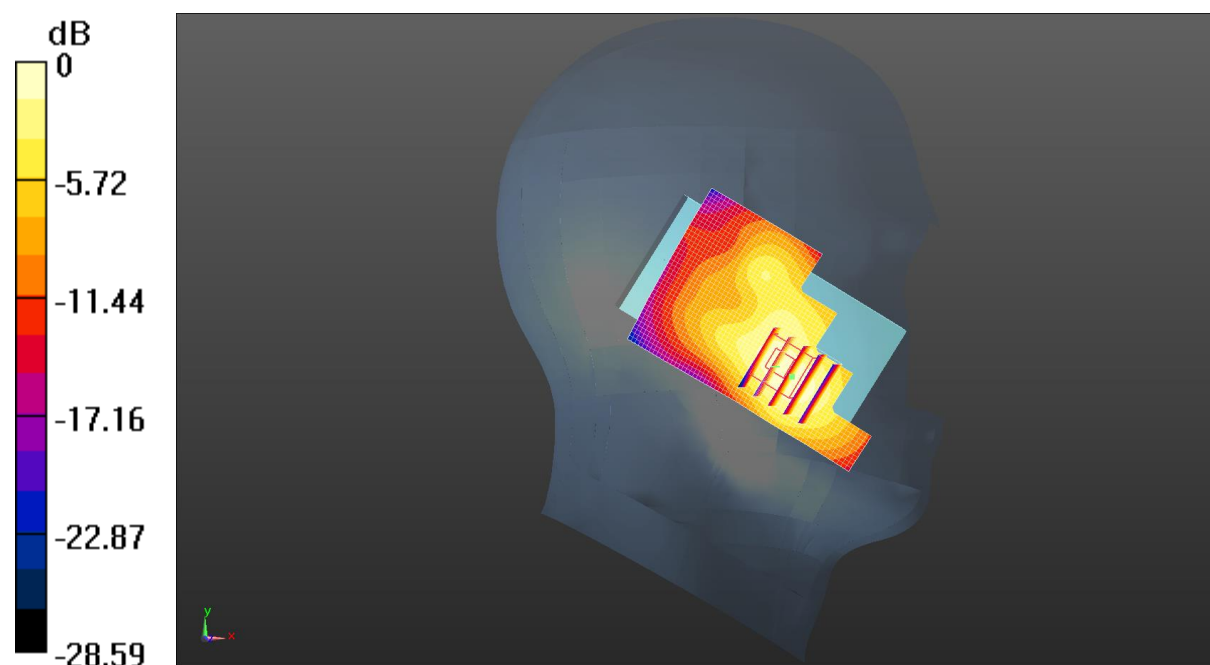
SAR(1 g) = 0.979 W/kg; SAR(10 g) = 0.490 W/kg

Maximum value of SAR (measured) = 1.27 W/kg

LTE Band 7 1RB(20MHz) Left Cheek/Middle Channel/Area Scan (41x61x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.10 W/kg



0 dB = 1.10 W/kg = 0.41 dBW/kg

Test Laboratory: CCIS

Date/Time: 10.16.2020 19:45:39

DUT: Smartphone; Type: KINGKONG MINI2; Serial: 6#

Communication System: UID 0, LTE-FDD(EU) (0); Frequency: 897.5 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 897.5 \text{ MHz}$; $\sigma = 0.986 \text{ S/m}$; $\epsilon_r = 40.962$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(9.67, 9.67, 9.67); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

LTE Band 8 1RB(10MHz) Right Cheek/Middle Channel/Zoom Scan

(5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.944 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.574 W/kg

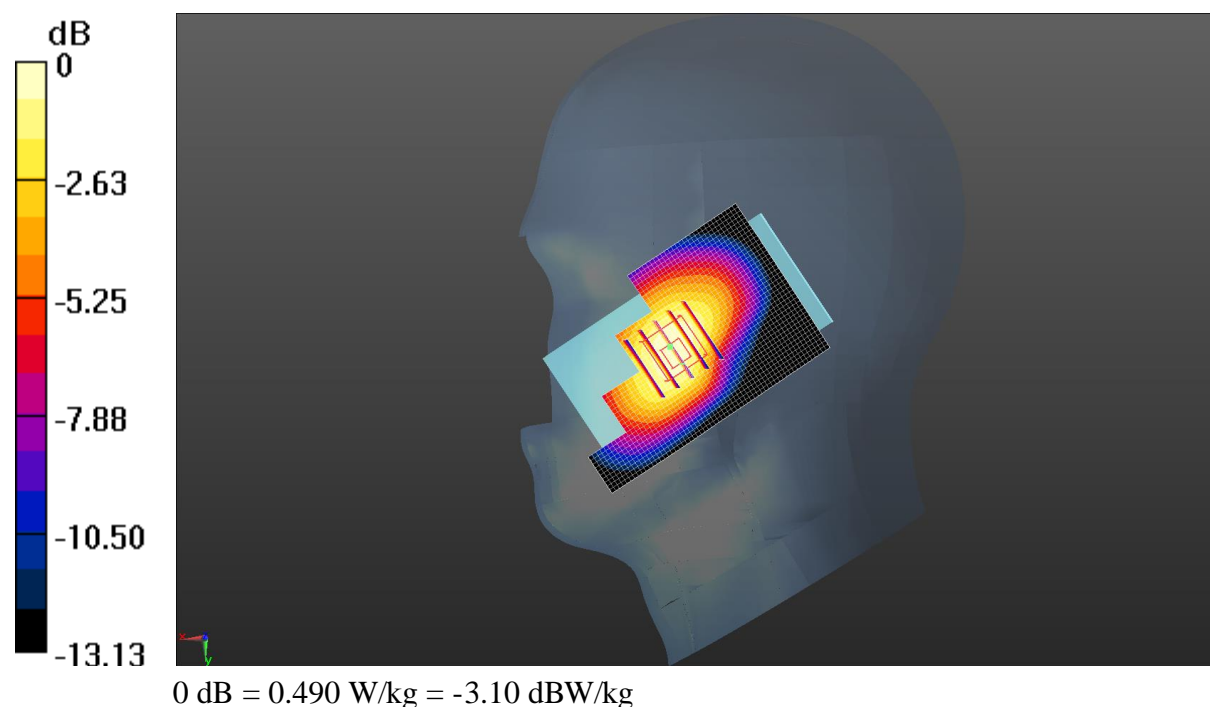
SAR(1 g) = 0.393 W/kg; SAR(10 g) = 0.263 W/kg

Maximum value of SAR (measured) = 0.494 W/kg

LTE Band 8 1RB(10MHz) Right Cheek/Middle Channel/Area Scan (41x61x1):

Interpolated grid: $dx=2.000 \text{ mm}$, $dy=2.000 \text{ mm}$

Maximum value of SAR (interpolated) = 0.490 W/kg



Test Laboratory: CCIS

Date/Time: 10.17.2020 01:13:28

DUT: Smartphone; Type: KINGKONG MINI2; Serial: 6#

Communication System: UID 0, LTE-FDD(EU) (0); Frequency: 847 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 847 \text{ MHz}$; $\sigma = 0.929 \text{ S/m}$; $\epsilon_r = 41.183$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(9.71, 9.71, 9.71); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

LTE Band 20 1RB(20MHz) Right Cheek/Middle Channel/Zoom Scan

(5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.997 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.485 W/kg

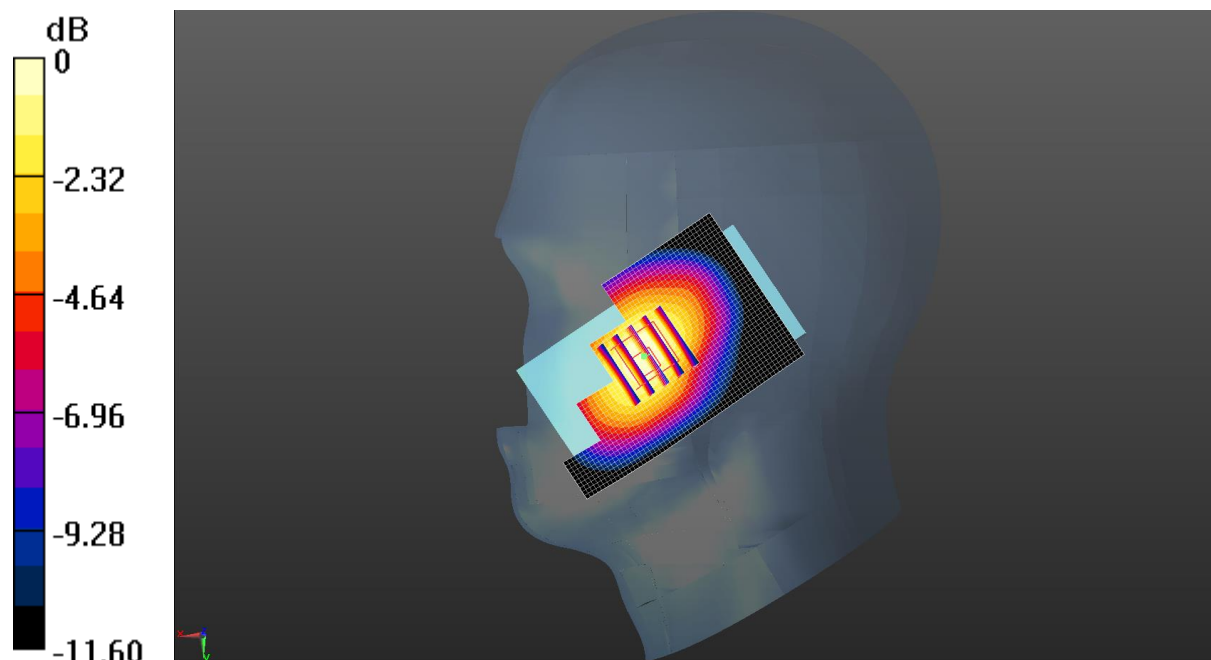
SAR(1 g) = 0.333 W/kg; SAR(10 g) = 0.226 W/kg

Maximum value of SAR (measured) = 0.416 W/kg

LTE Band 20 1RB(20MHz) Right Cheek/Middle Channel/Area Scan

(41x61x1): Interpolated grid: $dx=2.000 \text{ mm}$, $dy=2.000 \text{ mm}$

Maximum value of SAR (interpolated) = 0.418 W/kg



0 dB = 0.418 W/kg = -3.79 dBW/kg

Test Laboratory: CCIS

Date/Time: 10.14.2020 11:07:04

DUT: Smartphone; Type: KINGKONG MINI2; Serial: 6#

Communication System: UID 0, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps) (0);

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 2442$ MHz; $\sigma = 1.762$ S/m; $\epsilon_r = 39.928$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(7.58, 7.58, 7.58); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

WIFI Right Cheek/Middle Channel/Area Scan (41x61x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.196 W/kg

WIFI Right Cheek/Middle Channel/Zoom Scan (5x5x7)/Cube 0: Measurement

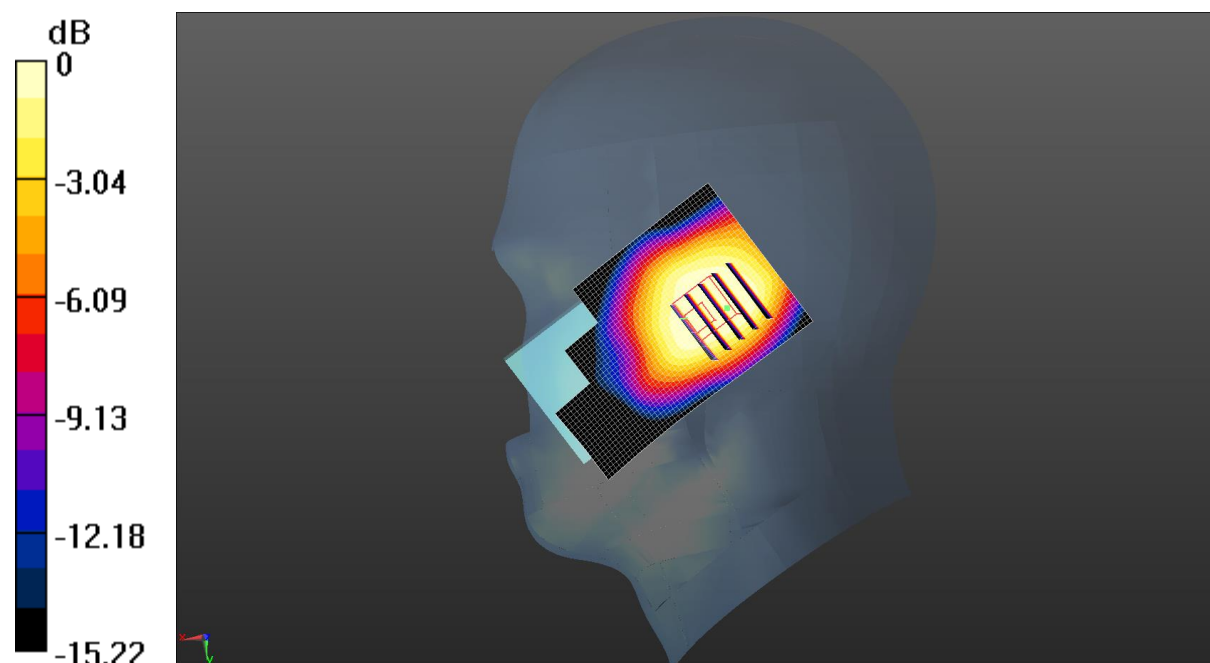
grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.645 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.233 W/kg

SAR(1 g) = 0.127 W/kg; SAR(10 g) = 0.075 W/kg

Maximum value of SAR (measured) = 0.153 W/kg



0 dB = 0.153 W/kg = -8.15 dBW/kg

Test Laboratory: CCIS

Date/Time: 10.14.2020 23:55:10

DUT: Smartphone; Type: KINGKONG MINI2; Serial: 6#

Communication System: UID 0, Bluetooth (0); Frequency: 2441 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 2441$ MHz; $\sigma = 1.762$ S/m; $\epsilon_r = 39.928$; $\rho = 1000$ kg/m³
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(7.58, 7.58, 7.58); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

BT Right Cheek/Middle Channel/Area Scan (41x61x1): Interpolated grid:

$dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.0659 W/kg

BT Right Cheek/Middle Channel/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

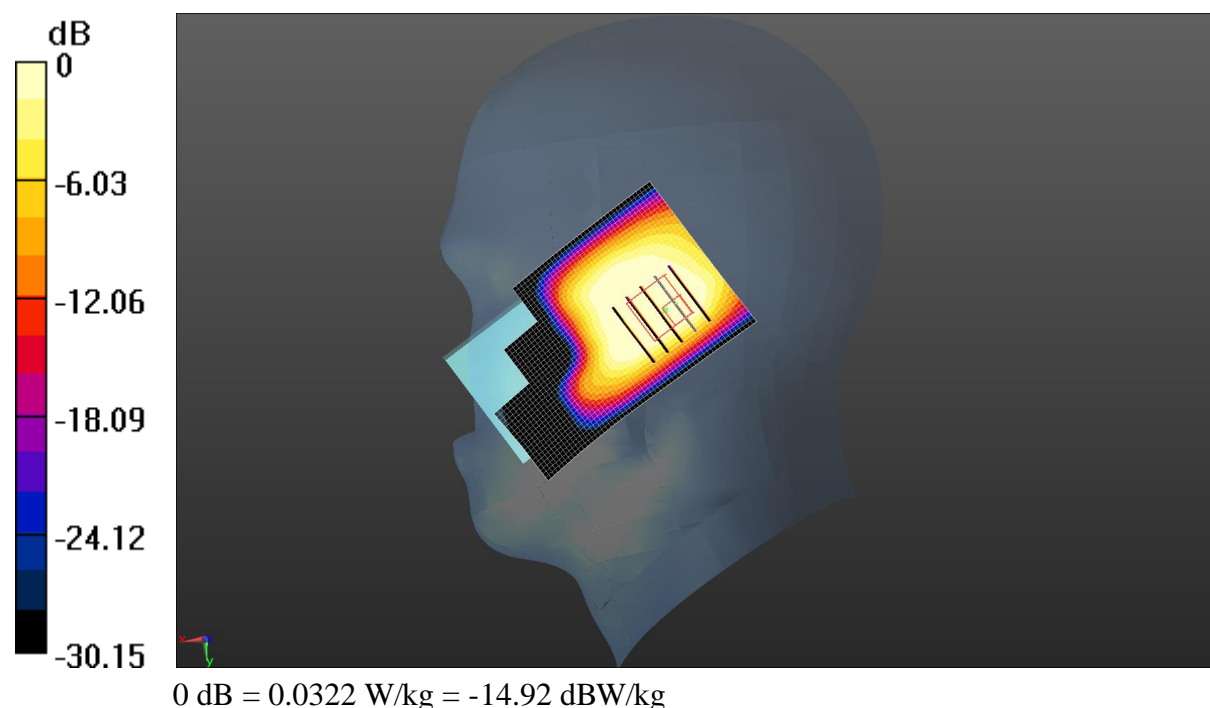
$dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 3.905 V/m; Power Drift = -0.27 dB

Peak SAR (extrapolated) = 0.0400 W/kg

SAR(1 g) = 0.019 W/kg; SAR(10 g) = 0.00884 W/kg

Maximum value of SAR (measured) = 0.0322 W/kg



Test Laboratory: CCIS

Date/Time: 10.16.2020 10:06:18

DUT: Smartphone; Type: KINGKONG MINI2; Serial: 6#

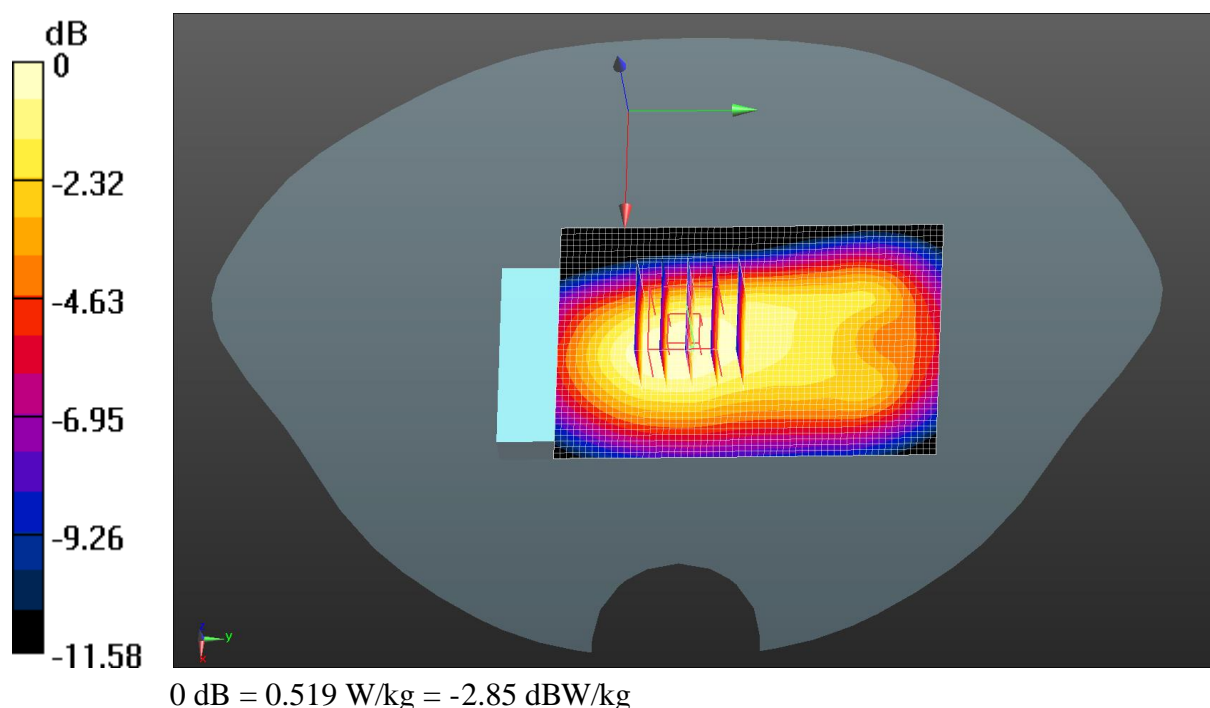
Communication System: UID 0, GSM (0); Frequency: 902 MHz; Duty Cycle: 1:8.30042
Medium parameters used (interpolated): $f = 902 \text{ MHz}$; $\sigma = 0.991 \text{ S/m}$; $\epsilon_r = 40.871$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(9.67, 9.67, 9.67); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

GSM 900 Body Front/Middle Channel/Area Scan (41x61x1): Interpolated grid:
 $dx=2.000 \text{ mm}$, $dy=2.000 \text{ mm}$
Maximum value of SAR (interpolated) = 0.538 W/kg

GSM 900 Body Front/Middle Channel/Zoom Scan (5x5x7)/Cube 0: Measurement
grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 24.35 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.598 W/kg
SAR(1 g) = 0.423 W/kg; SAR(10 g) = 0.292 W/kg
Maximum value of SAR (measured) = 0.519 W/kg



Test Laboratory: CCIS

Date/Time: 10.11.2020 10:16:15

DUT: Smartphone; Type: KINGKONG MINI2; Serial: 6#

Communication System: UID 0, GSM (0); Frequency: 1747.8 MHz; Duty Cycle: 1:8.30042

Medium parameters used (interpolated): $f = 1747.8$ MHz; $\sigma = 1.361$ S/m; $\epsilon_r = 40.198$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(8.43, 8.43, 8.43); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

GSM 1800 Body Back/Middle Channel/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 14.19 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 2.05 W/kg

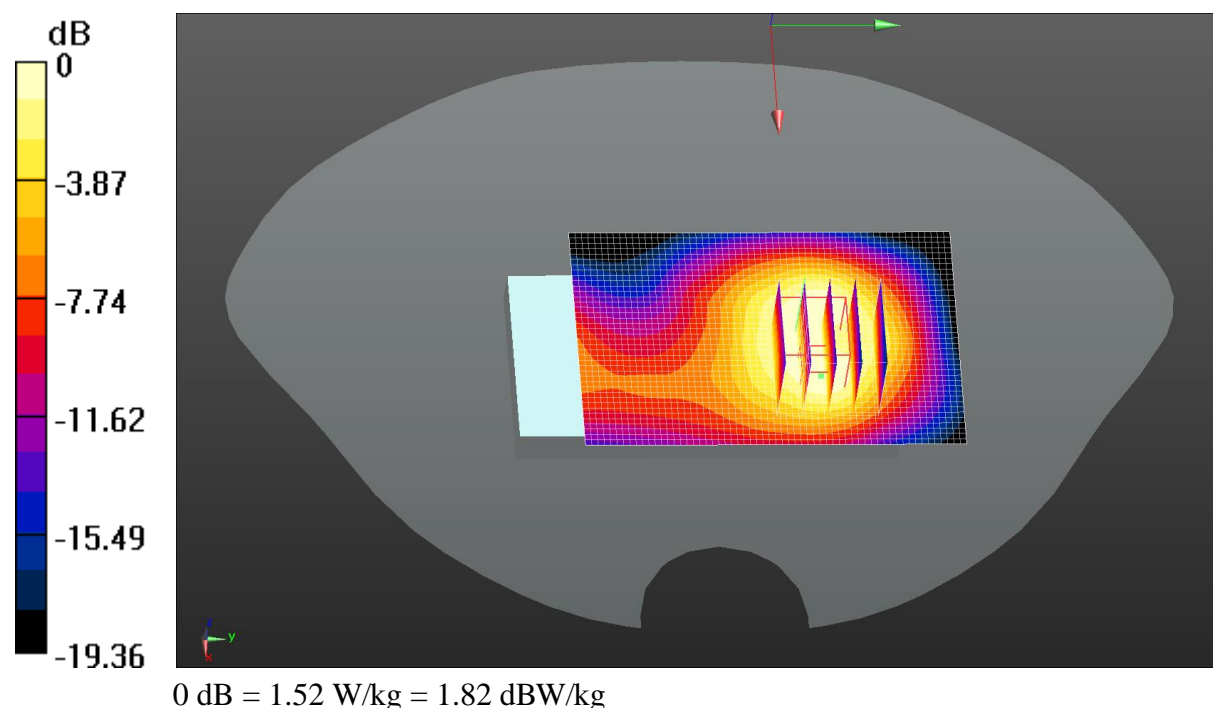
SAR(1 g) = 1.13 W/kg; SAR(10 g) = 0.687 W/kg

