

NCC SAR TEST REPORT

Equipment : Mobile Cellular Phone
Brand Name : Motorola
Model Name : XT2173-2
Applicant : Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA
Manufacturer : Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA
CNS 14959:2005
STANDARD : CNS 14958-1:2005
IEC 62209-1:2016

The product was received on Aug. 02, 2021 and testing was started from Aug. 24, 2021 and completed on Sep. 17, 2021. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.



Approved by: Cona Huang / Deputy Manager



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Table of Contents

1	Statement of Compliance	4
2	Guidance Standard	4
3	Device Category and SAR Limits.....	4
4	General Information	5
4.1	Description of Device Under Test (DUT)	5
5	Specific Absorption Rate (SAR).....	6
5.1	Introduction.....	6
5.2	SAR Definition	6
6	SAR Measurement System.....	7
6.1	Test Site Location	7
7	Measurement Procedures	8
7.1	Spatial Peak SAR Evaluation	8
7.2	Area & Zoom Scan Procedures	9
7.3	SAR Averaged Methods	9
7.4	Power Drift Monitoring	9
8	Test Equipment List.....	10
9	System Verification.....	11
9.1	Tissue Verification.....	11
9.2	System Performance Check Results	12
10	RF Exposure Position	13
10.1	Definition of the cheek position	14
10.2	Definition of the tilt position.....	15
11	GSM/UMTS/LTE Conducted Power (Unit: dBm)	16
12	SAR Test Result	26
13	Uncertainty Assessment	29
14	References.....	31

Appendix A. Plots of System Performance Check

Appendix B. Plots of SAR Measurement

Appendix C. Test Setup Photos



History of this test report

Report No.	Version	Description	Issued Date
TA170932-011	Rev. 01	Initial issue of report	Sep. 28, 2021

1 Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Motorola Mobility LLC Mobile Cellular Phone Motorola XT2173-2** are as follows.

Frequency Band		Highest SAR Summary
		Head (Separation 0mm)
		10g SAR (W/kg)
GSM	GSM900	0.28
WCDMA	WCDMA I	0.13
	WCDMA VIII	0.38
LTE	LTE Band 1	0.10
	LTE Band 3	0.16
	LTE Band 7	0.10
	LTE Band 8	0.37
	LTE Band 28	0.22
	LTE Band 38	0.09
	LTE Band 41	0.08
Date of Testing:		2021/8/24 ~ 2021/9/17

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (2.0 W/kg) specified in CNS 14959:2005, and had been tested in accordance with the measurement methods and procedures specified in CNS 14958-1:2005.

Reviewed by: Jason Wang
Report Producer: Daisy Peng

2 Guidance Standard

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

- CNS 14959:2005
- CNS 14958-1:2005
- IEC 62209-1:2016

3 Device Category and SAR Limits

This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user. Limit for General Population/Uncontrolled exposure should be applied for this device, it is 2.0 W/kg as averaged over any 10 gram of tissue.

4 General Information

4.1 Description of Device Under Test (DUT)

Product Feature & Specification	
DUT Type	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2173-2
Wireless Technology and Frequency Range	GSM900 : 890 MHz ~ 915 MHz WCDMA Band I : 1920 MHz -1980 MHz WCDMA Band VIII : 885 MHz -915 MHz LTE Band 1: 1920 MHz~1980 MHz LTE Band 3: 1710 MHz~1785 MHz LTE Band 7: 2500 MHz~2570 MHz LTE Band 8: 885 MHz~915 MHz LTE Band 28: 703 MHz~748 MHz LTE Band 38: 2570 MHz~2620 MHz LTE Band 41: 2500 MHz ~ 2690 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+ LTE: QPSK, 16QAM, 64QAM
HW Version	DVT2
DUT Stage	Identical Prototype
Remark: 1. The detail internal, external and transmit antenna photo please refer to Sporton report no.: EP170932-01 2. There are four samples of device, the difference which can be referred to Product Equality Declaration. Selected sample 1 as the main testing and sample 2/3/4 will verified worst case found in sample 1	

Accessories Information					
Accessories or 2nd Source or Key Part	AC Adapter 1	Brand Name	Motorola (Salcomp)	Model Name	MC-101
	AC Adapter 2	Brand Name	Motorola (Aohai)	Model Name	MC-101
	Battery 1	Brand Name	Motorola (Sunwoda)	Model Name	JK50
	Battery 2	Brand Name	Motorola (ATL)	Model Name	JK50
	Battery 3	Brand Name	Motorola (SCUD)	Model Name	JK50
	Earphone	Brand Name	Motorola (NEW LEADER)	Model Name	MH202
	USB Cable 1	Brand Name	Motorola (Saibao)	Model Name	5269AA000185
	USB Cable 2	Brand Name	Motorola (Jieye)	Model Name	5269AA000189