Maximum value of SAR (measured) = 1.42 W/kg

GSM 1800 Body Back/Middle Channel/Area Scan (41x61x1): Interpolated grid:

dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 1.52 W/kg



Test Laboratory: CCIS

Date/Time: 10.11.2020 16:22:33

DUT: Smartphone; Type: KINGKONG MINI2; Serial: 6#

Communication System: UID 0, UMTS-FDD(WCDMA) (0); Frequency: 1950 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1950$ MHz; $\sigma = 1.439$ S/m; $\epsilon_r = 39.107$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(8.14, 8.14, 8.14); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

WCDMA 2100 Body Back/Middle Channel/Area Scan (41x61x1): Interpolated

grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 1.53 W/kg

WCDMA 2100 Body Back/Middle Channel/Zoom Scan (5x5x7)/Cube 0:

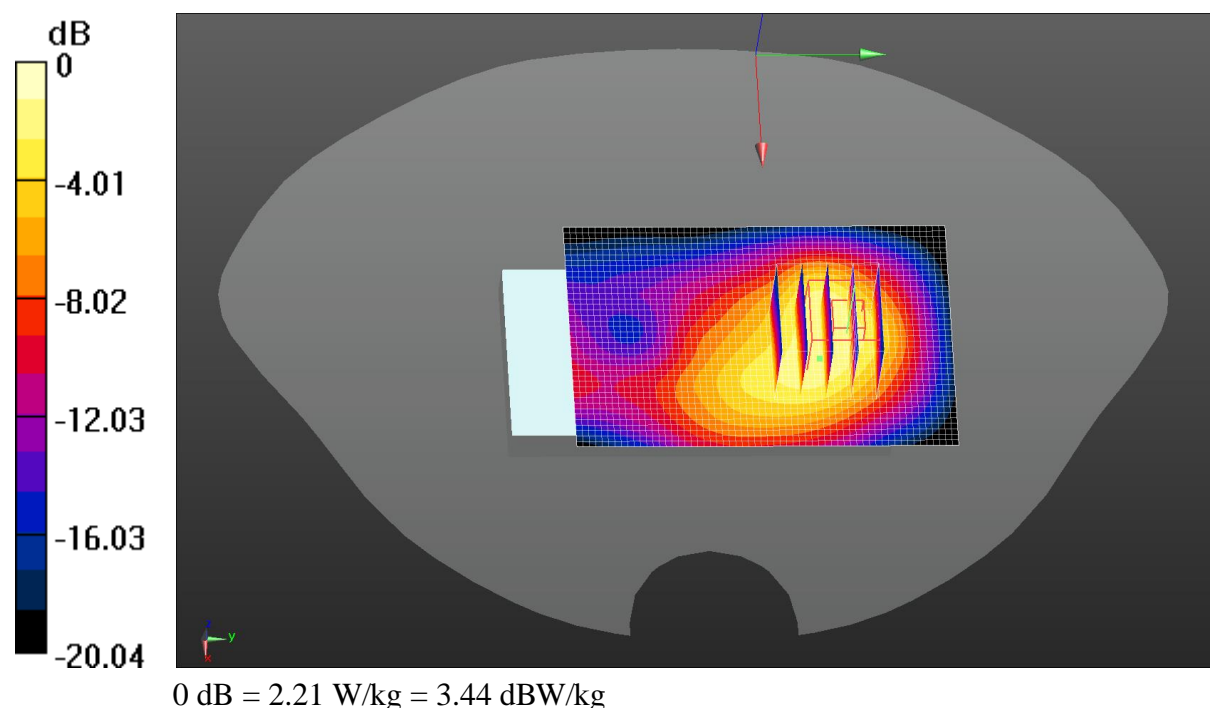
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 15.78 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 3.20 W/kg

SAR(1 g) = 1.7 W/kg; SAR(10 g) = 0.833 W/kg

Maximum value of SAR (measured) = 2.21 W/kg



Test Laboratory: CCIS

Date/Time: 10.16.2020 16:38:08

DUT: Smartphone; Type: KINGKONG MINI 2; Serial: 6#

Communication System: UID 0, UMTS-FDD(WCDMA) (0); Frequency: 897.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 897.6$ MHz; $\sigma = 0.986$ S/m; $\epsilon_r = 40.962$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(9.67, 9.67, 9.67); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

WCDMA 900 Body Back/Middle Channel/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 29.47 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.924 W/kg

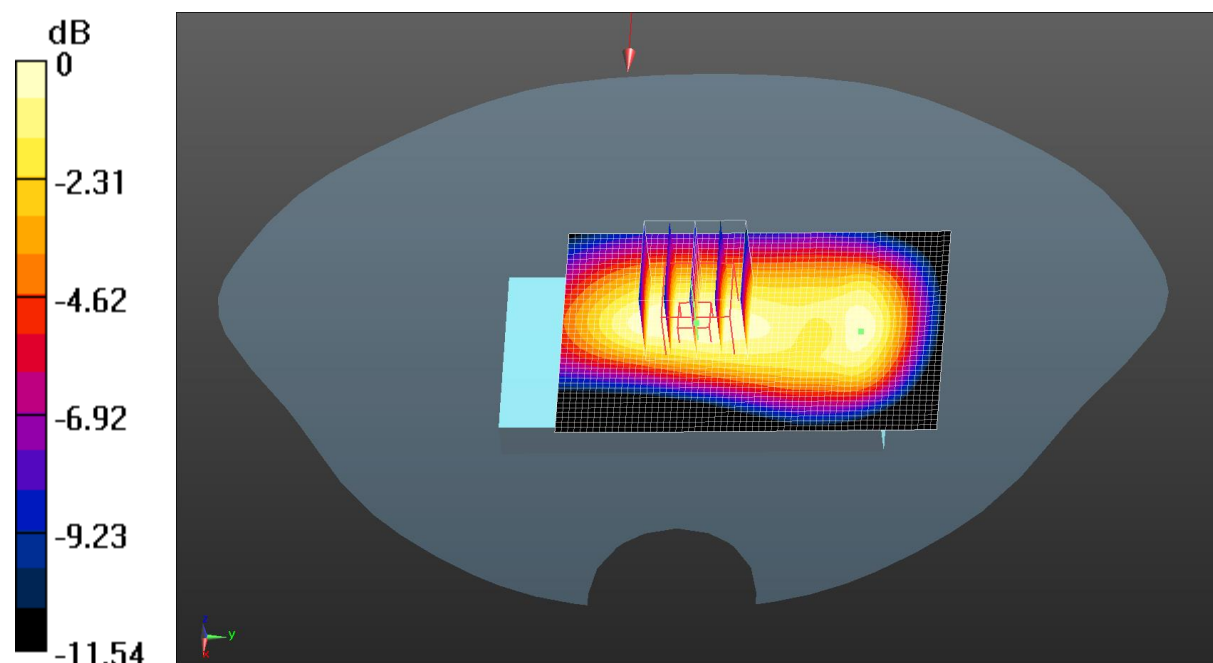
SAR(1 g) = 0.678 W/kg; SAR(10 g) = 0.478 W/kg

Maximum value of SAR (measured) = 0.747 W/kg

WCDMA 900 Body Back/Middle Channel/Area Scan (41x61x1): Interpolated grid:

dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 0.821 W/kg



0 dB = 0.821 W/kg = -0.86 dBW/kg

Test Laboratory: CCIS

Date/Time: 10.11.2020 21:28:40

DUT: Smartphone; Type: KINGKONG MINI2; Serial: 6#

Communication System: UID 0, LTE-FDD(EU) (0); Frequency: 1950 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1950 \text{ MHz}$; $\sigma = 1.439 \text{ S/m}$; $\epsilon_r = 39.107$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(8.14, 8.14, 8.14); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

LTE Band 1 1RB(20MHz) Body Back/Middle Channel/Area Scan (41x71x1):

Interpolated grid: $dx=2.000 \text{ mm}$, $dy=2.000 \text{ mm}$

Maximum value of SAR (interpolated) = 1.79 W/kg

LTE Band 1 1RB(20MHz) Body Back/Middle Channel/Zoom Scan

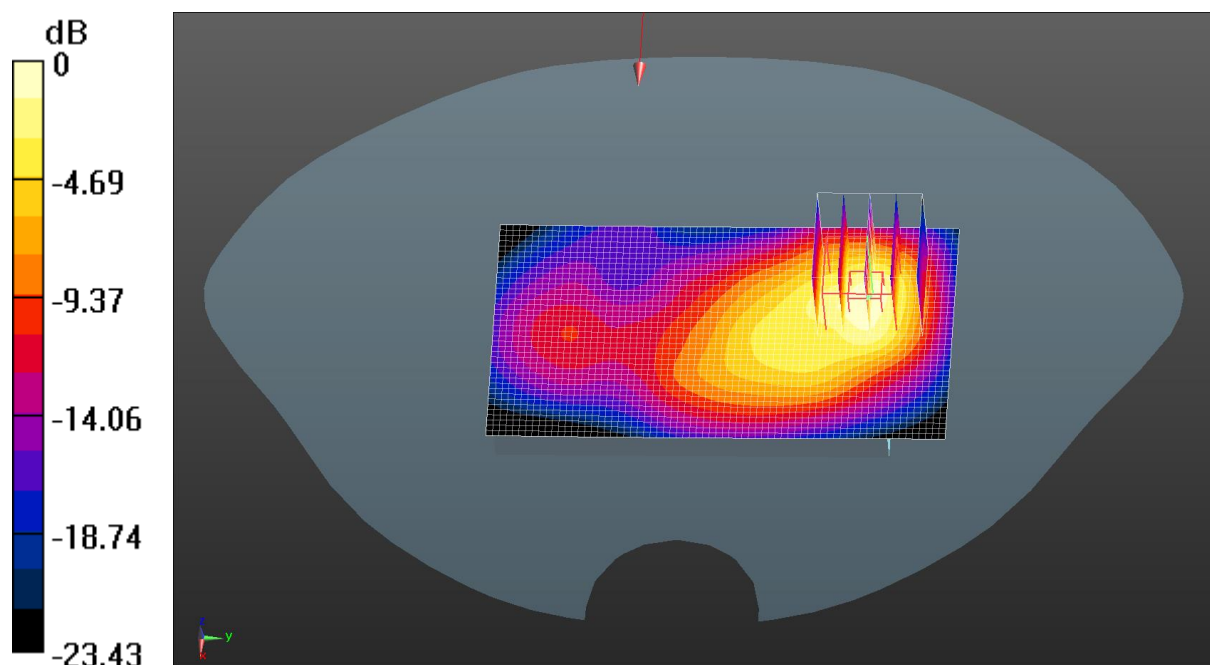
(5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 12.34 V/m ; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 2.78 W/kg

SAR(1 g) = 1.49 W/kg ; SAR(10 g) = 0.735 W/kg

Maximum value of SAR (measured) = 1.90 W/kg



0 dB = 1.90 W/kg = 2.79 dBW/kg

Test Laboratory: CCIS

Date/Time: 10.12.2020 02:24:04

DUT: Smartphone; Type: KINGKONG MINI2; Serial: 6#

Communication System: UID 0, LTE-FDD(EU) (0); Frequency: 1747.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1747.5$ MHz; $\sigma = 1.361$ S/m; $\epsilon_r = 40.198$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(8.43, 8.43, 8.43); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

LTE Band 3 1RB(20MHz) Body Back/Middle Channel/Area Scan (41x61x1):

Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 1.99 W/kg

LTE Band 3 1RB(20MHz) Body Back/Middle Channel/Zoom Scan

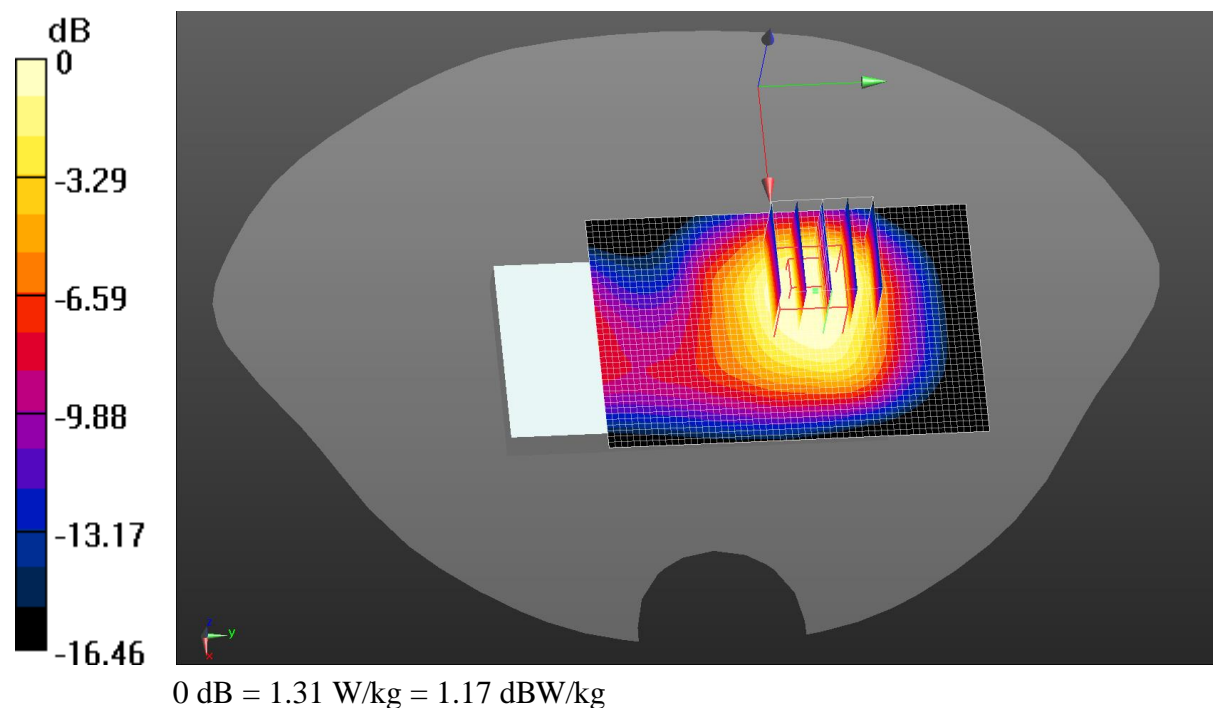
(5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.88 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.89 W/kg

SAR(1 g) = 1.07 W/kg; SAR(10 g) = 0.650 W/kg

Maximum value of SAR (measured) = 1.31 W/kg



Test Laboratory: CCIS

Date/Time: 10.14.2020 20:19:34

DUT: Smartphone; Type: KINGKONG MINI 2; Serial: 6#

Communication System: UID 0, LTE-FDD(EU) (0); Frequency: 2535 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 2535$ MHz; $\sigma = 1.871$ S/m; $\epsilon_r = 39.193$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(7.35, 7.35, 7.35); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

LTE Band 7 1RB(20MHz) Body Back/Middle Channel/Area Scan (41x61x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.11 W/kg

LTE Band 7 1RB(20MHz) Body Back/Middle Channel/Zoom Scan

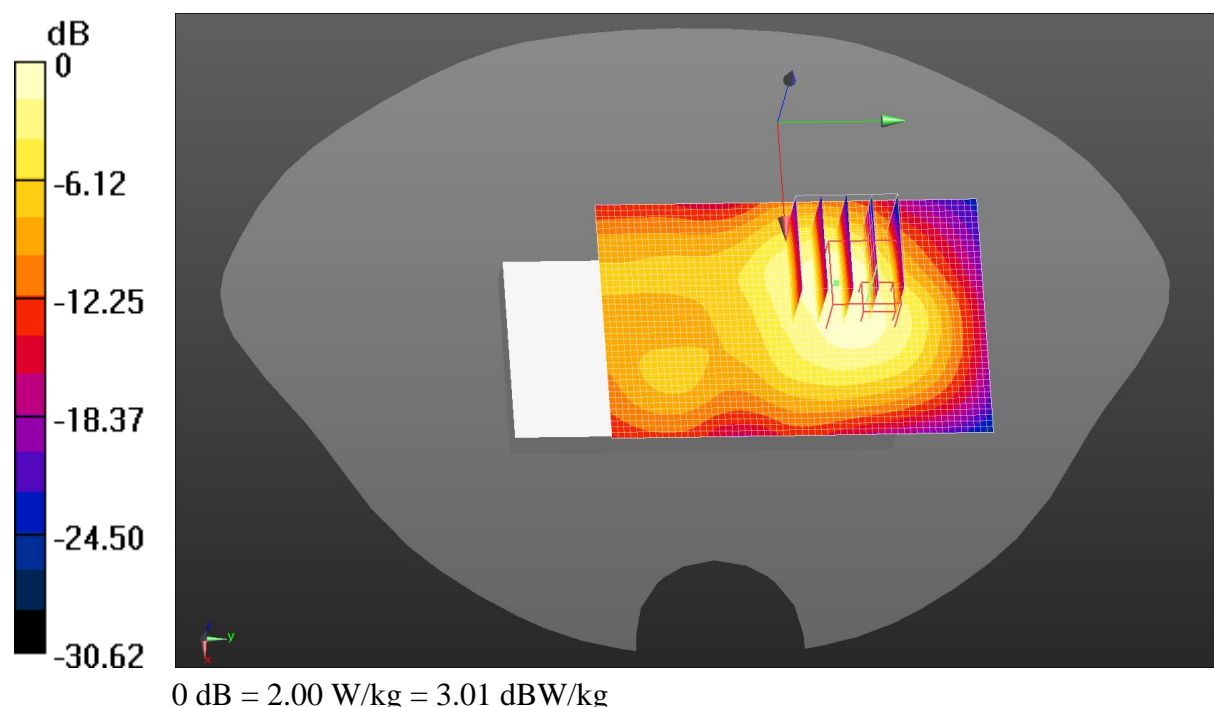
(5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.14 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 3.48 W/kg

SAR(1 g) = 1.57 W/kg; SAR(10 g) = 0.750 W/kg

Maximum value of SAR (measured) = 2.00 W/kg



Test Laboratory: CCIS

Date/Time: 10.16.2020 21:24:50

DUT: Smartphone; Type: KINGKONG MINI 2; Serial: 6#

Communication System: UID 0, LTE-FDD(EU) (0); Frequency: 897.5 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 897.5$ MHz; $\sigma = 0.986$ S/m; $\epsilon_r = 40.962$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(9.67, 9.67, 9.67); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

LTE Band 8 1RB(10MHz) Body Back/Middle Channel/Zoom Scan

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

Reference Value = 25.01 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.733 W/kg

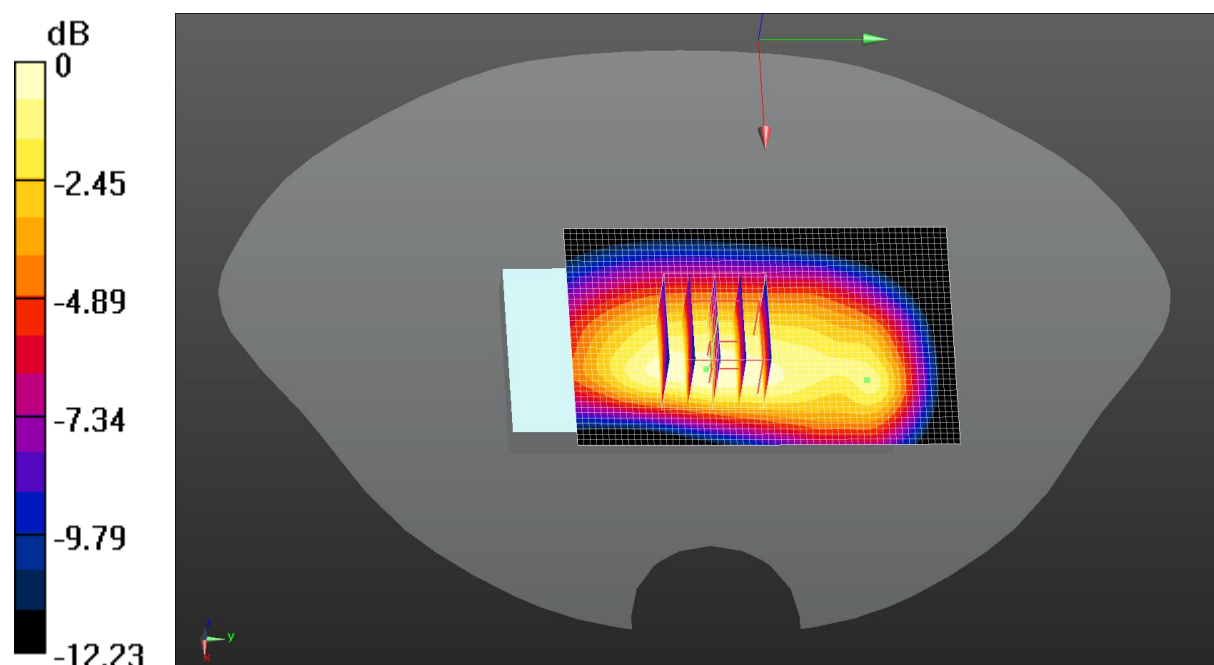
SAR(1 g) = 0.528 W/kg; SAR(10 g) = 0.372 W/kg

Maximum value of SAR (measured) = 0.653 W/kg

LTE Band 8 1RB(10MHz) Body Back/Middle Channel/Area Scan (41x61x1):

Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 0.773 W/kg



0 dB = 0.773 W/kg = -1.12 dBW/kg

Test Laboratory: CCIS

Date/Time: 10.17.2020 02:13:24

DUT: Smartphone; Type: KINGKONG MINI 2; Serial: 6#

Communication System: UID 0, LTE-FDD(EU) (0); Frequency: 847 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 847$ MHz; $\sigma = 0.929$ S/m; $\epsilon_r = 41.183$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(9.71, 9.71, 9.71); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

LTE Band 20 1RB(20MHz) Body Back/Middle Channel/Zoom Scan

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

Reference Value = 24.21 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.647 W/kg

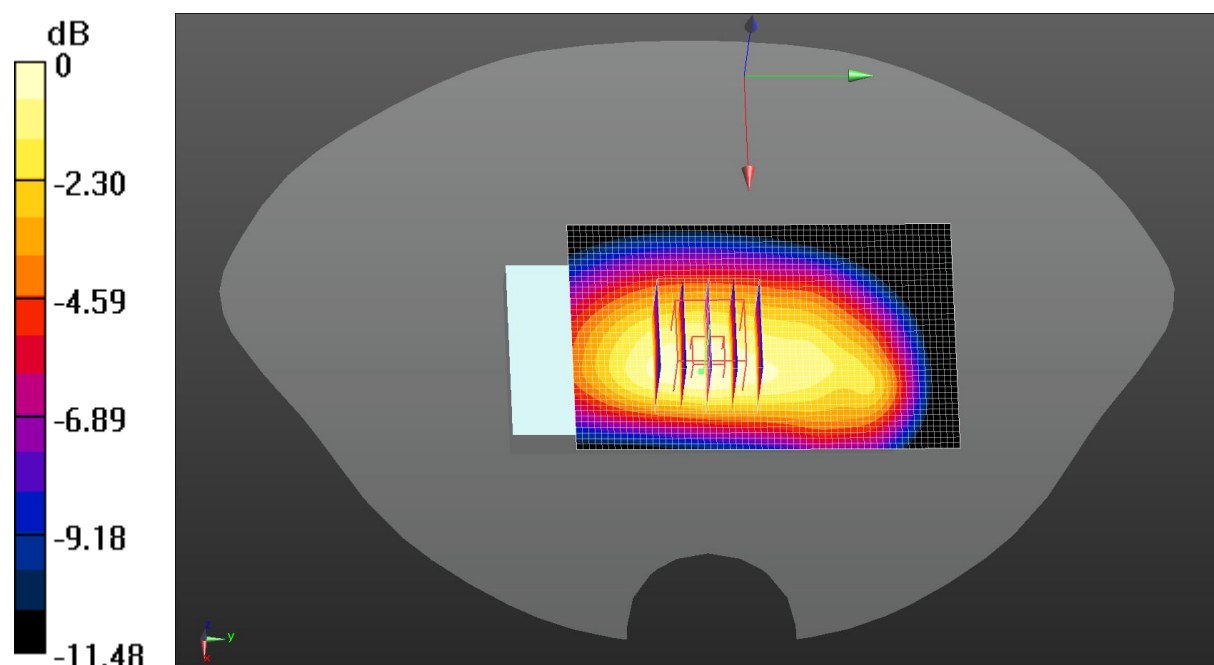
SAR(1 g) = 0.454 W/kg; SAR(10 g) = 0.320 W/kg

Maximum value of SAR (measured) = 0.571 W/kg

LTE Band 20 1RB(20MHz) Body Back/Middle Channel/Area Scan (41x61x1):

Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 0.630 W/kg



0 dB = 0.630 W/kg = -2.01 dBW/kg

Test Laboratory: CCIS

Date/Time: 10.14.2020 12:10:47

DUT: Smartphone; Type: KINGKONG MINI 2; Serial: 6#

Communication System: UID 0, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps) (0);

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 2442$ MHz; $\sigma = 1.762$ S/m; $\epsilon_r = 39.928$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(7.58, 7.58, 7.58); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

WIFI Body Back/Middle Channel/Area Scan (41x61x1): Interpolated grid:

$dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.174 W/kg

WIFI Body Back/Middle Channel/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

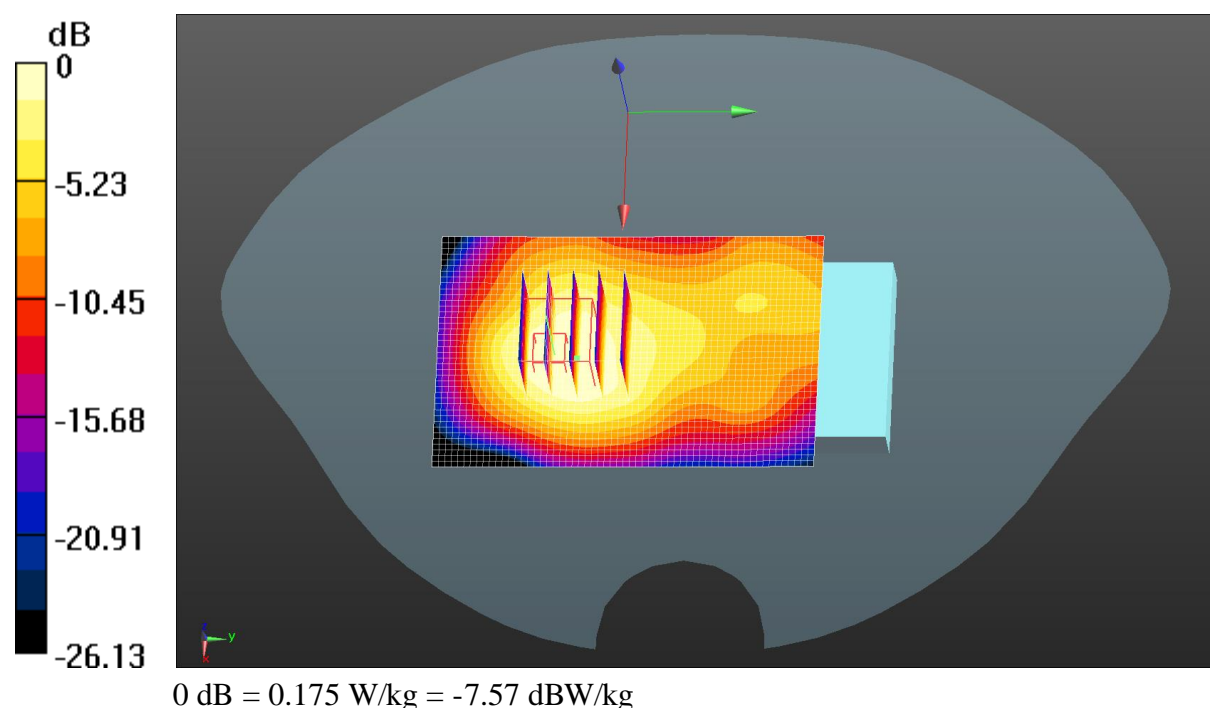
$dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 5.689 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 0.303 W/kg

SAR(1 g) = 0.138 W/kg; SAR(10 g) = 0.071 W/kg

Maximum value of SAR (measured) = 0.175 W/kg



Test Laboratory: CCIS

Date/Time: 10.15.2020 01:11:42

DUT: Smartphone; Type: KINGKONG MINI2; Serial: 6#

Communication System: UID 0, Bluetooth (0); Frequency: 2441 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 2441$ MHz; $\sigma = 1.762$ S/m; $\epsilon_r = 39.928$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(7.58, 7.58, 7.58); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

BT Body Back/Middle Channel/Area Scan (41x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.0529 W/kg

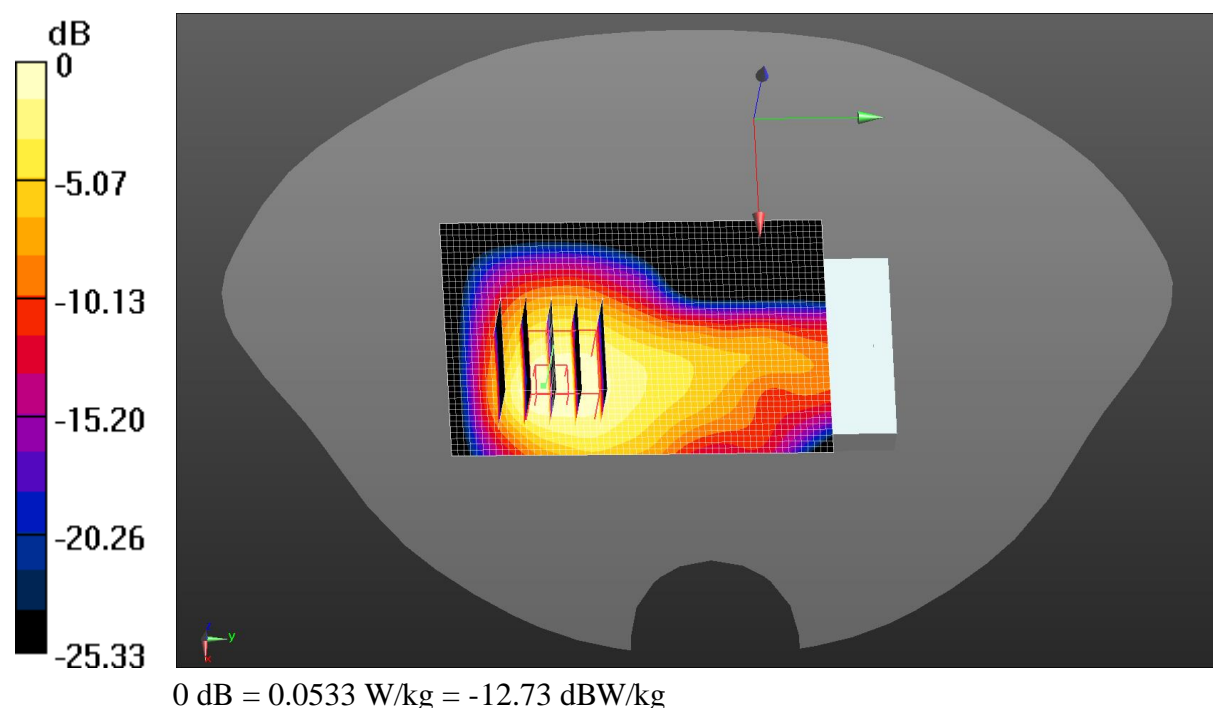
BT Body Back/Middle Channel/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 2.488 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 0.0740 W/kg

SAR(1 g) = 0.028 W/kg; SAR(10 g) = 0.012 W/kg

Maximum value of SAR (measured) = 0.0533 W/kg



Test Laboratory: CCIS

Date/Time: 10.16.2020 10:42:31

DUT: Smartphone; Type: KINGKONG MINI 2; Serial: 6#

Communication System: UID 0, GPRS(4 Slots) (0); Frequency: 902 MHz; Duty Cycle: 1:1.99986

Medium parameters used (interpolated): $f = 902$ MHz; $\sigma = 0.991$ S/m; $\epsilon_r = 40.871$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(9.67, 9.67, 9.67); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

GPRS 900 4Slots Body Back/Middle Channel/Area Scan (41x61x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 1.95 W/kg

GPRS 900 4Slots Body Back/Middle Channel/Zoom Scan (5x5x7)/Cube 0:

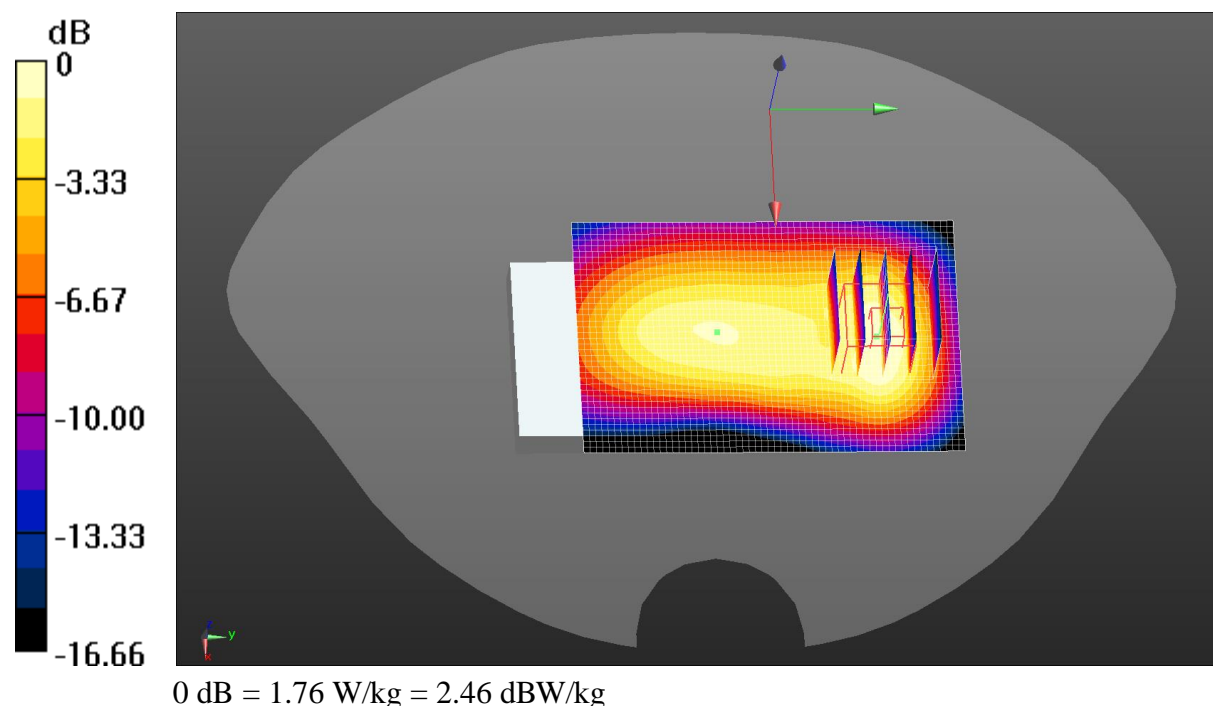
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 39.85 V/m; Power Drift = -0.28 dB

Peak SAR (extrapolated) = 2.31 W/kg

SAR(1 g) = 1.03 W/kg; SAR(10 g) = 0.542 W/kg

Maximum value of SAR (measured) = 1.76 W/kg



Test Laboratory: CCIS

Date/Time: 10.11.2020 10:51:28

DUT: Smartphone; Type: KINGKONG MINI 2; Serial: 6#

Communication System: UID 0, GPRS(4 Slots) (0); Frequency: 1747.8 MHz; Duty Cycle: 1:1.99986

Medium parameters used (interpolated): $f = 1747.8 \text{ MHz}$; $\sigma = 1.361 \text{ S/m}$; $\epsilon_r = 40.198$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(8.43, 8.43, 8.43); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

GPRS 1800 4Slots Body Back/Middle Channel/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 20.05 V/m; Power Drift = -0.21 dB

Peak SAR (extrapolated) = 3.93 W/kg

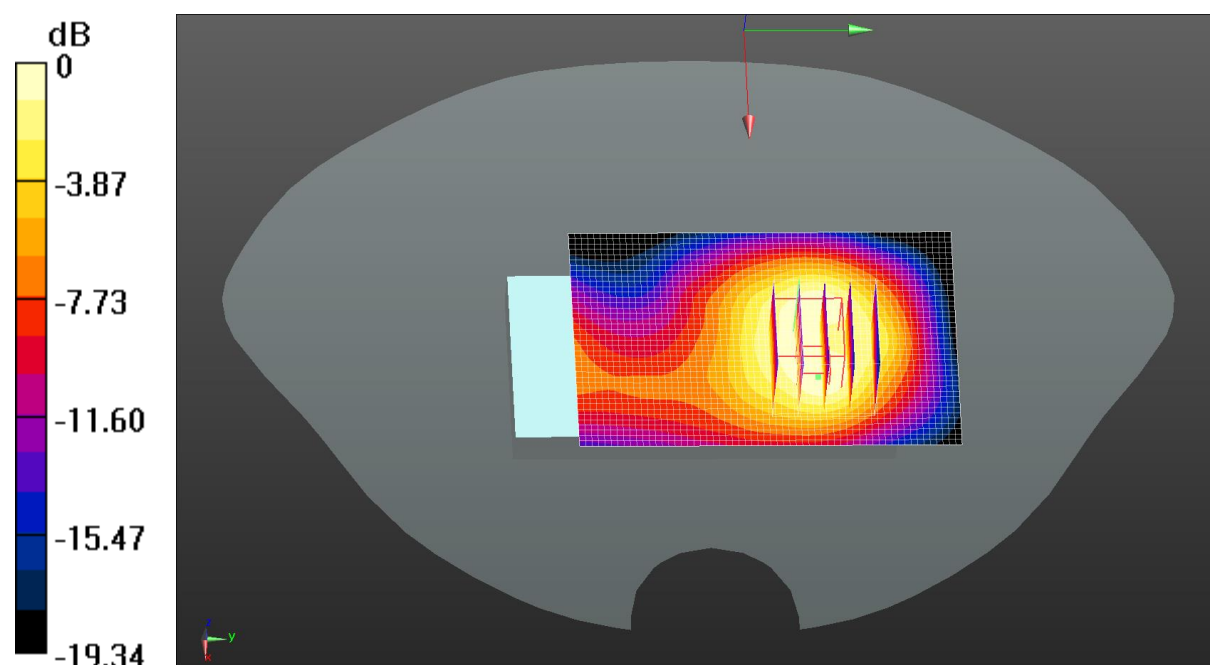
SAR(1 g) = 2.17 W/kg; SAR(10 g) = 1.33 W/kg

Maximum value of SAR (measured) = 2.72 W/kg

GPRS 1800 4Slots Body Back/Middle Channel/Area Scan (41x61x1):

Interpolated grid: $dx=2.000 \text{ mm}$, $dy=2.000 \text{ mm}$

Maximum value of SAR (interpolated) = 2.99 W/kg



0 dB = 2.99 W/kg = 4.76 dBW/kg

Test Laboratory: CCIS

Date/Time: 10.11.2020 22:07:20

DUT: Smartphone; Type: KINGKONG MINI2; Serial: 6#

Communication System: UID 0, LTE-FDD(EU) (0); Frequency: 1950 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1950 \text{ MHz}$; $\sigma = 1.439 \text{ S/m}$; $\epsilon_r = 39.107$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(8.14, 8.14, 8.14); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

LTE Band 1 1RB(20MHz) Body Bottom/Middle Channel/Area Scan (41x51x1):

Interpolated grid: $dx=2.000 \text{ mm}$, $dy=2.000 \text{ mm}$

Maximum value of SAR (interpolated) = 1.90 W/kg

LTE Band 1 1RB(20MHz) Body Bottom/Middle Channel/Zoom Scan

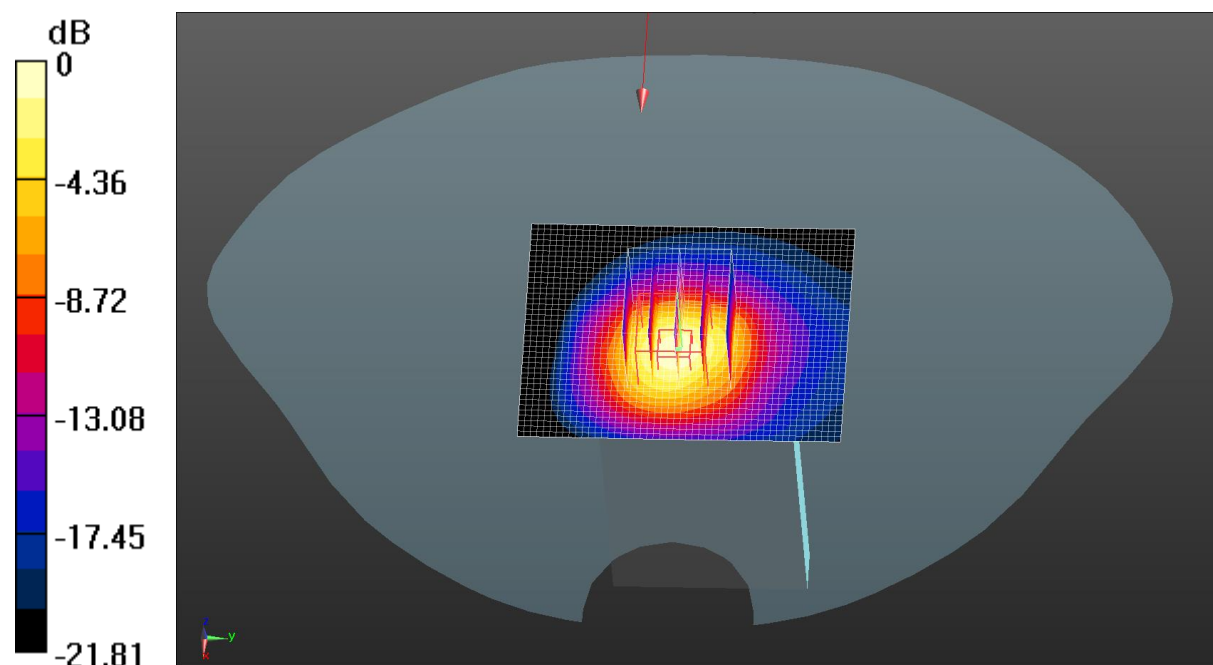
(5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 29.79 V/m ; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 3.35 W/kg

SAR(1 g) = 1.78 W/kg ; SAR(10 g) = 0.839 W/kg

Maximum value of SAR (measured) = 2.02 W/kg



0 dB = 2.02 W/kg = 3.05 dBW/kg

Test Laboratory: CCIS

Date/Time: 10.14.2020 21:04:16

DUT: Smartphone; Type: KINGKONG MINI 2; Serial: 6#

Communication System: UID 0, LTE-FDD(EU) (0); Frequency: 2535 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 2535$ MHz; $\sigma = 1.871$ S/m; $\epsilon_r = 39.193$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(7.35, 7.35, 7.35); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

LTE Band 7 1RB(20MHz) Body Bottom/Middle Channel/Area Scan (41x51x1):

Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 3.14 W/kg

LTE Band 7 1RB(20MHz) Body Bottom/Middle Channel/Zoom Scan

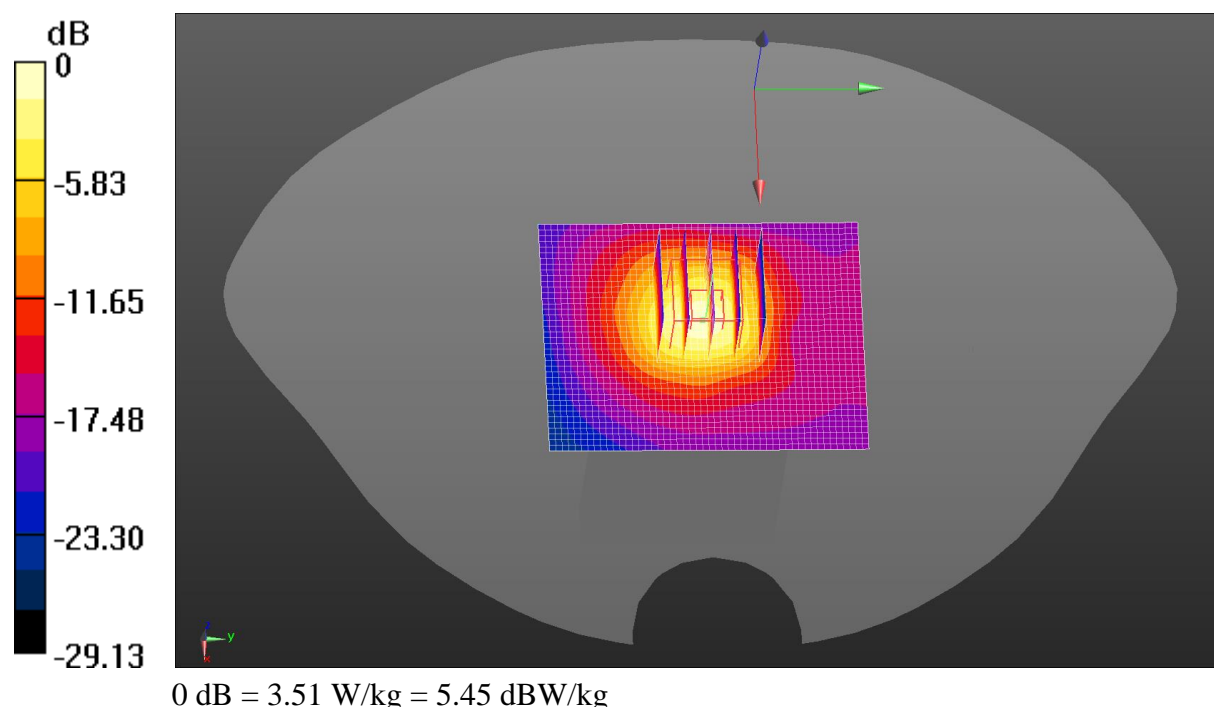
(5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 34.44 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 6.16 W/kg

SAR(1 g) = 2.62 W/kg; SAR(10 g) = 1.12 W/kg

Maximum value of SAR (measured) = 3.51 W/kg



Test Laboratory: CCIS

Date/Time: 10.16.2020 13:15:58

DUT: Smartphone; Type: KINGKONG MINI 2; Serial: 6#

Communication System: UID 0, GPRS(4 Slots) (0); Frequency: 902 MHz; Duty Cycle: 1:1.99986

Medium parameters used (interpolated): $f = 902 \text{ MHz}$; $\sigma = 0.991 \text{ S/m}$; $\epsilon_r = 40.871$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(9.67, 9.67, 9.67); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

GPRS 900 4Slots Limb Back/Middle Channel/Area Scan (41x61x1): Interpolated grid: $dx=2.000 \text{ mm}$, $dy=2.000 \text{ mm}$

Maximum value of SAR (interpolated) = 4.26 W/kg

GPRS 900 4Slots Limb Back/Middle Channel/Zoom Scan (5x5x7)/Cube 0:

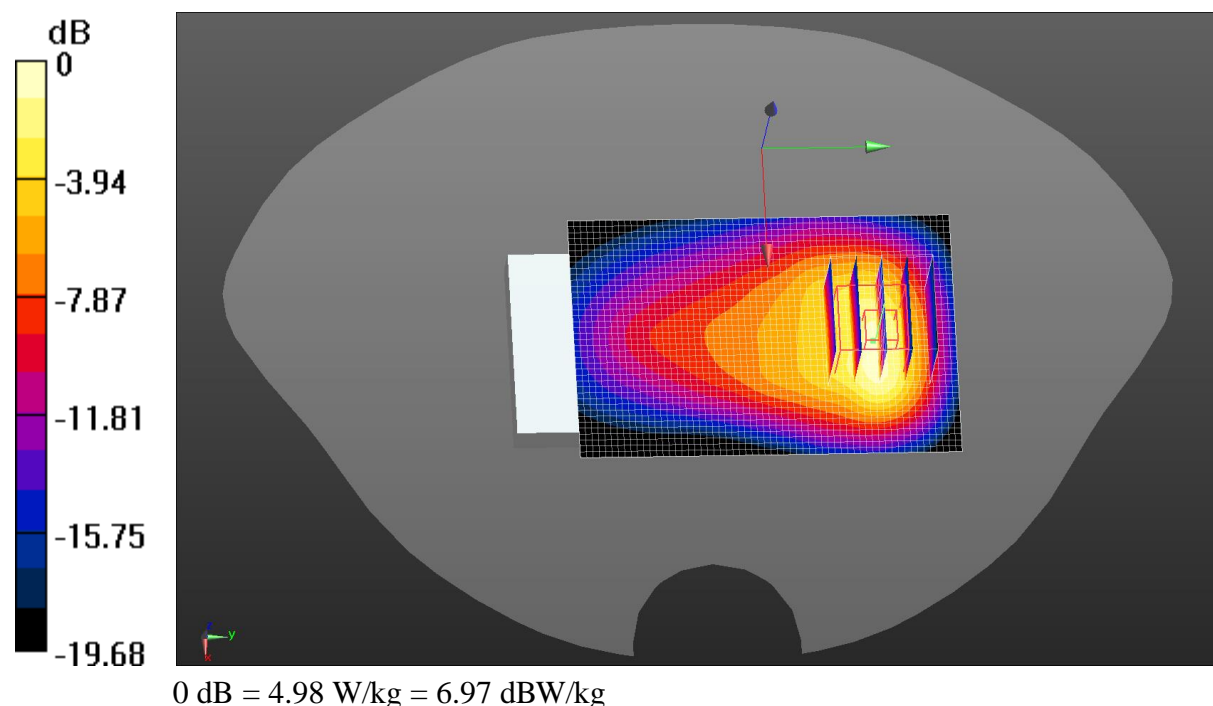
Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 30.15 V/m ; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 6.87 W/kg

SAR(1 g) = 2.38 W/kg ; SAR(10 g) = 1.12 W/kg

Maximum value of SAR (measured) = 4.98 W/kg



Test Laboratory: CCIS

Date/Time: 10.11.2020 14:04:33

DUT: Smartphone; Type: KINGKONG MINI 2; Serial: 6#

Communication System: UID 0, GPRS(4 Slots) (0); Frequency: 1747.8 MHz; Duty Cycle: 1:1.99986

Medium parameters used (interpolated): $f = 1747.8 \text{ MHz}$; $\sigma = 1.361 \text{ S/m}$; $\epsilon_r = 40.198$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(8.43, 8.43, 8.43); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

GPRS 1800 4Slots Limb Back/Middle Channel/Area Scan (41x61x1):

Interpolated grid: $dx=2.000 \text{ mm}$, $dy=2.000 \text{ mm}$

Maximum value of SAR (interpolated) = 6.01 W/kg

GPRS 1800 4Slots Limb Back/Middle Channel/Zoom Scan (5x5x7)/Cube 0:

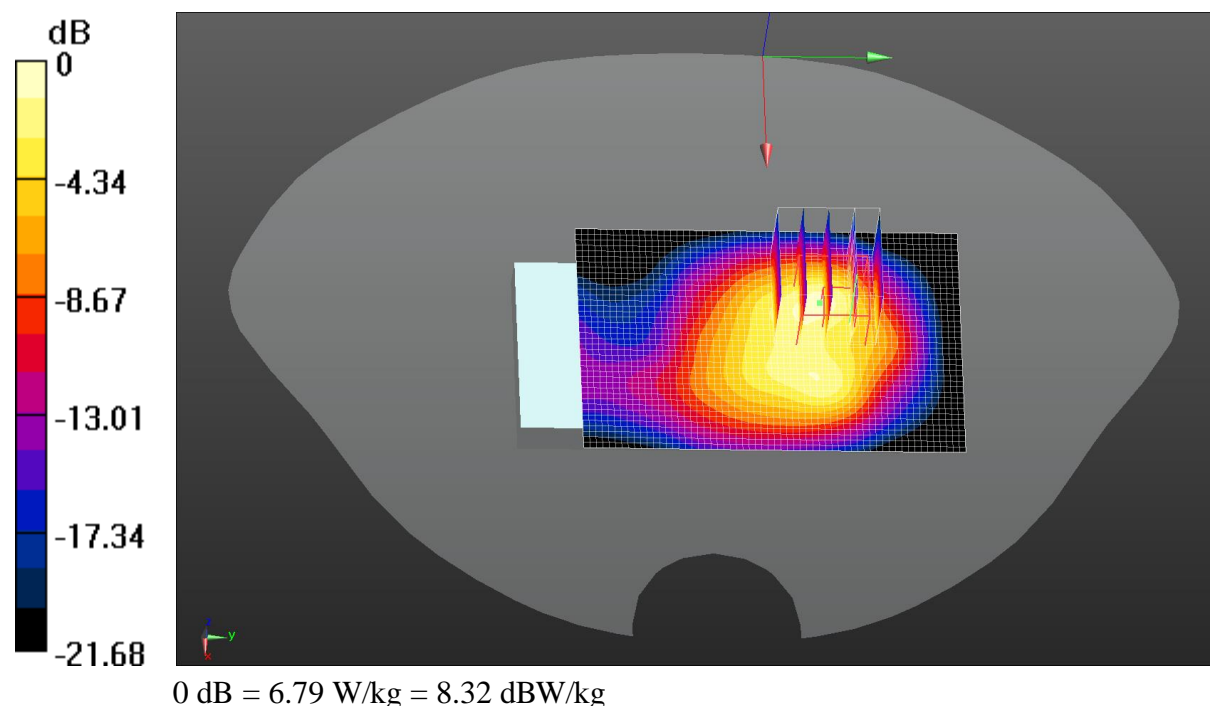
Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 29.50 V/m ; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 11.2 W/kg

SAR(1 g) = 5.39 W/kg ; SAR(10 g) = 2.73 W/kg

Maximum value of SAR (measured) = 6.79 W/kg



Test Laboratory: CCIS

Date/Time: 10.11.2020 18:42:29

DUT: Smartphone; Type: KINGKONG MINI2; Serial: 6#

Communication System: UID 0, UMTS-FDD(WCDMA) (0); Frequency: 1950 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1950 \text{ MHz}$; $\sigma = 1.439 \text{ S/m}$; $\epsilon_r = 39.107$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(8.14, 8.14, 8.14); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

WCDMA 2100 Limb Back/Middle Channel/Area Scan (41x61x1): Interpolated

grid: $dx=2.000 \text{ mm}$, $dy=2.000 \text{ mm}$

Maximum value of SAR (interpolated) = 3.33 W/kg

WCDMA 2100 Limb Back/Middle Channel/Zoom Scan (5x5x7)/Cube 0:

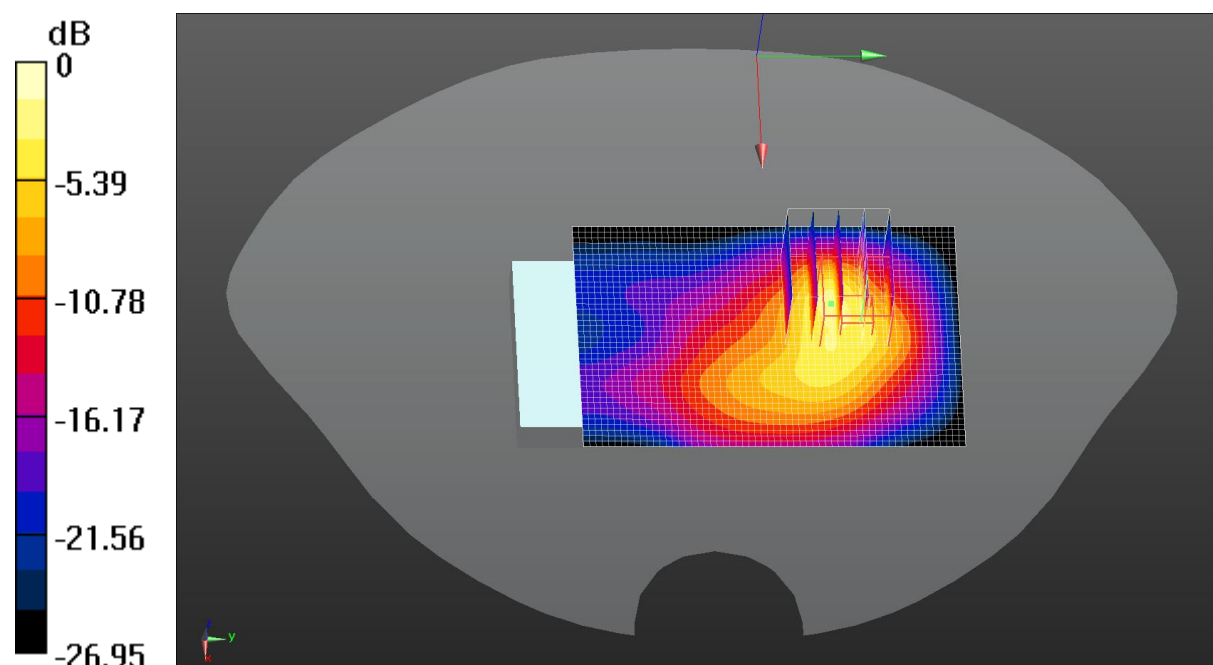
Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 16.07 V/m; Power Drift = -0.22 dB

Peak SAR (extrapolated) = 10.3 W/kg

SAR(1 g) = 4.73 W/kg; SAR(10 g) = 1.97 W/kg

Maximum value of SAR (measured) = 6.44 W/kg



0 dB = 6.44 W/kg = 8.09 dBW/kg

Test Laboratory: CCIS

Date/Time: 10.16.2020 18:00:47

DUT: Smartphone; Type: KINGKONG MINI 2; Serial: 6#

Communication System: UID 0, UMTS-FDD(WCDMA) (0); Frequency: 897.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 897.6 \text{ MHz}$; $\sigma = 0.986 \text{ S/m}$; $\epsilon_r = 40.962$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(9.67, 9.67, 9.67); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

WCDMA 900 Limb Back/Middle Channel/Area Scan (41x61x1): Interpolated

grid: $dx=2.000 \text{ mm}$, $dy=2.000 \text{ mm}$

Maximum value of SAR (interpolated) = 2.47 W/kg

WCDMA 900 Limb Back/Middle Channel/Zoom Scan (5x5x7)/Cube 0:

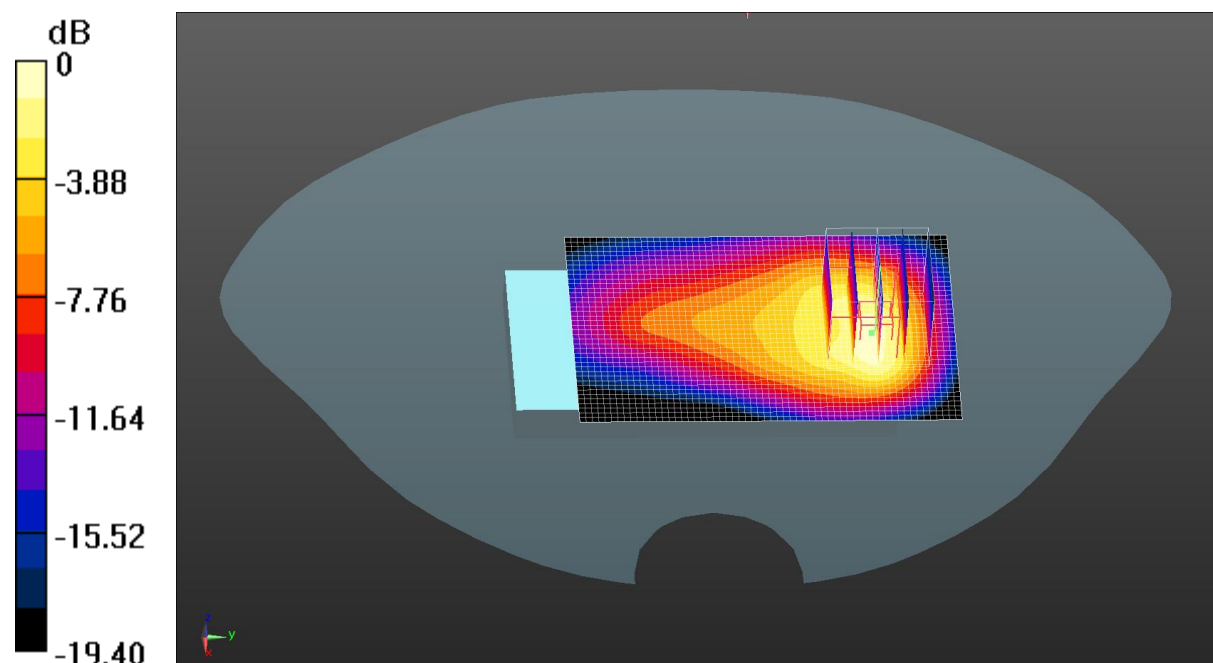
Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 27.02 V/m ; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 5.28 W/kg

SAR(1 g) = 1.88 W/kg ; SAR(10 g) = 0.899 W/kg

Maximum value of SAR (measured) = 2.81 W/kg



0 dB = 2.81 W/kg = 4.49 dBW/kg

Test Laboratory: CCIS

Date/Time: 10.11.2020 23:59:02

DUT: Smartphone; Type: KINGKONG MINI2; Serial: 6#

Communication System: UID 0, LTE-FDD(EU) (0); Frequency: 1950 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1950 \text{ MHz}$; $\sigma = 1.439 \text{ S/m}$; $\epsilon_r = 39.107$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(8.14, 8.14, 8.14); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

LTE Band 1 1RB(20MHz) Limb Bottom/Middle Channel/Area Scan (41x51x1):

Interpolated grid: $dx=2.000 \text{ mm}$, $dy=2.000 \text{ mm}$

Maximum value of SAR (interpolated) = 5.19 W/kg

LTE Band 1 1RB(20MHz) Limb Bottom/Middle Channel/Zoom Scan

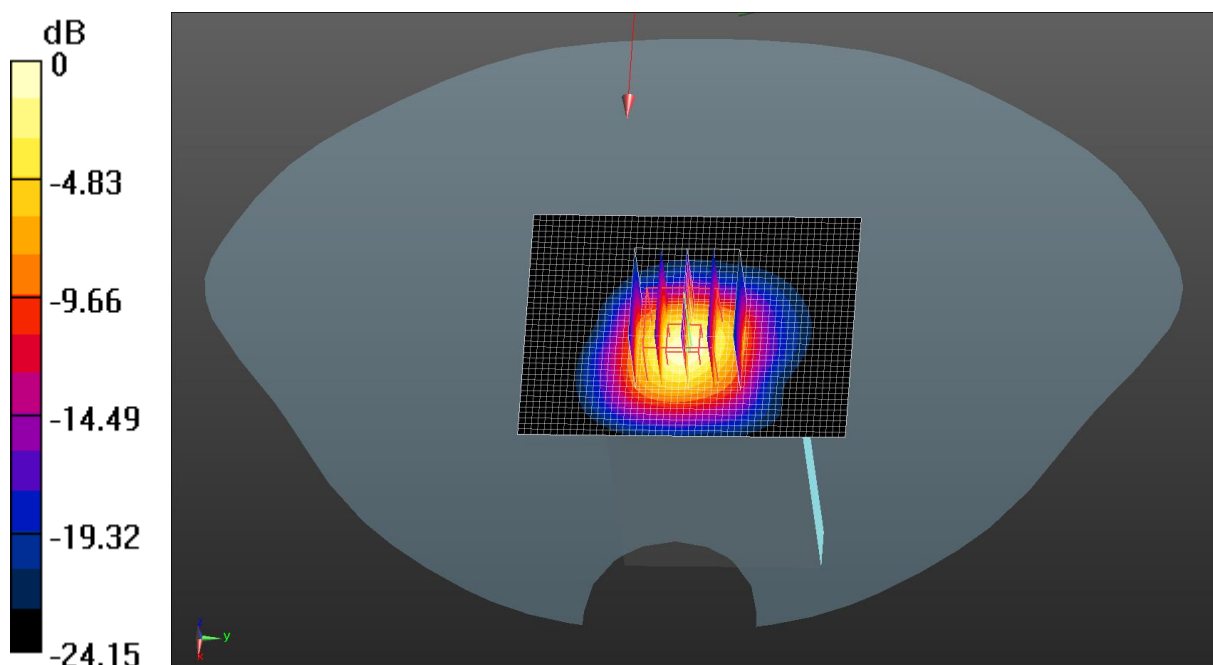
(5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 39.56 V/m ; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 9.03 W/kg

SAR(1 g) = 4.32 W/kg ; SAR(10 g) = 1.83 W/kg

Maximum value of SAR (measured) = 5.31 W/kg



0 dB = 5.31 W/kg = 7.25 dBW/kg

Test Laboratory: CCIS

Date/Time: 10.12.2020 04:48:04

DUT: Smartphone; Type: KINGKONG MINI2; Serial: 6#

Communication System: UID 0, LTE-FDD(EU) (0); Frequency: 1747.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1747.5$ MHz; $\sigma = 1.361$ S/m; $\epsilon_r = 40.198$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(8.43, 8.43, 8.43); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

LTE Band 3 1RB(20MHz) Limb Back/Middle Channel/Area Scan (41x61x1):

Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 4.73 W/kg

LTE Band 3 1RB(20MHz) Limb Back/Middle Channel/Zoom Scan

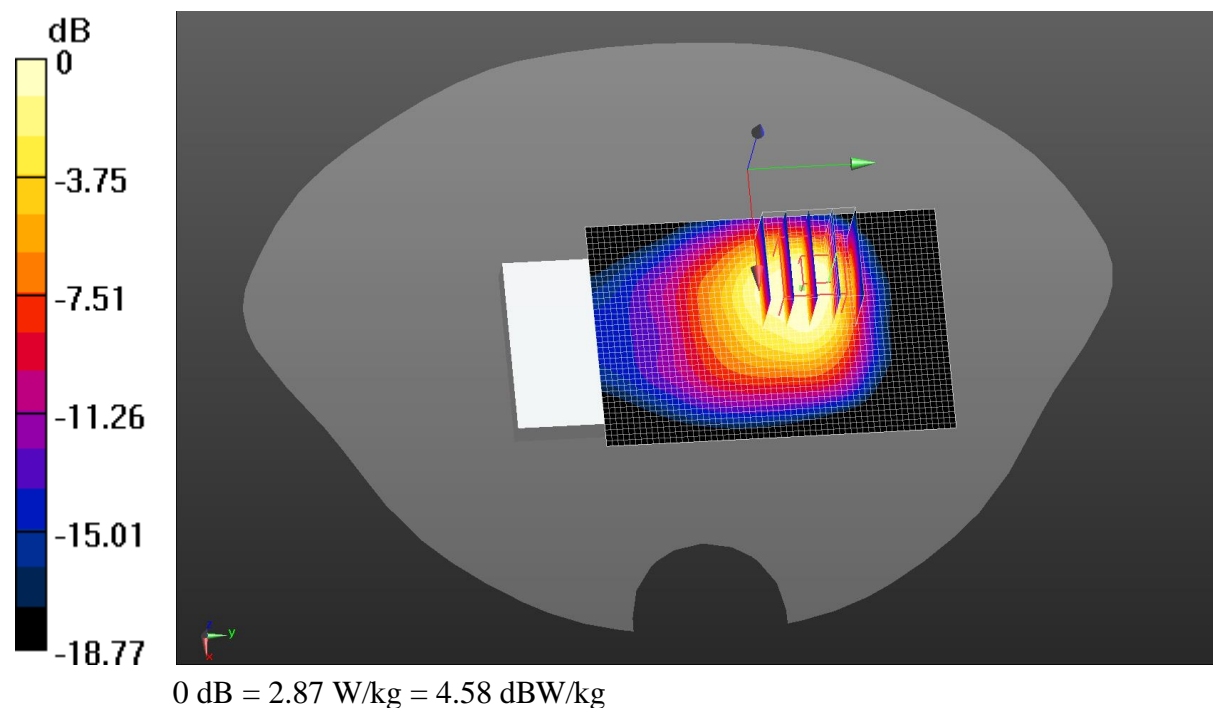
(5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.26 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 4.56 W/kg

SAR(1 g) = 2.27 W/kg; SAR(10 g) = 1.17 W/kg

Maximum value of SAR (measured) = 2.87 W/kg



Test Laboratory: CCIS

Date/Time: 10.14.2020 22:38:59

DUT: Smartphone; Type: KINGKONG MINI 2; Serial: 6#

Communication System: UID 0, LTE-FDD(EU) (0); Frequency: 2535 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 2535$ MHz; $\sigma = 1.871$ S/m; $\epsilon_r = 39.193$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(7.35, 7.35, 7.35); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

LTE Band 7 1RB(20MHz) Limb Bottom/Middle Channel/Area Scan (41x51x1):

Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm
Maximum value of SAR (interpolated) = 4.69 W/kg

LTE Band 7 1RB(20MHz) Limb Bottom/Middle Channel/Zoom Scan

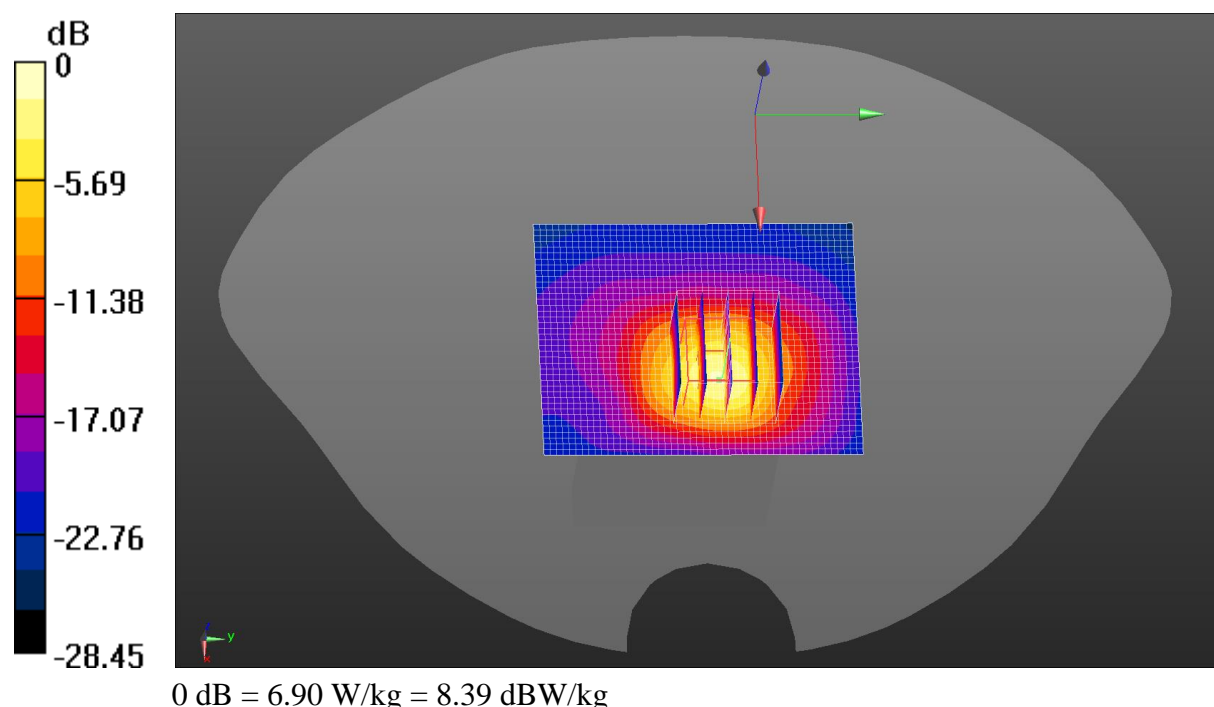
(5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 29.82 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 13.2 W/kg

SAR(1 g) = 5.09 W/kg; SAR(10 g) = 1.98 W/kg

Maximum value of SAR (measured) = 6.90 W/kg



Test Laboratory: CCIS

Date/Time: 10.16.2020 23:16:43

DUT: Smartphone; Type: KINGKONG MINI 2; Serial: 6#

Communication System: UID 0, LTE-FDD(EU) (0); Frequency: 897.5 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 897.5$ MHz; $\sigma = 0.986$ S/m; $\epsilon_r = 40.962$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(9.67, 9.67, 9.67); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

LTE Band 8 1RB(10MHz) Limb Back/Middle Channel/Zoom Scan

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

Reference Value = 23.53 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 4.48 W/kg