Antenna Information			
Brand Name	WTT	Peak Gain	GSM900: -1.8dBi WCDMA Band I: 1.8dBi WCDMA Band VIII: -1.8dBi LTE Band 1: 1.8dBi LTE Band 3: -0.3dBi LTE Band 7: 0.18dBi LTE Band 8: -1.8dBi LTE Band 28: -1.9dBi LTE Band 38: -0.43dBi LTE Band 41: 0.23dBi
Model Name	M322-MAIN-WTT	Type	Loop Antenna

5 Specific Absorption Rate (SAR)

5.1 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.

5.2 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:

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

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

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

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

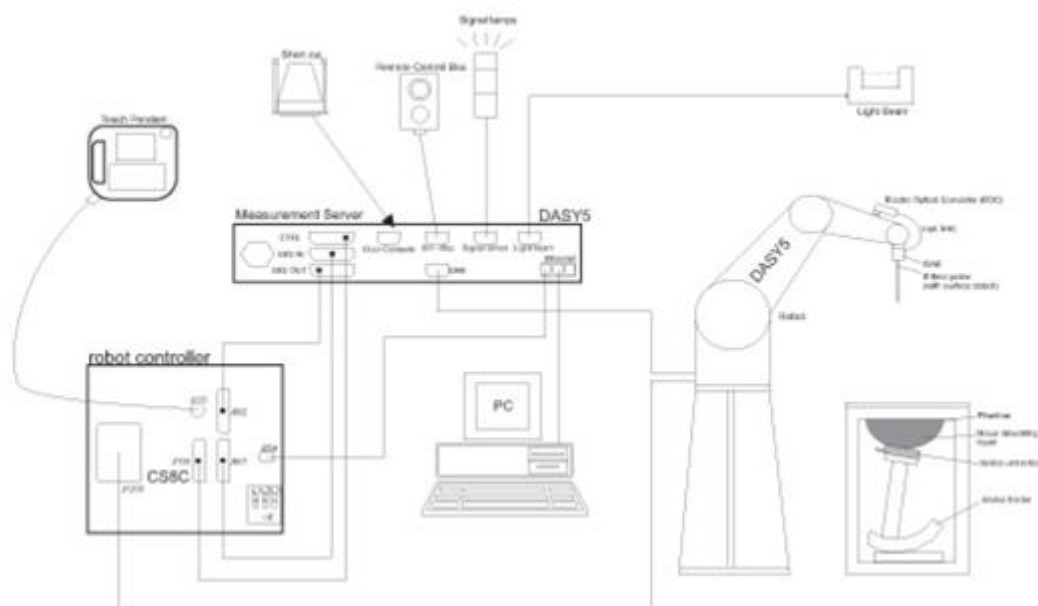
Where: C is the specific heat capacity, δT is the temperature rise and δt is the exposure duration, or related to the electrical field in the tissue by

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

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

6 SAR Measurement System

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



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

6.1 Test Site Location

The SAR measurement facilities used to collect data are within both Sporton Lab list below test site location are accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190 and 3786).

Test Site	EMC & Wireless Communications Laboratory		Wensan Laboratory		
Test Site Location	TW1190 No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan		TW3786 No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan		
Test Site No.	SAR01-HY	SAR03-HY	SAR08-HY	SAR09-HY	SAR15-HY
	SAR04-HY	SAR05-HY	SAR11-HY	SAR12-HY	
	SAR06-HY	SAR10-HY	SAR13-HY	SAR14-HY	

7 Measurement Procedures

The measurement procedures are as follows:

- (a) Link DUT with base station emulator in middle channel
- (b) Set base station emulator to allow DUT to radiate maximum output power
- (c) Measure output power through RF cable and power meter
- (d) Place the DUT in the positions described in the last section
- (e) Set scan area, grid size and other setting on the DASY software
- (f) Taking data for the middle channel on each testing position
- (g) Find out the largest SAR result on these testing positions of each band
- (h) Measure SAR results for the lowest and highest channels in worst SAR testing position

According to the CNS 14958-1 standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

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

7.1 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the CNS 14958-1 standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

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

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

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

7.2 Area & Zoom Scan Procedures

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan measures 5x5x7 points with step size 8, 8 and 5 mm for 300 MHz to 3 GHz. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g.