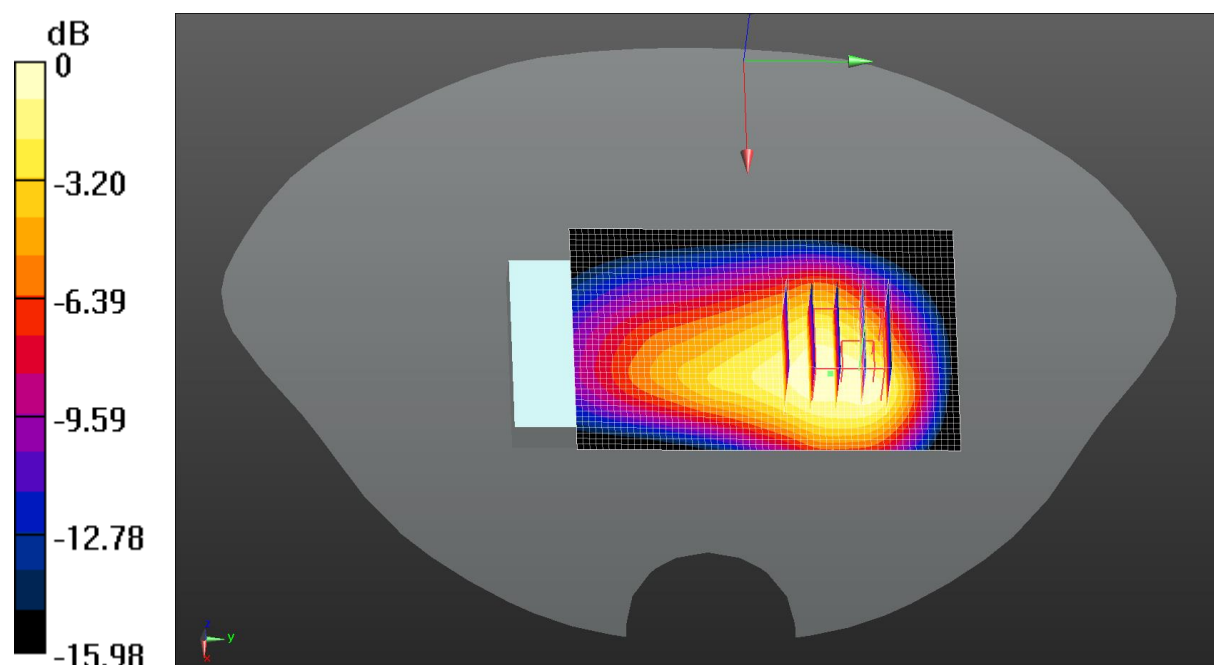
SAR(1 g) = 1.48 W/kg; SAR(10 g) = 0.688 W/kg

Maximum value of SAR (measured) = 3.18 W/kg

LTE Band 8 1RB(10MHz) Limb Back/Middle Channel/Area Scan (41x61x1):

Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 1.53 W/kg



0 dB = 1.53 W/kg = 1.85 dBW/kg

Test Laboratory: CCIS

Date/Time: 10.17.2020 04:56:13

DUT: Smartphone; Type: KINGKONG MINI 2; Serial: 6#

Communication System: UID 0, LTE-FDD(EU) (0); Frequency: 847 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 847$ MHz; $\sigma = 0.929$ S/m; $\epsilon_r = 41.183$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(9.71, 9.71, 9.71); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

LTE Band 20 1RB(20MHz) Limb Back/Middle Channel/Zoom Scan

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

Reference Value = 24.61 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 3.53 W/kg

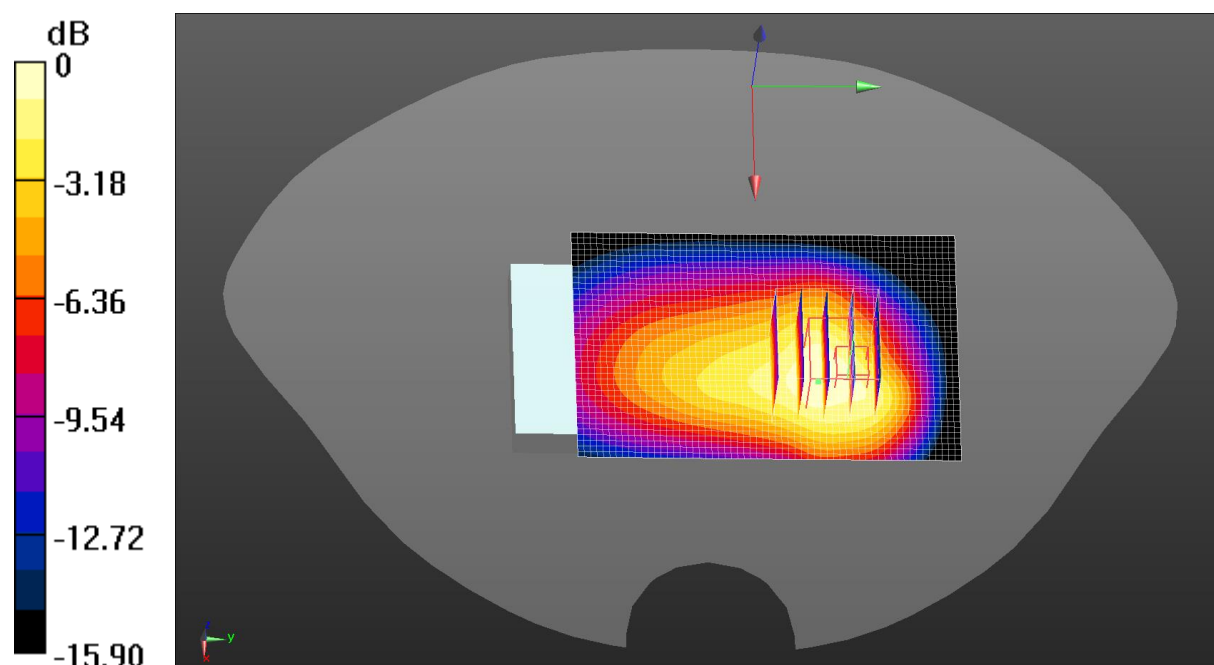
SAR(1 g) = 1.18 W/kg; SAR(10 g) = 0.559 W/kg

Maximum value of SAR (measured) = 2.45 W/kg

LTE Band 20 1RB(20MHz) Limb Back/Middle Channel/Area Scan (41x61x1):

Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 1.33 W/kg



0 dB = 1.33 W/kg = 1.24 dBW/kg

Test Laboratory: CCIS

Date/Time: 10.14.2020 14:29:21

DUT: Smartphone; Type: KINGKONG MINI 2; Serial: 6#

Communication System: UID 0, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps) (0);

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 2442$ MHz; $\sigma = 1.762$ S/m; $\epsilon_r = 39.928$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(7.58, 7.58, 7.58); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

WIFI Limb Back/Middle Channel/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

$dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 6.483 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.864 W/kg

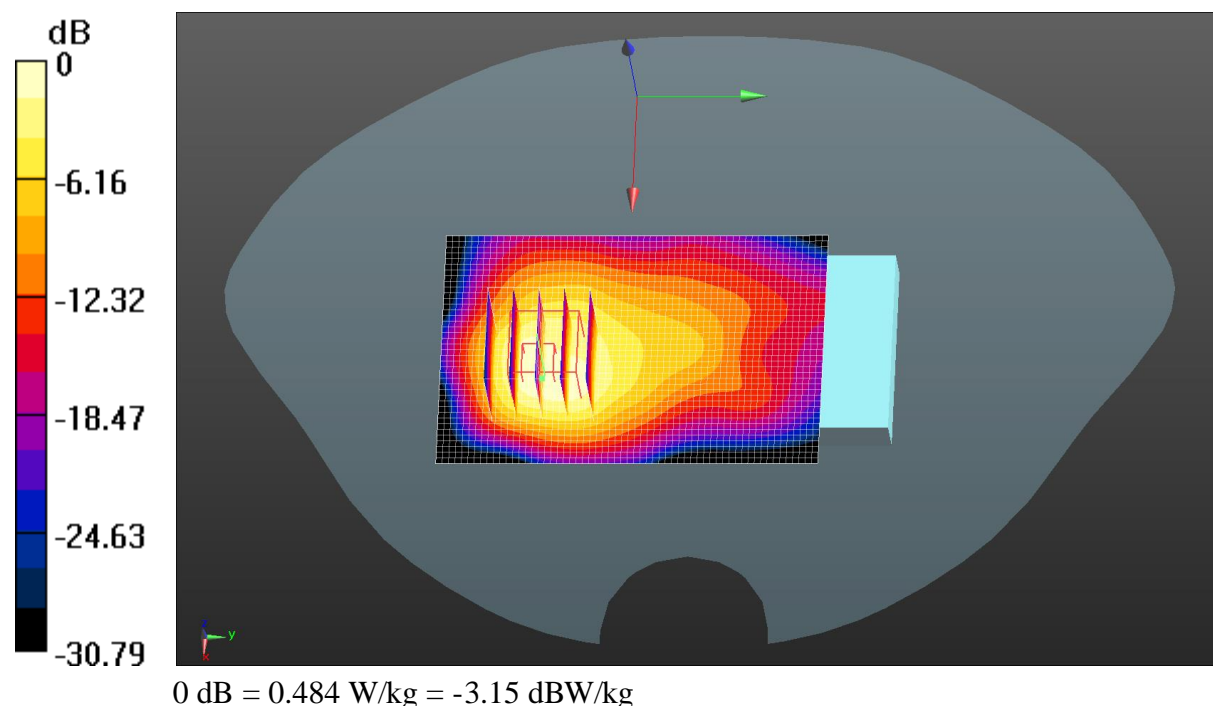
SAR(1 g) = 0.357 W/kg; SAR(10 g) = 0.168 W/kg

Maximum value of SAR (measured) = 0.449 W/kg

WIFI Limb Back/Middle Channel/Area Scan (41x61x1): Interpolated grid:

$dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.484 W/kg



Test Laboratory: CCIS

Date/Time: 10.15.2020 02:23:37

DUT: Smartphone; Type: KINGKONG MINI2; Serial: 6#

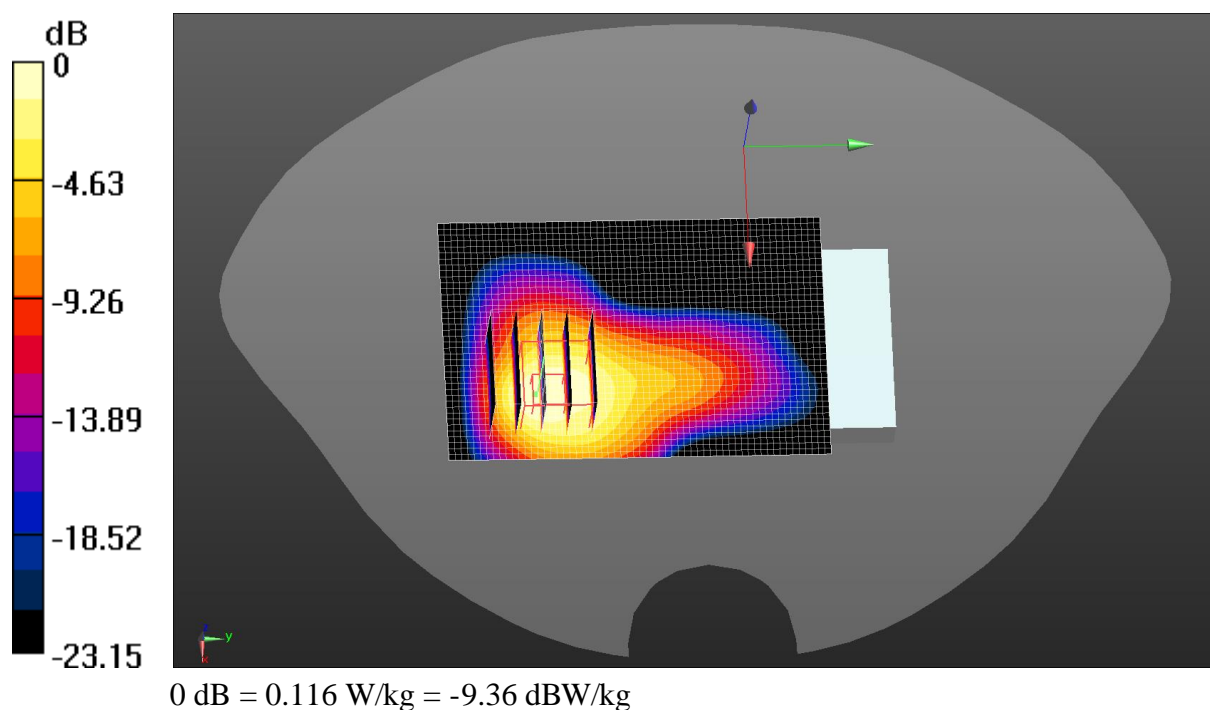
Communication System: UID 0, Bluetooth (0); Frequency: 2441 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 2441$ MHz; $\sigma = 1.762$ S/m; $\epsilon_r = 39.928$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(7.58, 7.58, 7.58); Calibrated: 09.23.2020;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 07.27.2020
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

BT Limb Back/Middle Channel/Area Scan (41x61x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm
Maximum value of SAR (interpolated) = 0.124 W/kg

BT Limb Back/Middle Channel/Zoom Scan (5x5x7)/Cube 0: Measurement grid:
 $dx=8$ mm, $dy=8$ mm, $dz=5$ mm
Reference Value = 2.152 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.167 W/kg
SAR(1 g) = 0.061 W/kg; SAR(10 g) = 0.027 W/kg
Maximum value of SAR (measured) = 0.116 W/kg



Appendix E: System Calibration Certificate

Calibration information for E-field probes



In Collaboration with
s p e a g
CALIBRATION LABORATORY



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CNAS L0570

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Client **CCIS**Certificate No: **Z20-60314****CALIBRATION CERTIFICATE**Object **EX3DV4 - SN : 3924**Calibration Procedure(s) **FF-Z11-004-02**
Calibration Procedures for Dosimetric E-field ProbesCalibration date: **September 23, 2020**

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(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	101919	16-Jun-20(CTTL, No.J20X04344)	Jun-21
Power sensor NRP-Z91	101547	16-Jun-20(CTTL, No.J20X04344)	Jun-21
Power sensor NRP-Z91	101548	16-Jun-20(CTTL, No.J20X04344)	Jun-21
Reference 10dBAttenuator	18N50W-10dB	10-Feb-20(CTTL, No.J20X00525)	Feb-22
Reference 20dBAttenuator	18N50W-20dB	10-Feb-20(CTTL, No.J20X00526)	Feb-22
Reference Probe EX3DV4	SN 7307	29-May-20(SPEAG, No.EX3-7307_May20)	May-21
DAE4	SN 1556	4-Feb-20(SPEAG, No.DAE4-1556_Feb20)	Feb-21
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
SignalGenerator MG3700A	6201052605	23-Jun-20(CTTL, No.J20X04343)	Jun-21
Network Analyzer E5071C	MY46110673	10-Feb-20(CTTL, No.J20X00515)	Feb-21

	Name	Function	Signature
Calibrated by:	Yu Zongying	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: September 25, 2020

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

Certificate No: Z20-60314

Page 1 of 10



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Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A,B,C,D	modulation dependent linearization parameters
Polarization Φ	Φ rotation around probe axis
Polarization θ	θ rotation around an axis that is in the plane normal to probe axis (at measurement center), i $\theta=0$ is normal to probe axis

Connector Angle information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

- 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
- 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
- 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
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\theta=0$ ($f \leq 900\text{MHz}$ in TEM-cell; $f > 1800\text{MHz}$: waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not effect the E^2 -field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z}** = NORM_{x,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.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics.
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; VR_{x,y,z}; A,B,C** are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800\text{MHz}$) and inside waveguide using analytical field distributions based on power measurements for $f > 800\text{MHz}$. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty valued are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,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 $\pm 50\text{MHz}$ to $\pm 100\text{MHz}$.
- 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 NORM_x (no uncertainty required).

Certificate No: Z20-60314

Page 2 of 10



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DASY/EASY – Parameters of Probe: EX3DV4 – SN:3924

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc ($k=2$)
Norm($\mu V/(V/m)^2$) ^A	0.50	0.42	0.67	$\pm 10.0\%$
DCP(mV) ^B	101.3	100.1	99.8	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB $\sqrt{\mu V}$	C	D dB	VR mV	Unc ^E ($k=2$)
0	CW	X	0.0	0.0	1.0	0.00	172.6	$\pm 1.9\%$
		Y	0.0	0.0	1.0		149.2	
		Z	0.0	0.0	1.0		200.0	

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 E²-field uncertainty inside TSL (see Page 4 and Page 5).

^B Numerical linearization parameter; uncertainty not required.

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



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DASY/EASY – Parameters of Probe: EX3DV4 – SN:3924

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)	Unct. (k=2)
750	41.9	0.89	10.11	10.11	10.11	0.40	0.75	±12.1%
835	41.5	0.90	9.71	9.71	9.71	0.18	1.20	±12.1%
900	41.5	0.97	9.67	9.67	9.67	0.21	1.15	±12.1%
1750	40.1	1.37	8.43	8.43	8.43	0.20	1.11	±12.1%
1900	40.0	1.40	8.14	8.14	8.14	0.22	1.14	±12.1%
2300	39.5	1.67	7.83	7.83	7.83	0.48	0.72	±12.1%
2450	39.2	1.80	7.58	7.58	7.58	0.50	0.75	±12.1%
2600	39.0	1.96	7.35	7.35	7.35	0.60	0.69	±12.1%
5250	35.9	4.71	5.42	5.42	5.42	0.45	1.32	±13.3%
5600	35.5	5.07	4.85	4.85	4.85	0.50	1.20	±13.3%
5750	35.4	5.22	4.96	4.96	4.96	0.55	1.20	±13.3%

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

^F At frequency 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 the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.



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DASY/EASY – Parameters of Probe: EX3DV4 – SN:3924

Calibration Parameter Determined in Body Tissue Simulating Media

f [MHz] ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unct. (k=2)
750	55.5	0.96	10.06	10.06	10.06	0.40	0.82	±12.1%
835	55.2	0.97	9.70	9.70	9.70	0.18	1.36	±12.1%
900	55.0	1.05	9.72	9.72	9.72	0.28	1.04	±12.1%
1750	53.4	1.49	8.16	8.16	8.16	0.20	1.28	±12.1%
1900	53.3	1.52	7.78	7.78	7.78	0.21	1.34	±12.1%
2300	52.9	1.81	7.65	7.65	7.65	0.47	0.85	±12.1%
2450	52.7	1.95	7.50	7.50	7.50	0.55	0.78	±12.1%
2600	52.5	2.16	7.29	7.29	7.29	0.66	0.69	±12.1%
5250	48.9	5.36	4.86	4.86	4.86	0.50	1.40	±13.3%
5600	48.5	5.77	4.24	4.24	4.24	0.60	1.30	±13.3%
5750	48.3	5.94	4.35	4.35	4.35	0.55	1.45	±13.3%

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

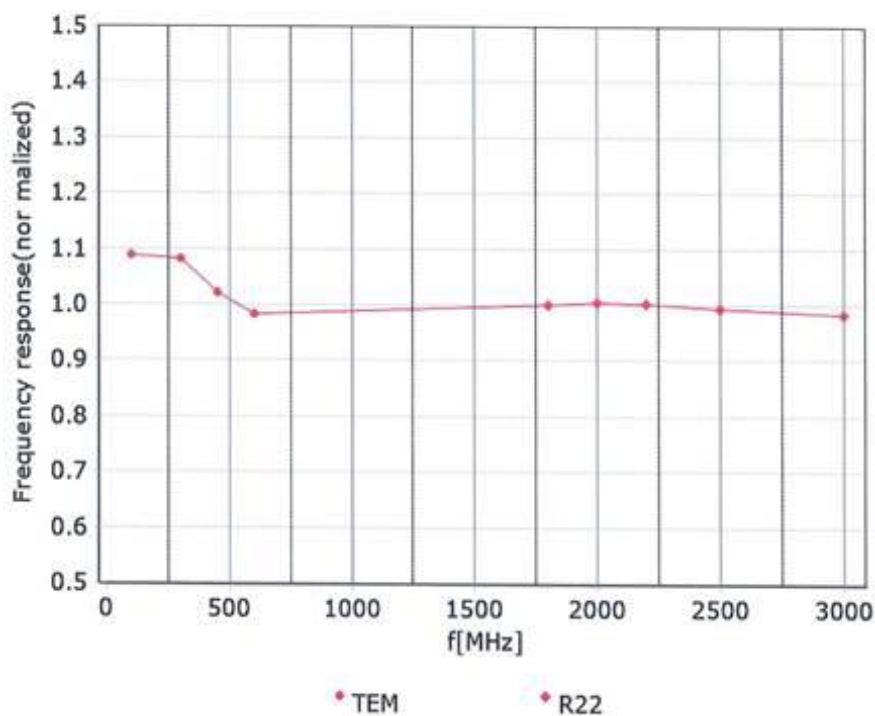
^F At frequency below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty 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 the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.



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



Uncertainty of Frequency Response of E-field: $\pm 7.4\%$ ($k=2$)

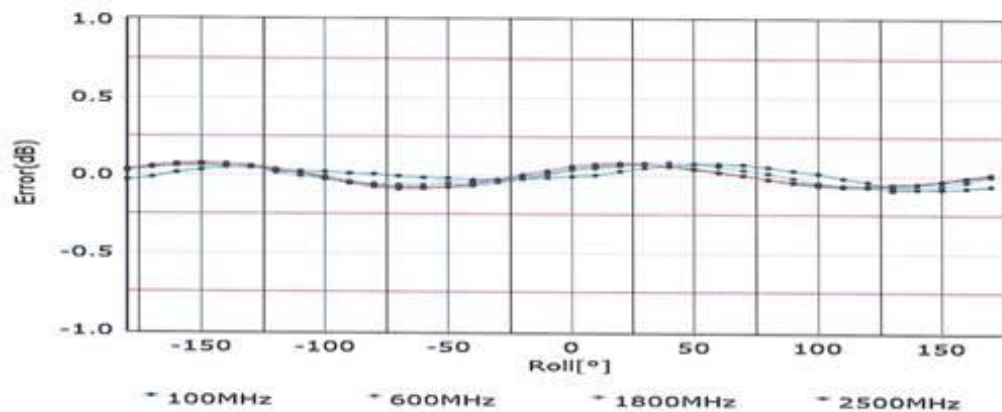
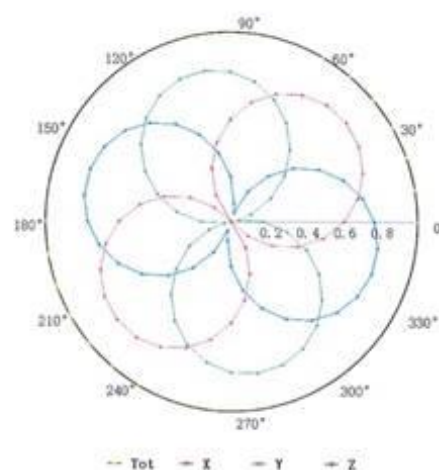
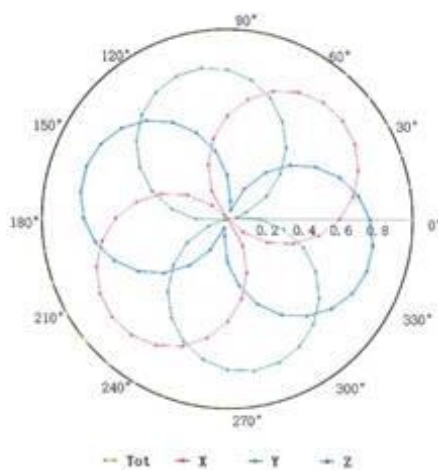


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Receiving Pattern (Φ), $\theta=0^\circ$

f=600 MHz, TEM

f=1800 MHz, R22

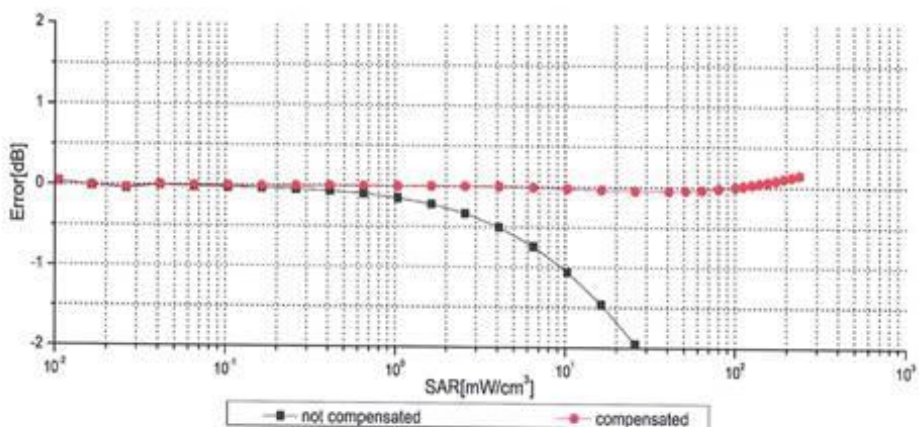
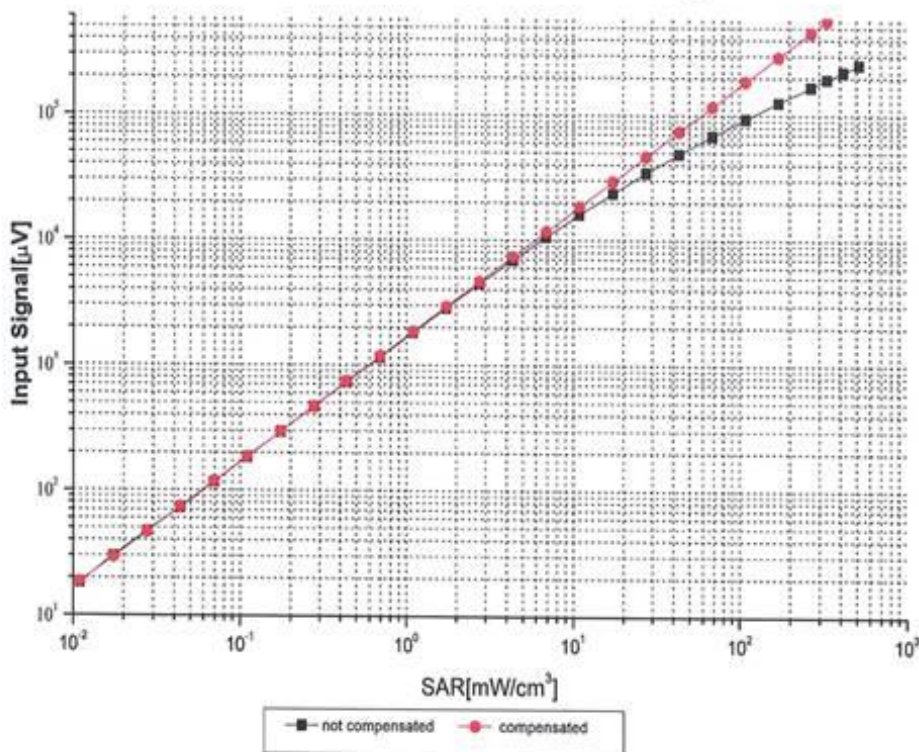


Uncertainty of Axial Isotropy Assessment: $\pm 1.2\%$ ($k=2$)



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Dynamic Range f(SAR_{head}) (TEM cell, f = 900 MHz)



Uncertainty of Linearity Assessment: $\pm 0.9\%$ ($k=2$)

Certificate No: Z20-60314

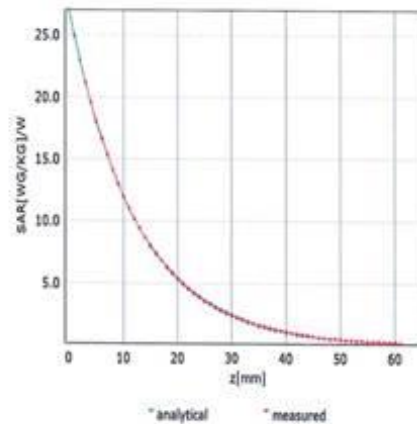
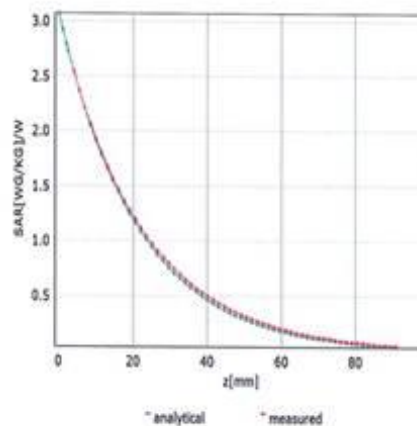
Page 8 of 10



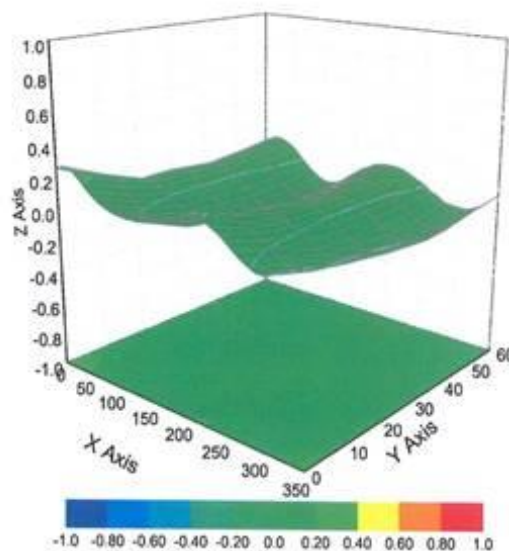
Conversion Factor Assessment

$f=750\text{ MHz, WGLS R9(H_convF)}$

$f=1750\text{ MHz, WGLS R22(H_convF)}$



Deviation from Isotropy in Liquid



Uncertainty of Spherical Isotropy Assessment: $\pm 3.2\%$ ($k=2$)

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Page 9 of 10



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DASY/EASY – Parameters of Probe: EX3DV4 – SN:3924

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	159
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disable
Probe Overall Length	337mm
Probe Body Diameter	10mm
Tip Length	10mm
Tip Diameter	2.5mm
Probe Tip to Sensor X Calibration Point	1mm
Probe Tip to Sensor Y Calibration Point	1mm
Probe Tip to Sensor Z Calibration Point	1mm
Recommended Measurement Distance from Surface	1.4mm

Calibration information for Dipole



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Client **CCIS**Certificate No: **Z19-60175****CALIBRATION CERTIFICATE**Object **D835V2 - SN: 4d154**Calibration Procedure(s) **FF-Z11-003-01**
Calibration Procedures for dipole validation kitsCalibration date: **June 11, 2019**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106277	20-Aug-18 (CTTL, No.J18X06862)	Aug-19
Power sensor NRP8S	104291	20-Aug-18 (CTTL, No.J18X06862)	Aug-19
Reference Probe EX3DV4	SN 7514	27-Aug-18(SPEAG,No.EX3-7514_Aug18)	Aug-19
DAE4	SN 1556	20-Aug-18(SPEAG,No.DAE4-1556_Aug18)	Aug-19
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	23-Jan-19 (CTTL, No.J19X00336)	Jan-20
NetworkAnalyzer E5071C	MY46110673	24-Jan-19 (CTTL, No.J19X00547)	Jan-20

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: June 14, 2019

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

Certificate No: Z19-60175

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Glossary:

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

Calibration is Performed According to the Following Standards:

- 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
- IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
- IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
- KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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



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Measurement Conditions

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

DASY Version	DASY52	52.10.2.1504
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz \pm 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 \pm 0.2) °C	41.1 \pm 6 %	0.89 mho/m \pm 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.35 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	9.49 W/kg \pm 18.8 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	1.57 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	6.33 W/kg \pm 18.7 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 \pm 0.2) °C	55.0 \pm 6 %	0.97 mho/m \pm 6 %
Body TSL temperature change during test	<1.0 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.40 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	9.57 W /kg \pm 18.8 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Body TSL	Condition	
SAR measured	250 mW input power	1.58 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	6.31 W/kg \pm 18.7 % (k=2)



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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.9Ω- 3.09jΩ
Return Loss	- 29.0dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.3Ω- 4.87jΩ
Return Loss	- 24.9dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.277 ns
----------------------------------	----------

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

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

Additional EUT Data

Manufactured by	SPEAG
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DASY5 Validation Report for Head TSL

Date: 06.11.2019

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d154

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.886 \text{ S/m}$; $\epsilon_r = 41.12$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7514; ConvF(9.09, 9.09, 9.09) @ 835 MHz; Calibrated: 8/27/2018
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1556; Calibrated: 8/20/2018
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

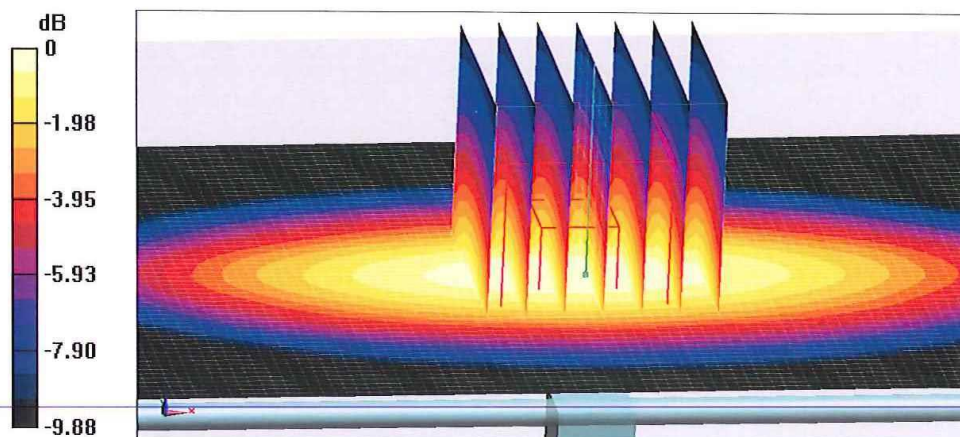
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 58.27 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 3.45 W/kg

SAR(1 g) = 2.35 W/kg; SAR(10 g) = 1.57 W/kg

Maximum value of SAR (measured) = 3.09 W/kg

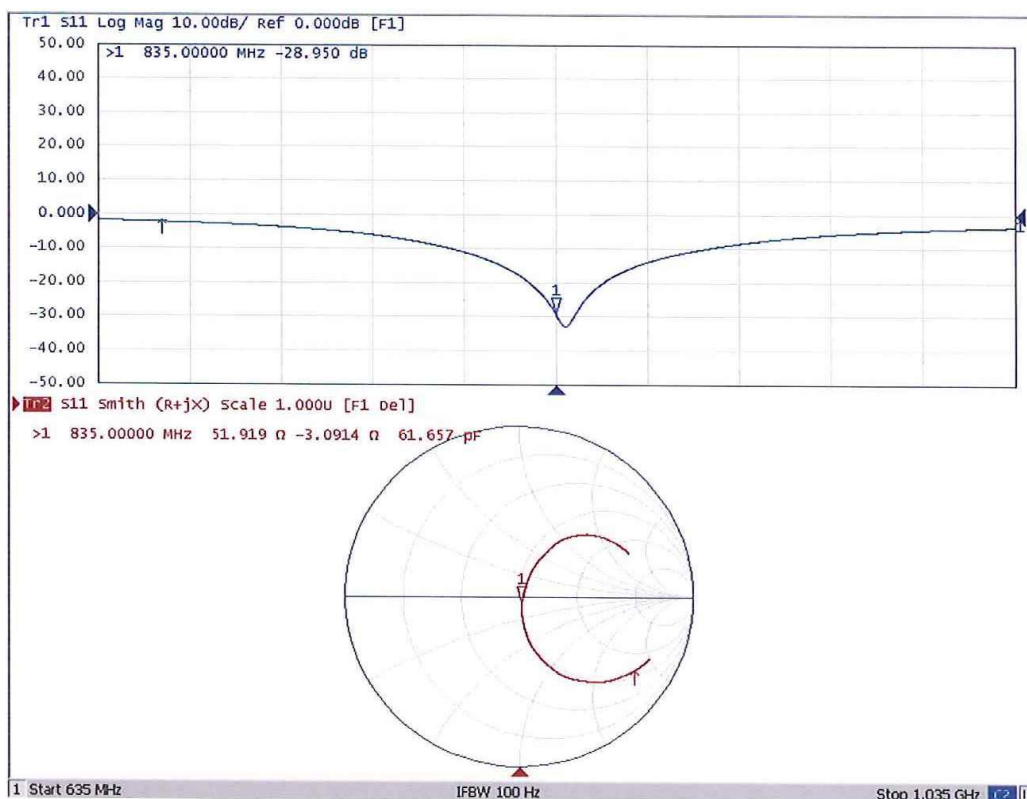




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Impedance Measurement Plot for Head TSL





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DASY5 Validation Report for Body TSL

Date: 06.11.2019

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d154

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 835$ MHz; $\sigma = 0.973$ S/m; $\epsilon_r = 55$; $\rho = 1000$ kg/m³

Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7514; ConvF(9.47, 9.47, 9.47) @ 835 MHz; Calibrated: 8/27/2018
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1556; Calibrated: 8/20/2018
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

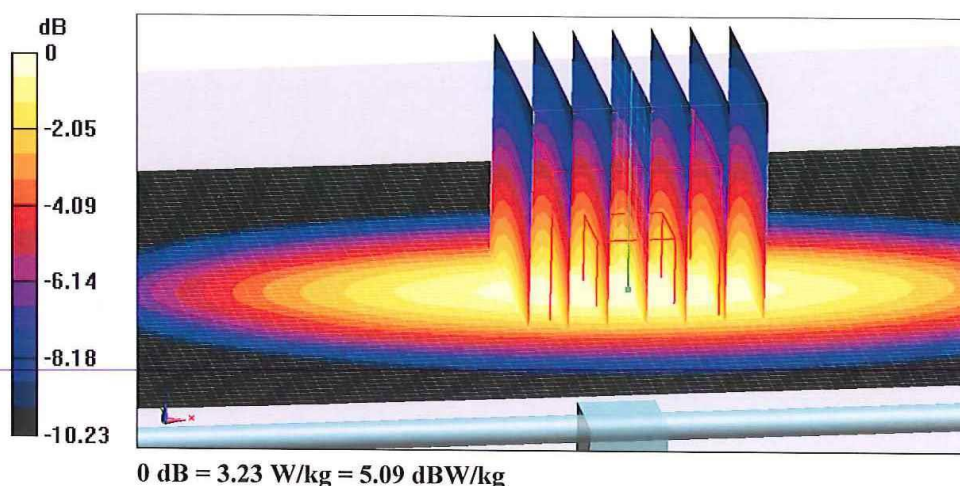
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.93 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 3.67 W/kg

SAR(1 g) = 2.4 W/kg; SAR(10 g) = 1.58 W/kg

Maximum value of SAR (measured) = 3.23 W/kg

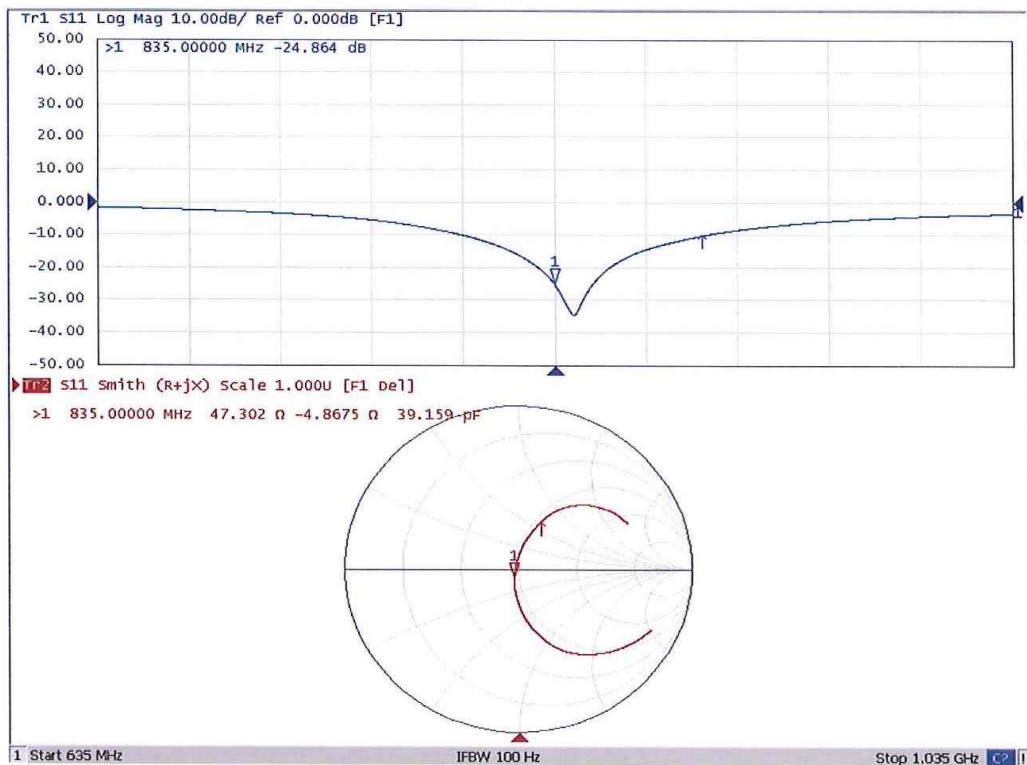




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Impedance Measurement Plot for Body TSL





SAR Reference Dipole Calibration Report

Ref : ACR.93.5.17.SATU.A

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1/F., FUKANGTAI BUILDING,WEST BAIMA ROAD,
SONGGANG STREET
BAOAN DISTRICT,SHENZHEN GUANGDONG
518105,CHINA
MVG COMOSAR REFERENCE DIPOLE
FREQUENCY: 1800 MHZ
SERIAL NO.: SN 09/15 DIP 1G800-360

Calibrated at MVG US
2105 Barrett Park Dr. - Kennesaw, GA 30144



Calibration Date: 02/28/2018

Summary:

This document presents the method and results from an accredited SAR reference dipole calibration performed in MVG USA using the COMOSAR test bench. All calibration results are traceable to national metrology institutions.



SAR REFERENCE DIPOLE CALIBRATION REPORT

Ref: ACR.93.5.17.SATU.A

	Name	Function	Date	Signature
Prepared by :	Jérôme LUC	Product Manager	3/13/2018	<i>JS</i>
Checked by :	Jérôme LUC	Product Manager	3/13/2018	<i>JS</i>
Approved by :	Kim RUTKOWSKI	Quality Manager	3/13/2018	<i>Kim Rutkowski</i>

	Customer Name
Distribution :	Waltek Services (Shenzhen)Co., Ltd

Issue	Date	Modifications
A	3/13/2018	Initial release

Page: 2/11

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SAR REFERENCE DIPOLE CALIBRATION REPORT

Ref: ACR.93.5.17.SATU.A

TABLE OF CONTENTS

1	Introduction.....	4
2	Device Under Test	4
3	Product Description	4
3.1	General Information	4
4	Measurement Method	5
4.1	Return Loss Requirements	5
4.2	Mechanical Requirements	5
5	Measurement Uncertainty.....	5
5.1	Return Loss	5
5.2	Dimension Measurement	5
5.3	Validation Measurement	5
6	Calibration Measurement Results	6
6.1	Return Loss and Impedance In Head Liquid	6
6.2	Return Loss and Impedance In Body Liquid	6
6.3	Mechanical Dimensions	6
7	Validation measurement	7
7.1	Head Liquid Measurement	7
7.2	SAR Measurement Result With Head Liquid	8
7.3	Body Liquid Measurement	9
7.4	SAR Measurement Result With Body Liquid	10
8	List of Equipment	11

Page: 3/11

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1 INTRODUCTION

This document contains a summary of the requirements set forth by the IEEE 1528, FCC KDBs and CEI/IEC 62209 standards for reference dipoles used for SAR measurement system validations and the measurements that were performed to verify that the product complies with the fore mentioned standards.

2 DEVICE UNDER TEST

Device Under Test	
Device Type	COMOSAR 1800 MHz REFERENCE DIPOLE
Manufacturer	MVG
Model	SID1800
Serial Number	SN 09/15 DIP 1G800-360
Product Condition (new / used)	New

A yearly calibration interval is recommended.

3 PRODUCT DESCRIPTION

3.1 GENERAL INFORMATION

MVG's COMOSAR Validation Dipoles are built in accordance to the IEEE 1528, FCC KDBs and CEI/IEC 62209 standards. The product is designed for use with the COMOSAR test bench only.



Figure 1 – MVG COMOSAR Validation Dipole

Page: 4/11

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4 MEASUREMENT METHOD

The IEEE 1528, FCC KDBs and CEI/IEC 62209 standards provide requirements for reference dipoles used for system validation measurements. The following measurements were performed to verify that the product complies with the fore mentioned standards.

4.1 RETURN LOSS REQUIREMENTS

The dipole used for SAR system validation measurements and checks must have a return loss of -20 dB or better. The return loss measurement shall be performed against a liquid filled flat phantom, with the phantom constructed as outlined in the fore mentioned standards.

4.2 MECHANICAL REQUIREMENTS

The IEEE Std. 1528 and CEI/IEC 62209 standards specify the mechanical components and dimensions of the validation dipoles, with the dimensions frequency and phantom shell thickness dependent. The COMOSAR test bench employs a 2 mm phantom shell thickness therefore the dipoles sold for use with the COMOSAR test bench comply with the requirements set forth for a 2 mm phantom shell thickness.

5 MEASUREMENT UNCERTAINTY

All uncertainties listed below represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$, traceable to the Internationally Accepted Guides to Measurement Uncertainty.

5.1 RETURN LOSS

The following uncertainties apply to the return loss measurement:

Frequency band	Expanded Uncertainty on Return Loss
400-6000MHz	0.1 dB

5.2 DIMENSION MEASUREMENT

The following uncertainties apply to the dimension measurements:

Length (mm)	Expanded Uncertainty on Length
3 - 300	0.05 mm

5.3 VALIDATION MEASUREMENT

The guidelines outlined in the IEEE 1528, FCC KDBs, CENELEC EN50361 and CEI/IEC 62209 standards were followed to generate the measurement uncertainty for validation measurements.

Scan Volume	Expanded Uncertainty
1 g	20.3 %

Page: 5/11

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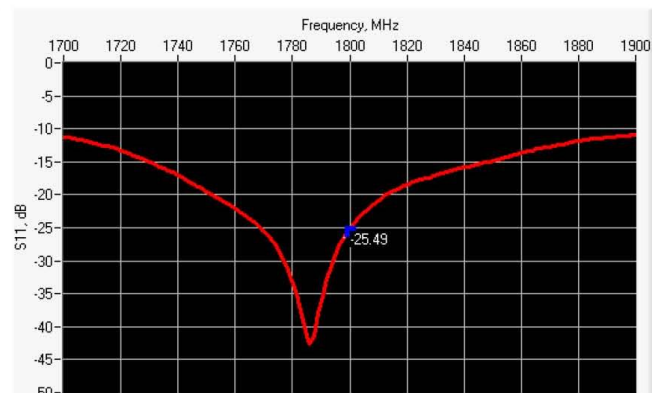
Ref: ACR.93.5.17.SATU.A

10 g

20.1 %

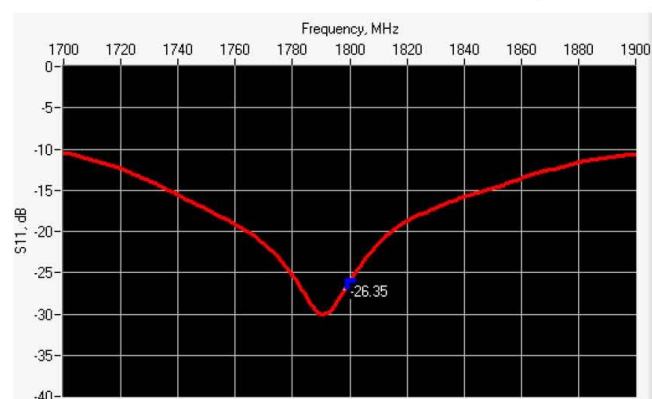
6 CALIBRATION MEASUREMENT RESULTS

6.1 RETURN LOSS AND IMPEDANCE IN HEAD LIQUID



Frequency (MHz)	Return Loss (dB)	Requirement (dB)	Impedance
1800	-25.49	-20	$45.4 \Omega + 2.6 j\Omega$

6.2 RETURN LOSS AND IMPEDANCE IN BODY LIQUID



Frequency (MHz)	Return Loss (dB)	Requirement (dB)	Impedance
1800	-26.35	-20	$45.4 \Omega - 1.5 j\Omega$

6.3 MECHANICAL DIMENSIONS

Frequency MHz	L mm		h mm		d mm	
	required	measured	required	measured	required	measured
300	$420.0 \pm 1 \%$		$250.0 \pm 1 \%$		$6.35 \pm 1 \%$	

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450	290.0 ±1 %.		166.7 ±1 %.		6.35 ±1 %.	
750	176.0 ±1 %.		100.0 ±1 %.		6.35 ±1 %.	
835	161.0 ±1 %.		89.8 ±1 %.		3.6 ±1 %.	
900	149.0 ±1 %.		83.3 ±1 %.		3.6 ±1 %.	
1450	89.1 ±1 %.		51.7 ±1 %.		3.6 ±1 %.	
1500	80.5 ±1 %.		50.0 ±1 %.		3.6 ±1 %.	
1640	79.0 ±1 %.		45.7 ±1 %.		3.6 ±1 %.	
1750	75.2 ±1 %.		42.9 ±1 %.		3.6 ±1 %.	
1800	72.0 ±1 %.	PASS	41.7 ±1 %.	PASS	3.6 ±1 %.	PASS
1900	68.0 ±1 %.		39.5 ±1 %.		3.6 ±1 %.	
1950	66.3 ±1 %.		38.5 ±1 %.		3.6 ±1 %.	
2000	64.5 ±1 %.		37.5 ±1 %.		3.6 ±1 %.	
2100	61.0 ±1 %.		35.7 ±1 %.		3.6 ±1 %.	
2300	55.5 ±1 %.		32.6 ±1 %.		3.6 ±1 %.	
2450	51.5 ±1 %.		30.4 ±1 %.		3.6 ±1 %.	
2600	48.5 ±1 %.		28.8 ±1 %.		3.6 ±1 %.	
3000	41.5 ±1 %.		25.0 ±1 %.		3.6 ±1 %.	
3500	37.0 ±1 %.		26.4 ±1 %.		3.6 ±1 %.	
3700	34.7 ±1 %.		26.4 ±1 %.		3.6 ±1 %.	