7.3 SAR Averaged Methods

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

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

7.4 Power Drift Monitoring

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

8 Test Equipment List

Brand name	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit ⁽²⁾	D750V3	1107	Mar. 08, 2019	Mar. 05, 2022
SPEAG	900MHz System Validation Kit ⁽²⁾	D900V2	1d165	Mar. 08, 2019	Mar. 05, 2022
SPEAG	1800MHz System Validation Kit ⁽²⁾	D1800V2	2d076	Sep. 12, 2018	Sep. 09, 2021
SPEAG	1800MHz System Validation Kit ⁽²⁾	D1800V2	2d220	Jul. 12, 2021	Jul. 09, 2024
SPEAG	2000MHz System Validation Kit ⁽²⁾	D2000V2	1010	Sep. 11, 2018	Sep. 08, 2021
SPEAG	2000MHz System Validation Kit ⁽²⁾	D2000V2	1070	Mar. 14, 2019	Mar. 11, 2022
SPEAG	2600MHz System Validation Kit ⁽²⁾	D2600V2	1078	Mar. 06, 2019	Mar. 03, 2022
SPEAG	Data Acquisition Electronics	DAE3	393	Apr. 09, 2021	Apr. 08, 2022
SPEAG	Data Acquisition Electronics	DAE4	853	Jul. 14, 2021	Jul. 13, 2022
SPEAG	Dosimetric E-Field Probe	ES3DV3	3169	May. 28, 2021	May. 27, 2022
SPEAG	Dosimetric E-Field Probe	ES3DV3	3270	Sep. 23, 2020	Sep. 22, 2021
RCPTWN	Thermometer	HTC-1	TM685-1	Nov. 10, 2020	Nov. 09, 2021
RCPTWN	Thermometer	HTC-1	TM560-2	Nov. 10, 2020	Nov. 09, 2021
Anritsu	Radio Communication Analyzer	MT8821C	6201341950	Nov. 10, 2020	Nov. 09, 2021
Keysight	Wireless Communication Test Set	E5515C	MY50267236	Mar. 21, 2021	Mar. 20, 2022
SPEAG	Device Holder	N/A	N/A	N/A	N/A
Anritsu	Signal Generator	MG3710A	6201502524	Nov. 11, 2020	Nov. 10, 2021
Keysight	ENA Network Analyzer	E5071C	MY46316648	Jul. 22, 2021	Jul. 21, 2022
SPEAG	Dielectric Probe Kit	DAK-3.5	1146	Jul. 14, 2021	Jul. 13, 2022
LINE SEIKI	Digital Thermometer	DTM3000-spezial	2942	Nov. 06, 2020	Nov. 05, 2021
Anritsu	Power Meter	ML2495A	2119003	Jun. 09, 2021	Jun. 08, 2022
Anritsu	Power Sensor	MA2411B	1911334	Jun. 01, 2021	May. 31, 2022
Anritsu	Power Meter	ML2495A	1804003	Oct. 21, 2020	Oct. 20, 2021
Anritsu	Power Sensor	MA2411B	1726150	Oct. 21, 2020	Oct. 20, 2021
Anritsu	Spectrum Analyzer	MS2830A	6201396378	Jul. 16, 2021	Jul. 15, 2022
Anritsu	Spectrum Analyzer	N9010A	MY53470118	Jan. 15, 2021	Jan. 14, 2022
Mini-Circuits	Power Amplifier	ZVE-8G+	6418	Oct. 21, 2020	Oct. 20, 2021
Mini-Circuits	Power Amplifier	ZHL-42W+	715701915	May. 11, 2021	May. 10, 2022
ATM	Dual Directional Coupler	C122H-10	P610410z-02	Note 1	
Woken	Attenuator 1	WK0602-XX	N/A	Note 1	
PE	Attenuator 2	PE7005-10	N/A	Note 1	
PE	Attenuator 3	PE7005- 3	N/A	Note 1	

General Note:

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.
2. The dipole calibration interval can be extended to 3 years with justification according to KDB 865664 D01. The dipoles are also not physically damaged, or repaired during the interval. The justification data in appendix C can be found which the return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration for each dipole.

9 System Verification

9.1 Tissue Verification

The tissue dielectric parameters of tissue-equivalent media used for SAR measurements must be characterized within a temperature range of 18°C to 25°C, measured with calibrated instruments and apparatuses, such as network analyzers and temperature probes. The temperature of the tissue-equivalent medium during SAR measurement must also be within 18°C to 25°C and within $\pm 2^\circ\text{C}$ of the temperature when the tissue parameters are characterized. The tissue dielectric measurement system must be calibrated before use. The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements.