7 VALIDATION MEASUREMENT

The IEEE Std. 1528, FCC KDBs and CEI/IEC 62209 standards state that the system validation measurements must be performed using a reference dipole meeting the fore mentioned return loss and mechanical dimension requirements. The validation measurement must be performed against a liquid filled flat phantom, with the phantom constructed as outlined in the fore mentioned standards. Per the standards, the dipole shall be positioned below the bottom of the phantom, with the dipole length centered and parallel to the longest dimension of the flat phantom, with the top surface of the dipole at the described distance from the bottom surface of the phantom.

7.1 HEAD LIQUID MEASUREMENT

Frequency MHz	Relative permittivity (ϵ_r')		Conductivity (σ) S/m	
	required	measured	required	measured
300	45.3 ±5 %		0.87 ±5 %	
450	43.5 ±5 %		0.87 ±5 %	
750	41.9 ±5 %		0.89 ±5 %	
835	41.5 ±5 %		0.90 ±5 %	
900	41.5 ±5 %		0.97 ±5 %	
1450	40.5 ±5 %		1.20 ±5 %	
1500	40.4 ±5 %		1.23 ±5 %	
1640	40.2 ±5 %		1.31 ±5 %	
1750	40.1 ±5 %		1.37 ±5 %	

Page: 7/11

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1800	40.0 ±5 %	PASS	1.40 ±5 %	PASS
1900	40.0 ±5 %		1.40 ±5 %	
1950	40.0 ±5 %		1.40 ±5 %	
2000	40.0 ±5 %		1.40 ±5 %	
2100	39.8 ±5 %		1.49 ±5 %	
2300	39.5 ±5 %		1.67 ±5 %	
2450	39.2 ±5 %		1.80 ±5 %	
2600	39.0 ±5 %		1.96 ±5 %	
3000	38.5 ±5 %		2.40 ±5 %	
3500	37.9 ±5 %		2.91 ±5 %	

7.2 SAR MEASUREMENT RESULT WITH HEAD LIQUID

The IEEE Std. 1528 and CEI/IEC 62209 standards state that the system validation measurements should produce the SAR values shown below (for phantom thickness of 2 mm), within the uncertainty for the system validation. All SAR values are normalized to 1 W forward power. In bracket, the measured SAR is given with the used input power.

Software	OPENSAR V4
Phantom	SN 20/09 SAM71
Probe	SN 18/11 EPG122
Liquid	Head Liquid Values: eps' : 41.7 sigma : 1.46
Distance between dipole center and liquid	10.0 mm
Area scan resolution	dx=8mm/dy=8mm
Zoon Scan Resolution	dx=8mm/dy=8mm/dz=5mm
Frequency	1800 MHz
Input power	20 dBm
Liquid Temperature	21 °C
Lab Temperature	21 °C
Lab Humidity	45 %

Frequency MHz	1 g SAR (W/kg/W)		10 g SAR (W/kg/W)	
	required	measured	required	measured
300	2.85		1.94	
450	4.58		3.06	
750	8.49		5.55	
835	9.56		6.22	
900	10.9		6.99	
1450	29		16	
1500	30.5		16.8	
1640	34.2		18.4	
1750	36.4		19.3	
1800	38.4	38.76 (3.88)	20.1	20.29 (2.03)

Page: 8/11

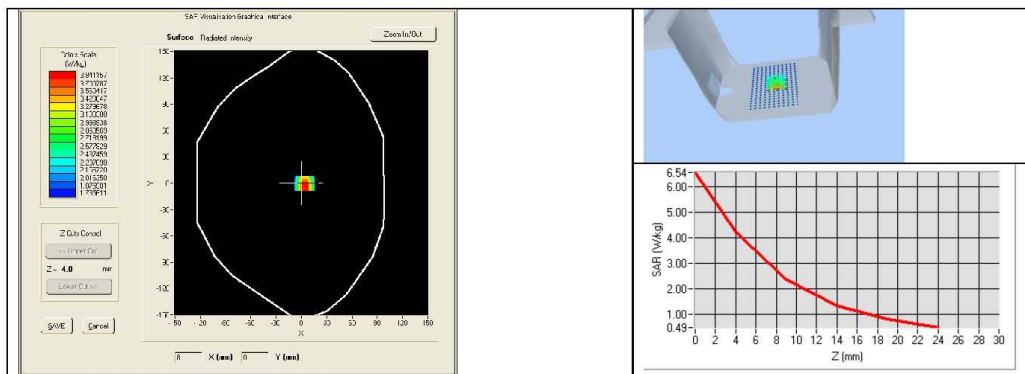
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SAR REFERENCE DIPOLE CALIBRATION REPORT

Ref: ACR.93.5.17.SATU.A

1900	39.7		20.5	
1950	40.5		20.9	
2000	41.1		21.1	
2100	43.6		21.9	
2300	48.7		23.3	
2450	52.4		24	
2600	55.3		24.6	
3000	63.8		25.7	
3500	67.1		25	
3700	67.4		24.2	



7.3 BODY LIQUID MEASUREMENT

Frequency MHz	Relative permittivity (ϵ_r')		Conductivity (σ) S/m	
	required	measured	required	measured
150	61.9 \pm 5 %		0.80 \pm 5 %	
300	58.2 \pm 5 %		0.92 \pm 5 %	
450	56.7 \pm 5 %		0.94 \pm 5 %	
750	55.5 \pm 5 %		0.96 \pm 5 %	
835	55.2 \pm 5 %		0.97 \pm 5 %	
900	55.0 \pm 5 %		1.05 \pm 5 %	
915	55.0 \pm 5 %		1.06 \pm 5 %	
1450	54.0 \pm 5 %		1.30 \pm 5 %	
1610	53.8 \pm 5 %		1.40 \pm 5 %	
1800	53.3 \pm 5 %	PASS	1.52 \pm 5 %	PASS
1900	53.3 \pm 5 %		1.52 \pm 5 %	
2000	53.3 \pm 5 %		1.52 \pm 5 %	
2100	53.2 \pm 5 %		1.62 \pm 5 %	

Page: 9/11

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SAR REFERENCE DIPOLE CALIBRATION REPORT

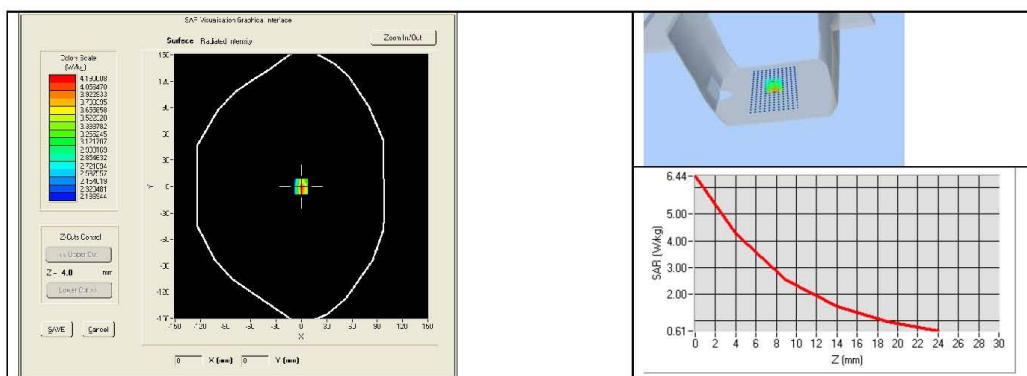
Ref: ACR.93.5.17.SATU.A

2300	52.9 ±5 %		1.81 ±5 %	
2450	52.7 ±5 %		1.95 ±5 %	
2600	52.5 ±5 %		2.16 ±5 %	
3000	52.0 ±5 %		2.73 ±5 %	
3500	51.3 ±5 %		3.31 ±5 %	
3700	51.0 ±5 %		3.55 ±5 %	
5200	49.0 ±10 %		5.30 ±10 %	
5300	48.9 ±10 %		5.42 ±10 %	
5400	48.7 ±10 %		5.53 ±10 %	
5500	48.6 ±10 %		5.65 ±10 %	
5600	48.5 ±10 %		5.77 ±10 %	
5800	48.2 ±10 %		6.00 ±10 %	

7.4 SAR MEASUREMENT RESULT WITH BODY LIQUID

Software	OPENSAR V4
Phantom	SN 20/09 SAM71
Probe	SN 18/11 EPG122
Liquid	Body Liquid Values: eps' : 53.9 sigma : 1.46
Distance between dipole center and liquid	10.0 mm
Area scan resolution	dx=8mm/dy=8mm
Zoon Scan Resolution	dx=8mm/dy=8mm/dz=5mm
Frequency	1800 MHz
Input power	20 dBm
Liquid Temperature	21 °C
Lab Temperature	21 °C
Lab Humidity	45 %

Frequency MHz	1 g SAR (W/kg/W)	10 g SAR (W/kg/W)
	measured	measured
1800	38.90 (3.89)	20.84 (2.08)



Page: 10/11

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SAR REFERENCE DIPOLE CALIBRATION REPORT

Ref: ACR.93.5.17.SATU.A

8 LIST OF EQUIPMENT

Equipment Summary Sheet				
Equipment Description	Manufacturer / Model	Identification No.	Current Calibration Date	Next Calibration Date
SAM Phantom	MVG	SN-20/09-SAM71	Validated. No cal required.	Validated. No cal required.
COMOSAR Test Bench	Version 3	NA	Validated. No cal required.	Validated. No cal required.
Network Analyzer	Rhode & Schwarz ZVA	SN100132	02/2016	02/2019
Calipers	Carrera	CALIPER-01	01/2017	01/2020
Reference Probe	MVG	EPG122 SN 18/11	10/2017	10/2018
Multimeter	Keithley 2000	1188656	01/2017	01/2020
Signal Generator	Agilent E4438C	MY49070581	01/2017	01/2020
Amplifier	Aethercomm	SN 046	Characterized prior to test. No cal required.	Characterized prior to test. No cal required.
Power Meter	HP E4418A	US38261498	01/2017	01/2020
Power Sensor	HP ECP-E26A	US37181460	01/2017	01/2020
Directional Coupler	Narda 4216-20	01386	Characterized prior to test. No cal required.	Characterized prior to test. No cal required.
Temperature and Humidity Sensor	Control Company	150798832	10/2017	10/2019

Page: 11/11

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Certificate No: Z19-60176

CALIBRATION CERTIFICATE

Object D1900V2 - SN: 5d175

Calibration Procedure(s) FF-Z11-003-01
Calibration Procedures for dipole validation kits

Calibration date: June 11, 2019

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106277	20-Aug-18 (CTTL, No.J18X06862)	Aug-19
Power sensor NRP8S	104291	20-Aug-18 (CTTL, No.J18X06862)	Aug-19
Reference Probe EX3DV4	SN 7514	27-Aug-18(SPEAG,No.EX3-7514_Aug18)	Aug-19
DAE4	SN 1556	20-Aug-18(SPEAG,No.DAE4-1556_Aug18)	Aug-19
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	23-Jan-19 (CTTL, No.J19X00336)	Jan-20
NetworkAnalyzer E5071C	MY46110673	24-Jan-19 (CTTL, No.J19X00547)	Jan-20

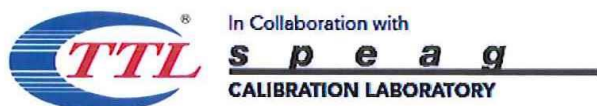
	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: June 14, 2019

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Glossary:

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

Calibration is Performed According to the Following Standards:

- 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
- IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
- IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
- KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

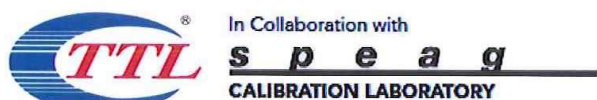
Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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



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Measurement Conditions

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

DASY Version	DASY52	52.10.2.1504
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz \pm 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 \pm 0.2) °C	40.2 \pm 6 %	1.39 mho/m \pm 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.79 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	39.4 W/kg \pm 18.8 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	5.07 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	20.4 W/kg \pm 18.7 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 \pm 0.2) °C	52.2 \pm 6 %	1.50 mho/m \pm 6 %
Body TSL temperature change during test	<1.0 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.1 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	40.5 W/kg \pm 18.8 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Body TSL	Condition	
SAR measured	250 mW input power	5.23 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	21.0 W/kg \pm 18.7 % (k=2)



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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.7Ω+ 5.93jΩ
Return Loss	- 24.3dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.8Ω+ 5.24jΩ
Return Loss	- 24.7dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.064 ns
----------------------------------	----------

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

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

Additional EUT Data

Manufactured by	SPEAG
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DASY5 Validation Report for Head TSL

Date: 06.10.2019

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d175

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.387$ S/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³

Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7514; ConvF(7.73, 7.73, 7.73) @ 1900 MHz; Calibrated: 8/27/2018
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1556; Calibrated: 8/20/2018
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

System Performance Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

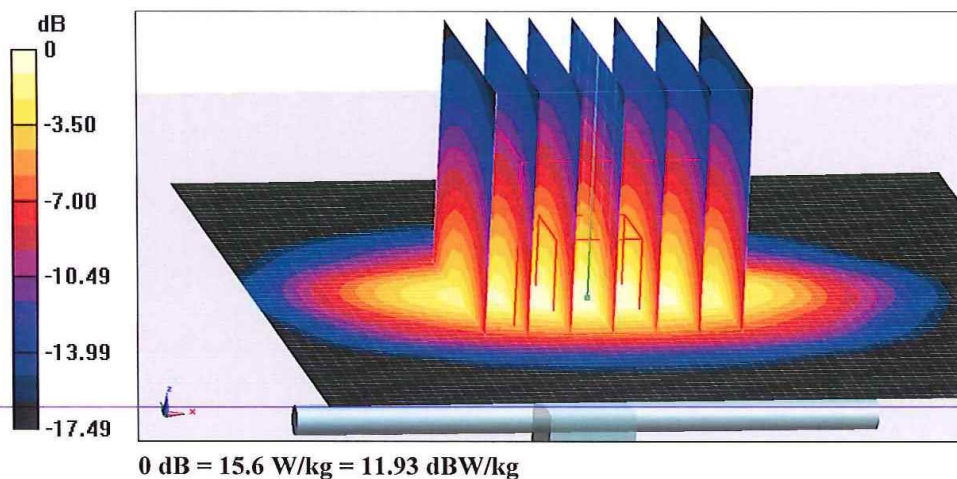
$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 98.94 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 18.9 W/kg

SAR(1 g) = 9.79 W/kg; SAR(10 g) = 5.07 W/kg

Maximum value of SAR (measured) = 15.6 W/kg

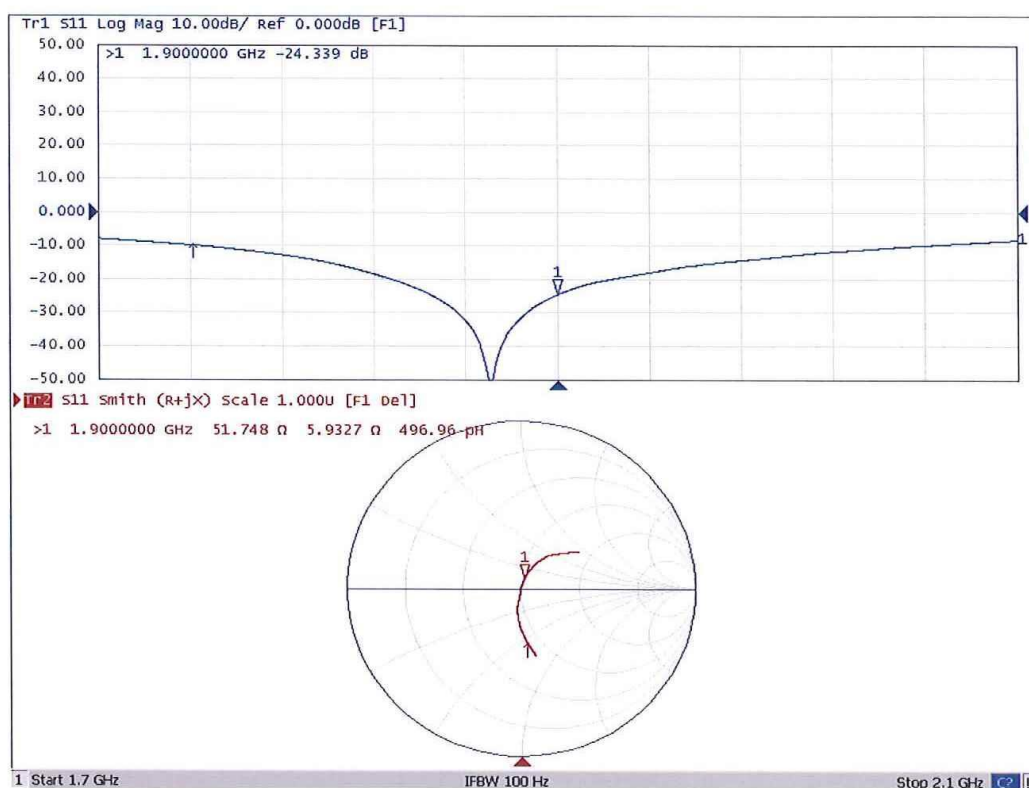


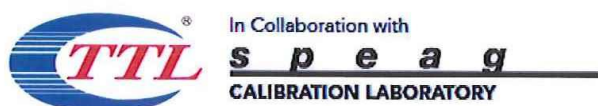


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Impedance Measurement Plot for Head TSL





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DASY5 Validation Report for Body TSL

Date: 06.11.2019

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d175

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.499$ S/m; $\epsilon_r = 52.18$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7514; ConvF(7.53, 7.53, 7.53) @ 1900 MHz; Calibrated: 8/27/2018
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1556; Calibrated: 8/20/2018
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

System Performance Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

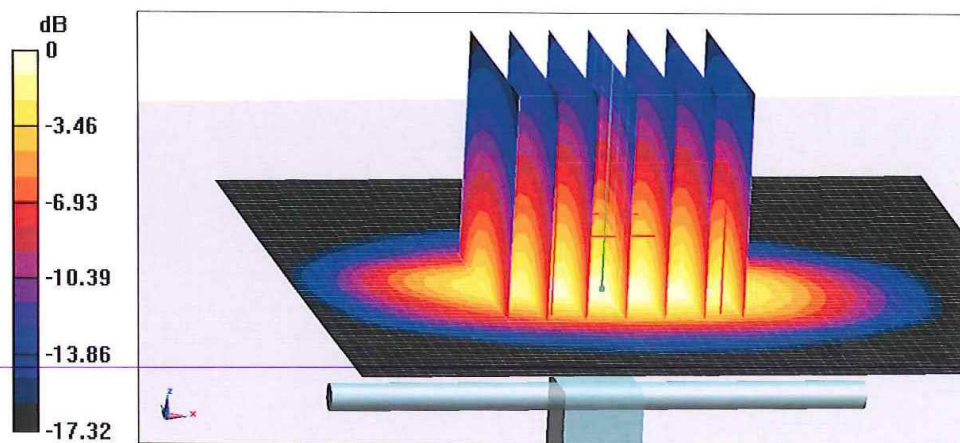
$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 88.67 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 18.9 W/kg

SAR(1 g) = 10.1 W/kg; SAR(10 g) = 5.23 W/kg

Maximum value of SAR (measured) = 15.6 W/kg



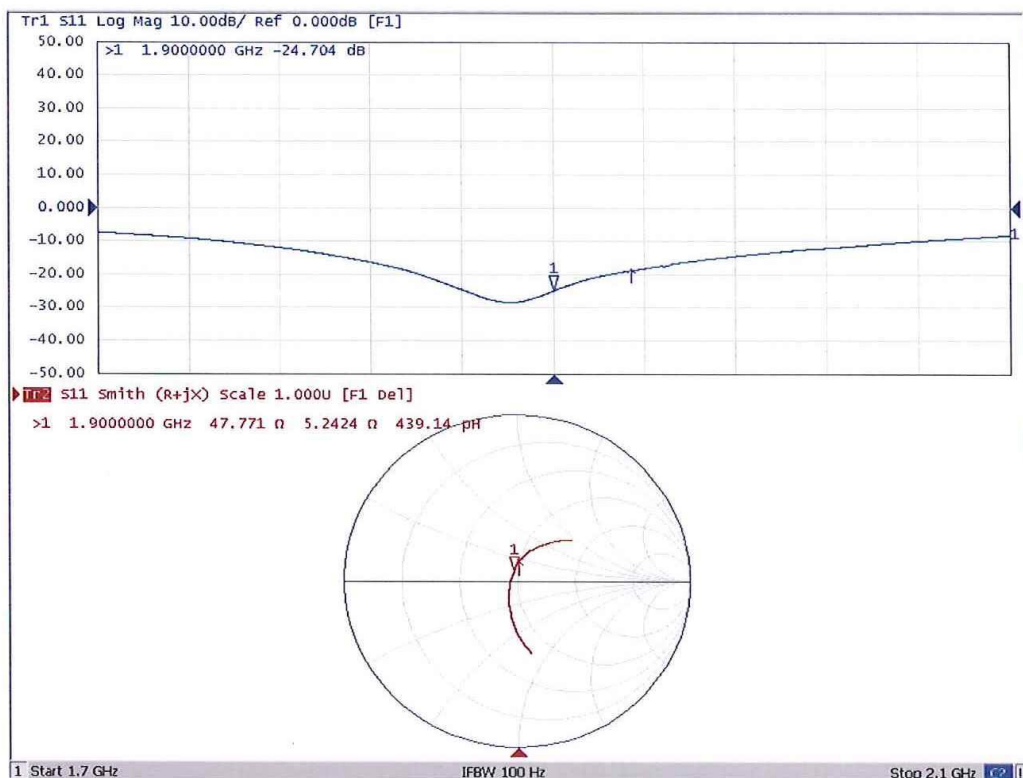
0 dB = 15.6 W/kg = 11.93 dBW/kg



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Impedance Measurement Plot for Body TSL





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Certificate No: Z19-60177

CALIBRATION CERTIFICATE

Object D2450V2 - SN: 910

Calibration Procedure(s) FF-Z11-003-01
Calibration Procedures for dipole validation kits

Calibration date: June 10, 2019

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106277	20-Aug-18 (CTTL, No.J18X06862)	Aug-19
Power sensor NRP8S	104291	20-Aug-18 (CTTL, No.J18X06862)	Aug-19
Reference Probe EX3DV4	SN 7514	27-Aug-18(SPEAG,No.EX3-7514_Aug18)	Aug-19
DAE4	SN 1556	20-Aug-18(SPEAG,No.DAE4-1556_Aug18)	Aug-19
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	23-Jan-19 (CTTL, No.J19X00336)	Jan-20
NetworkAnalyzer E5071C	MY46110673	24-Jan-19 (CTTL, No.J19X00547)	Jan-20

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: June 14, 2019

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Glossary:

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

Calibration is Performed According to the Following Standards:

- 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
- IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
- IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
- KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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



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Measurement Conditions

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

DASY Version	DASY52	52.10.2.1495
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz \pm 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 \pm 0.2) °C	39.8 \pm 6 %	1.83 mho/m \pm 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.2 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	52.6 W/kg \pm 18.8 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	6.11 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.4 W/kg \pm 18.7 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 \pm 0.2) °C	52.1 \pm 6 %	1.96 mho/m \pm 6 %
Body TSL temperature change during test	<1.0 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	12.8 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	50.9 W/kg \pm 18.8 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Body TSL	Condition	
SAR measured	250 mW input power	5.94 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	23.7 W/kg \pm 18.7 % (k=2)



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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	54.1Ω+ 2.51 jΩ
Return Loss	- 26.8dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	52.3Ω+ 3.40 jΩ
Return Loss	- 27.9dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.020 ns
----------------------------------	----------

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

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

Additional EUT Data

Manufactured by	SPEAG
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DASY5 Validation Report for Head TSL

Date: 06.10.2019

Test Laboratory: CCTL, Beijing, China

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 910

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.825$ S/m; $\epsilon_r = 39.75$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7514; ConvF(6.95, 6.95, 6.95) @ 2450 MHz; Calibrated: 8/27/2018
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1556; Calibrated: 8/20/2018
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

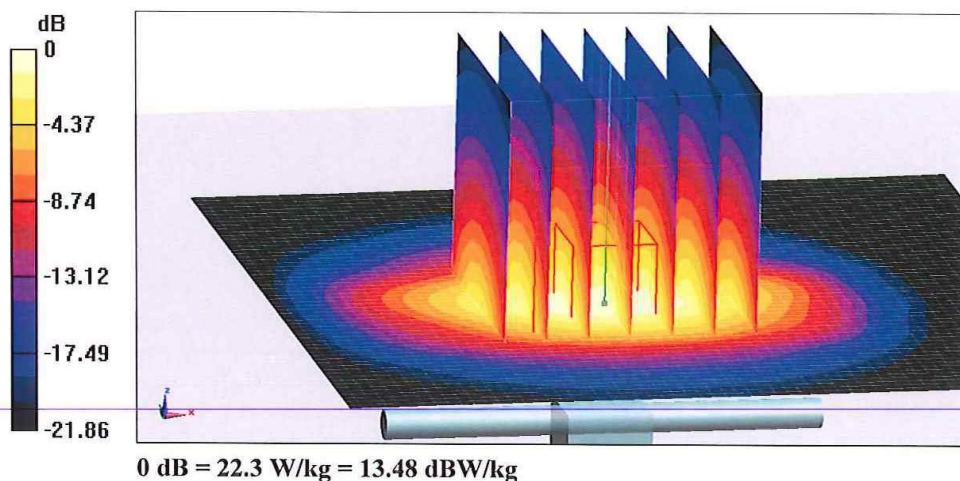
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.66 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 27.4 W/kg

SAR(1 g) = 13.2 W/kg; SAR(10 g) = 6.11 W/kg

Maximum value of SAR (measured) = 22.3 W/kg

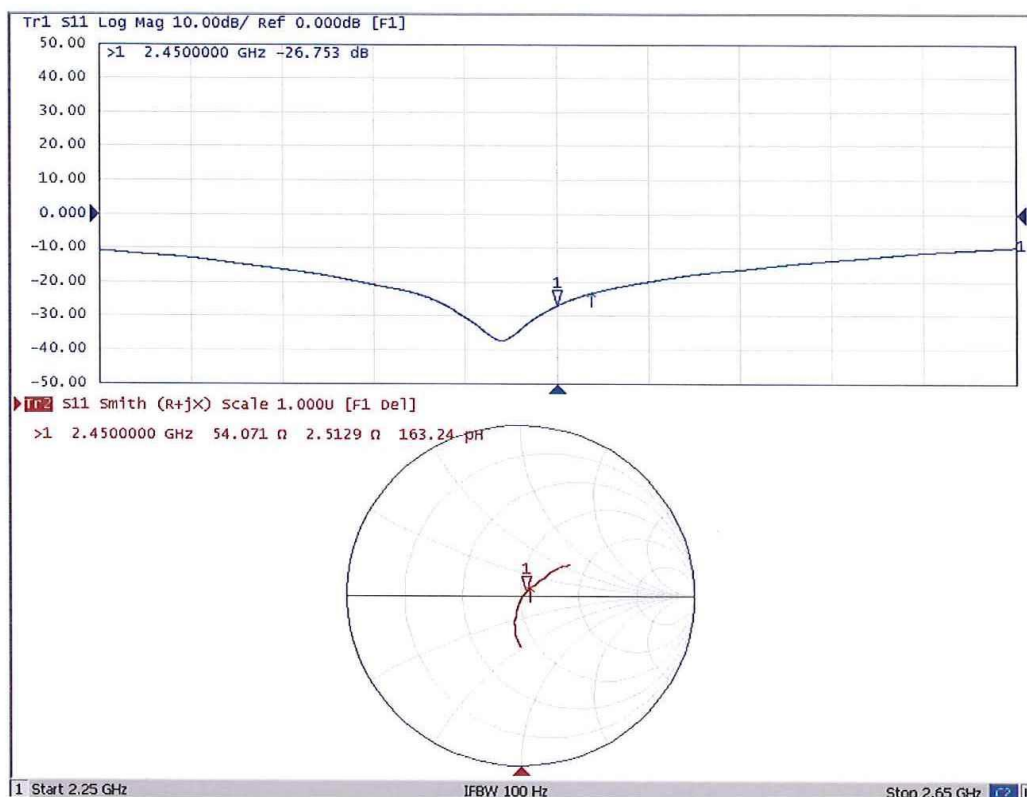




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Impedance Measurement Plot for Head TSL





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DASY5 Validation Report for Body TSL

Date: 06.10.2019

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 910

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.962$ S/m; $\epsilon_r = 52.06$; $\rho = 1000$ kg/m³

Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7514; ConvF(7.13, 7.13, 7.13) @ 2450 MHz; Calibrated: 8/27/2018
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1556; Calibrated: 8/20/2018
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

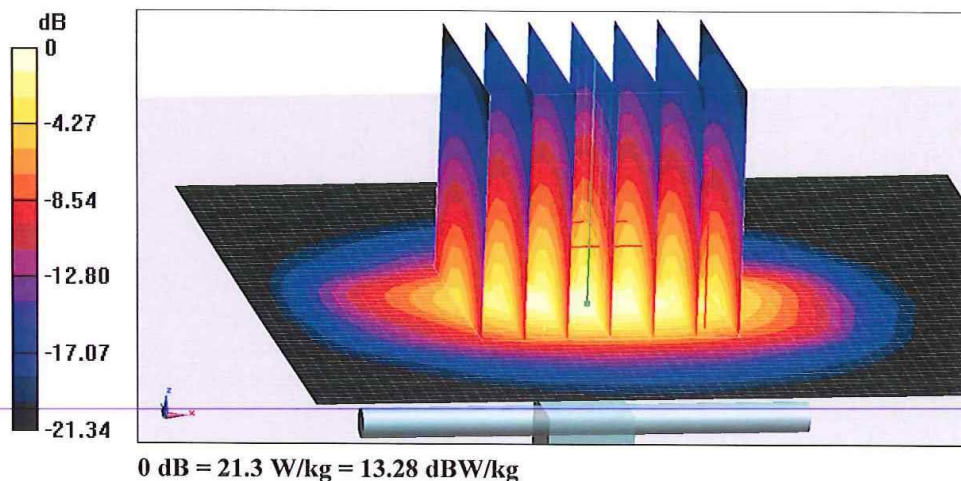
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 89.63 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 26.4 W/kg

SAR(1 g) = 12.8 W/kg; SAR(10 g) = 5.94 W/kg

Maximum value of SAR (measured) = 21.3 W/kg

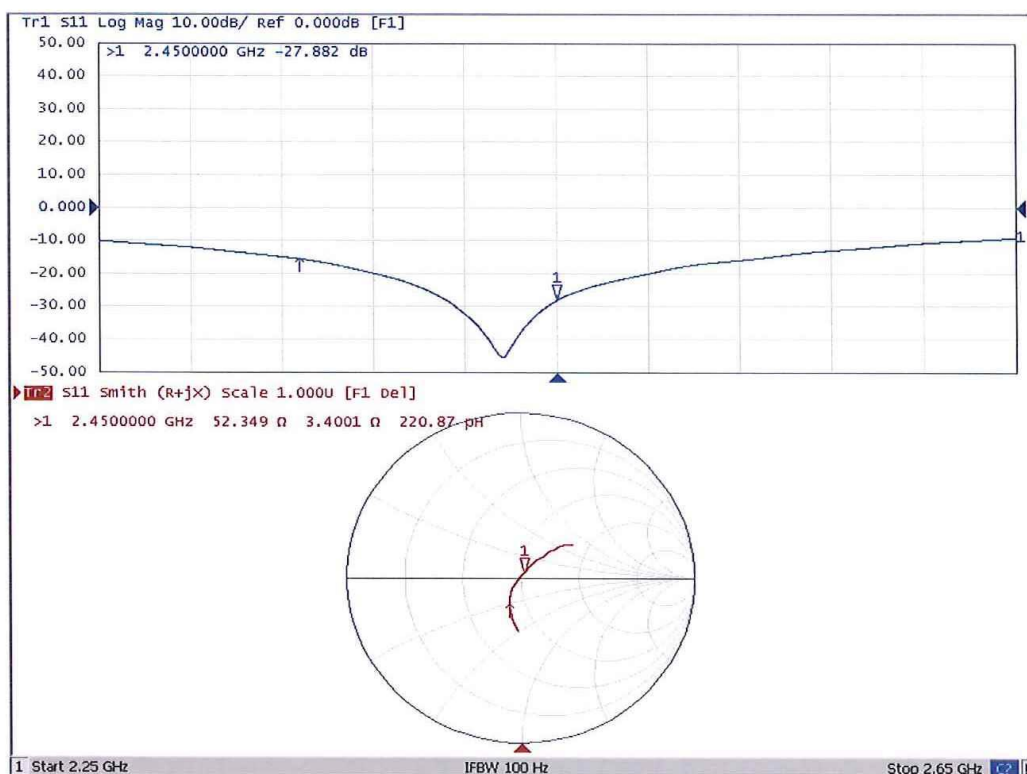




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Impedance Measurement Plot for Body TSL





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CNAS L0570

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Client

CCIS

Certificate No:

Z18-60466

CALIBRATION CERTIFICATE

Object D2600V2 - SN: 1114

Calibration Procedure(s) FF-Z11-003-01
Calibration Procedures for dipole validation kits

Calibration date: November 5, 2018

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRVD	102196	07-Mar-18 (CTTL, No.J18X01510)	Mar-19
Power sensor NRV-Z5	100596	07-Mar-18 (CTTL, No.J18X01510)	Mar-19
Reference Probe EX3DV4	SN 7514	27-Aug-18(SPEAG,No.EX3-7514_Aug18)	Aug-19
DAE4	SN 1555	20-Aug-18(SPEAG,No.DAE4-1555_Aug18)	Aug-19
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	23-Jan-18 (CTTL, No.J18X00560)	Jan-19
Network Analyzer E5071C	MY46110673	24-Jan-18 (CTTL, No.J18X00561)	Jan-19

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: November 7, 2018

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Certificate No: Z18-60466

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Glossary:

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

Calibration is Performed According to the Following Standards:

- 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
- IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
- IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
- KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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



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Measurement Conditions

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

DASY Version	DASY52	52.10.2.1495
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2600 MHz \pm 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.0	1.96 mho/m
Measured Head TSL parameters	(22.0 \pm 0.2) °C	39.4 \pm 6 %	1.94 mho/m \pm 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	14.0 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	56.3 mW / g \pm 18.8 % (k=2)
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	6.24 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	25.1 mW / g \pm 18.7 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.5	2.16 mho/m
Measured Body TSL parameters	(22.0 \pm 0.2) °C	52.7 \pm 6 %	2.21 mho/m \pm 6 %
Body TSL temperature change during test	<1.0 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.4 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	53.1 mW / g \pm 18.8 % (k=2)
SAR averaged over 10 cm^3 (10 g) of Body TSL	Condition	
SAR measured	250 mW input power	5.92 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	23.6 mW / g \pm 18.7 % (k=2)



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Appendix(Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	49.4Ω- 5.09jΩ
Return Loss	- 25.8dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.7Ω- 5.55jΩ
Return Loss	- 23.5dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.017 ns
----------------------------------	----------

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

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

Additional EUT Data

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DASY5 Validation Report for Head TSL

Date: 11.05.2018

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1114

Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2600$ MHz; $\sigma = 1.944$ S/m; $\epsilon_r = 39.41$; $\rho = 1000$ kg/m³

Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7514; ConvF(6.92, 6.92, 6.92) @ 2600 MHz; Calibrated: 8/27/2018
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1555; Calibrated: 8/20/2018
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

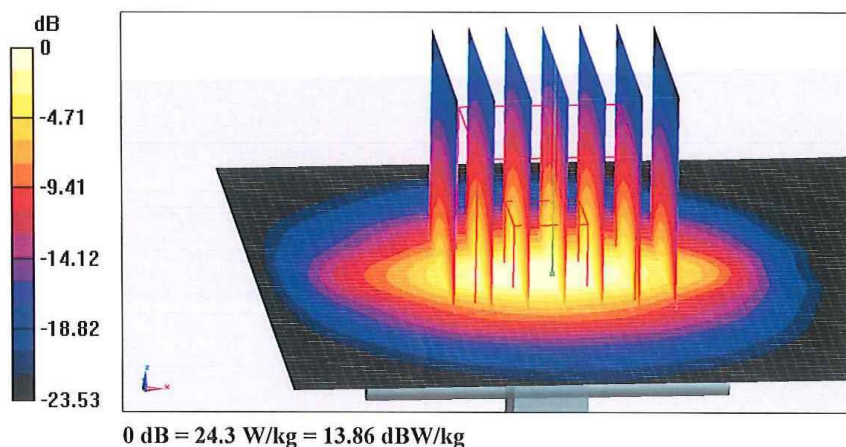
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 107.5 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 30.7 W/kg

SAR(1 g) = 14 W/kg; SAR(10 g) = 6.24 W/kg

Maximum value of SAR (measured) = 24.3 W/kg

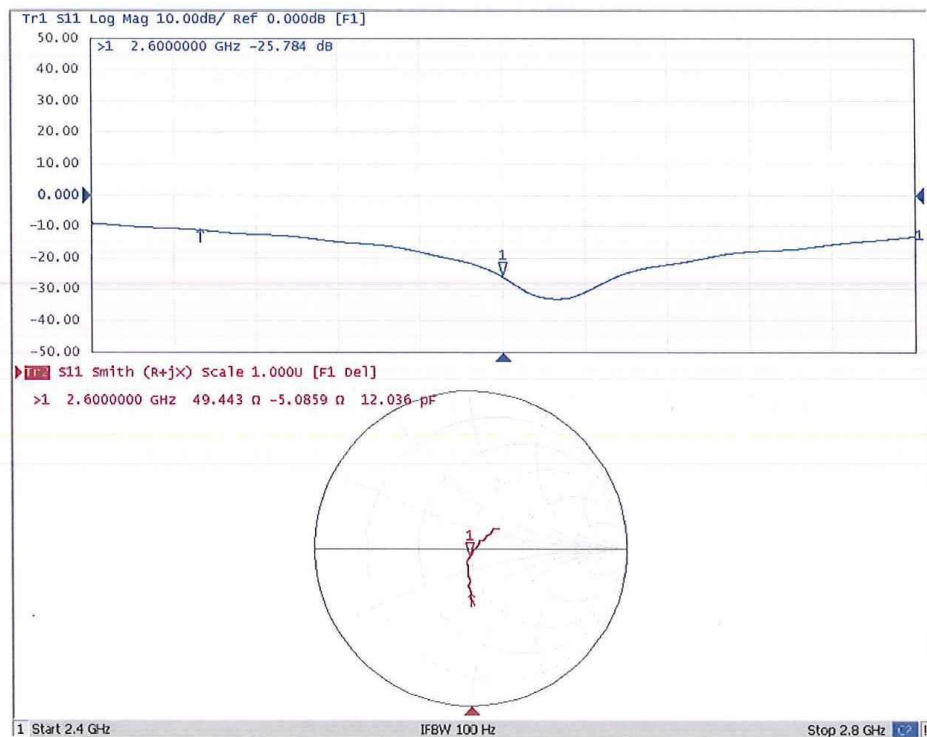




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Impedance Measurement Plot for Head TSL





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DASY5 Validation Report for Body TSL

Date: 11.01.2018

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1114

Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2600$ MHz; $\sigma = 2.206$ S/m; $\epsilon_r = 52.65$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7514; ConvF(7.06, 7.06, 7.06) @ 2600 MHz; Calibrated: 8/27/2018
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1555; Calibrated: 8/20/2018
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

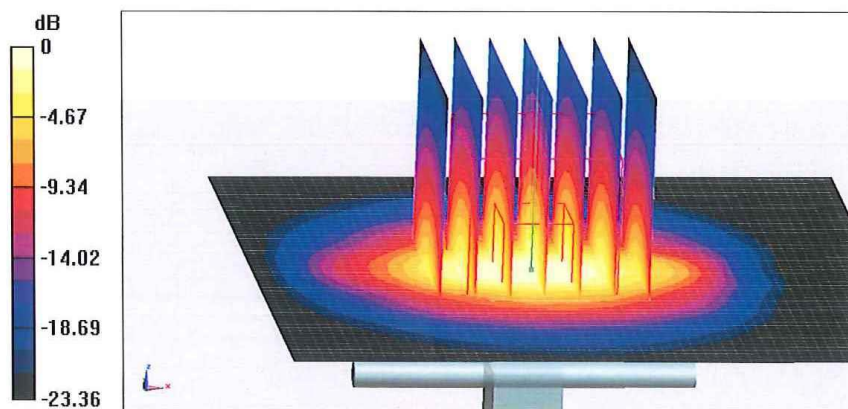
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 98.22 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 29.3 W/kg

SAR(1 g) = 13.4 W/kg; SAR(10 g) = 5.92 W/kg

Maximum value of SAR (measured) = 23.0 W/kg



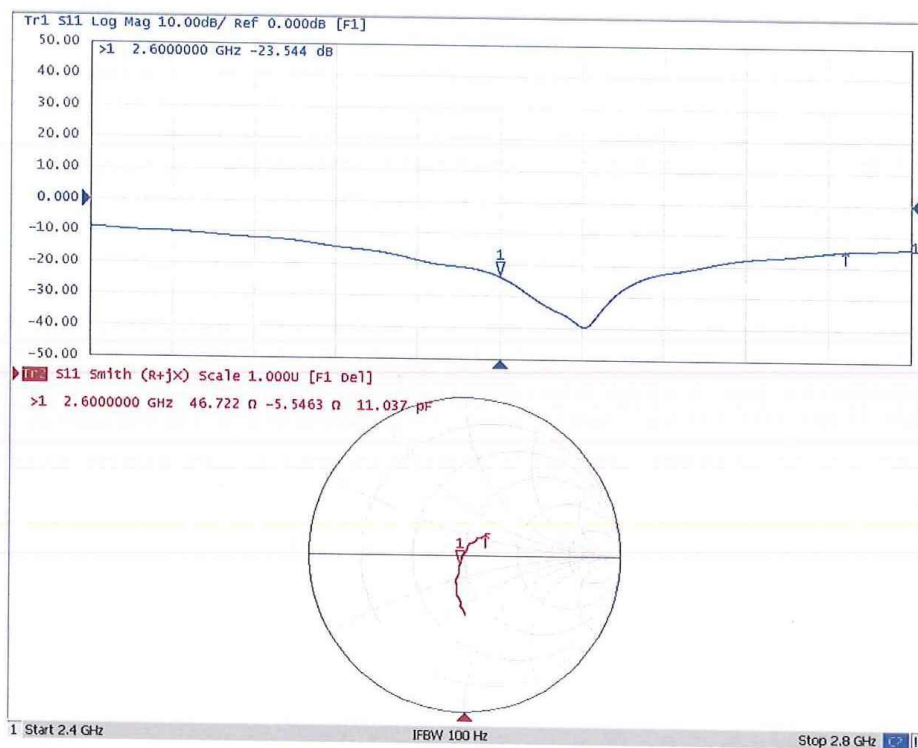
0 dB = 23.0 W/kg = 13.62 dBW/kg



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Impedance Measurement Plot for Body TSL



Dipole Impedance and Return Loss calibration Report

Object: D2600V2 - SN: 1116

Calibration Date: November 07, 2019

Calibration reference: IEEE Std 1528:2013, IEC 62209-1:2016, FCC KDB 865664 D01

Calibrated By: *Janet Wei* (Janet Wei, SAR project engineer)

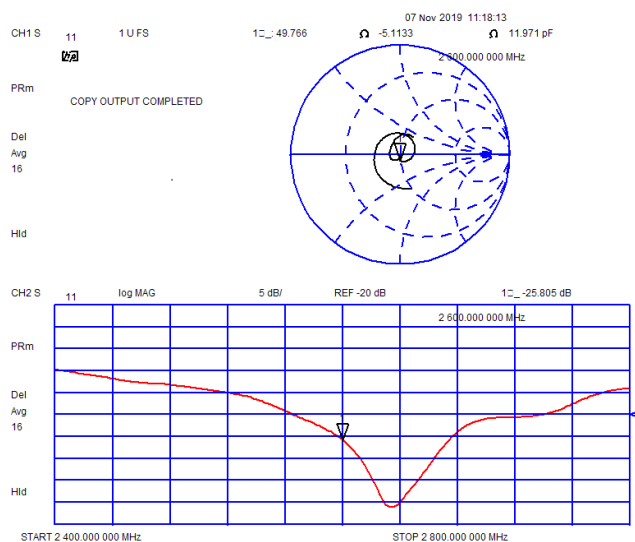
Reviewed By: *Winner Zhang* (Winner Zhang, Technical manager)

Environment of Test Site

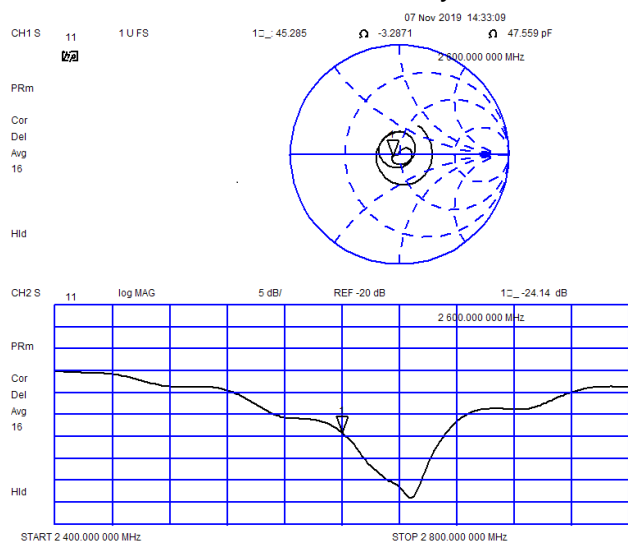
Temperature:	18 ~ 25°C
Humidity:	50~60% RH
Atmospheric Pressure:	1011 mbar

Test Data

Measurement Plot for Head TSL In 2019



Measurement Plot for Body TSL In 2019



Comparison with Original report

Items	TTL	Calibrated By CCIS In 2019	Deviation	Limit
Impedence for Head TSL	49.44 Ω -5.08j Ω	49.78 Ω -5.11j Ω	0.34 Ω -0.03j Ω	$\pm 5\Omega$
Return Loss for Head TSL	-25.78dB	-25.81dB	-0.12%	$\pm 20\%$ (No less than 20 dB)
Impedence for Body TSL	46.72 Ω -5.55j Ω	45.29 Ω -3.29j Ω	-1.43 Ω +2.26j Ω	$\pm 5\Omega$
Return Loss for Body TSL	-23.54dB	-24.14dB	-2.55%	$\pm 20\%$ (No less than 20 dB)

Result

Compliance

Calibration information for DAE



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CNAS L0570

Client : **CCIS**

Certificate No: **Z20-60270**

CALIBRATION CERTIFICATE

Object: DAE4 - SN: 1373

Calibration Procedure(s): FF-Z11-002-01
Calibration Procedure for the Data Acquisition Electronics (DAEx)

Calibration date: July 27, 2020

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(Calibrated by, Certificate No.)	Scheduled Calibration
Process Calibrator 753	1971018	16-Jun-20 (CTTL, No.J20X04342)	Jun-21

	Name	Function	Signature
Calibrated by:	Yu Zongying	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: July 29, 2020

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Certificate No: Z20-60270

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Glossary:

DAE data acquisition electronics
 Connector angle information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters:

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle:* The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The report provide only calibration results for DAE, it does not contain other performance test results.



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DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1 μ V, full range = -100...+300 mV
Low Range: 1LSB = 61nV, full range = -1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	403.934 \pm 0.15% (k=2)	403.899 \pm 0.15% (k=2)	404.192 \pm 0.15% (k=2)
Low Range	3.98735 \pm 0.7% (k=2)	4.00822 \pm 0.7% (k=2)	4.01196 \pm 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	346.5° \pm 1 °
---	------------------

-----End of report-----