The liquid tissue depth was at least 15cm in the phantom for all SAR testing

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Liquid Temp. (°C)	Conductivity (σ)	Permittivity (ϵ_r)	Conductivity Target (σ)	Permittivity Target (ϵ_r)	Delta (σ) (%)	Delta (ϵ_r) (%)	Limit (%)	Date
750	22.3	0.885	41.732	0.89	41.90	-0.56	-0.40	± 5	2021/8/24
750	22.5	0.898	42.908	0.89	41.90	0.90	2.41	± 5	2021/9/17
900	22.3	0.942	41.079	0.97	41.50	-2.89	-1.01	± 5	2021/8/24
900	22.5	0.951	41.271	0.97	41.50	-1.96	-0.55	± 5	2021/9/17
1800	22.3	1.399	40.219	1.40	40.00	-0.07	0.55	± 5	2021/8/24
1800	22.5	1.400	40.023	1.40	40.00	0.00	0.06	± 5	2021/9/17
2000	22.3	1.416	39.014	1.40	40.00	1.14	-2.46	± 5	2021/8/24
2000	22.5	1.438	40.581	1.40	40.00	2.71	1.45	± 5	2021/9/17
2600	22.3	1.923	38.425	1.96	39.00	-1.89	-1.47	± 5	2021/8/25
2600	22.5	2.006	38.438	1.96	39.00	2.35	-1.44	± 5	2021/9/17

9.2 System Performance Check 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 below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

Test Site	Date	Frequency (MHz)	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
SAR01-HY	2021/8/24	750	250	D750V3-1107	ES3DV3 - SN3270	DAE4 Sn853	1.46	5.61	5.84	4.10
SAR05-HY	2021/9/17	750	250	D750V3-1107	ES3DV3 - SN3169	DAE3 Sn393	1.36	5.61	5.44	-3.03
SAR01-HY	2021/8/24	900	250	D900V2-1d165	ES3DV3 - SN3270	DAE4 Sn853	1.65	7.03	6.6	-6.12
SAR05-HY	2021/9/17	900	50	D900V2-1d165	ES3DV3 - SN3169	DAE3 Sn393	0.317	7.03	6.34	-9.82
SAR01-HY	2021/8/24	1800	250	D1800V2-2d076	ES3DV3 - SN3270	DAE4 Sn853	4.73	20.50	18.92	-7.71
SAR05-HY	2021/9/17	1800	250	D1800V2-2d220	ES3DV3 - SN3169	DAE3 Sn393	4.81	20.00	19.24	-3.80
SAR01-HY	2021/8/24	2000	250	D2000V2-1010	ES3DV3 - SN3270	DAE4 Sn853	4.73	20.70	18.92	-8.60
SAR05-HY	2021/9/17	2000	250	D2000V2-1070	ES3DV3 - SN3169	DAE3 Sn393	4.85	20.80	19.4	-6.73
SAR01-HY	2021/8/25	2600	250	D2600V2-1078	ES3DV3 - SN3270	DAE4 Sn853	6.73	25.50	26.92	5.57
SAR05-HY	2021/9/17	2600	250	D2600V2-1078	ES3DV3 - SN3169	DAE3 Sn393	6.81	25.50	27.24	6.82

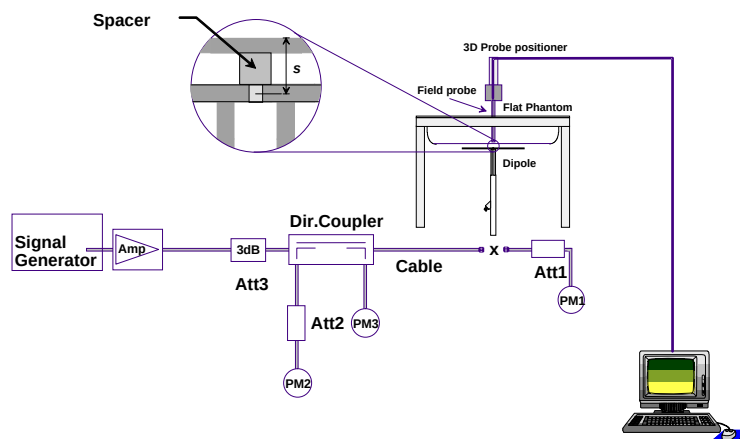


Fig 10.2.1 System Performance Check Setup



Fig 10.2.2 Setup Photo

10 RF Exposure Position

Figure 11.1.1 shows the front, back, and side views of the SAM phantom. The center-of-mouth reference point is labeled "M," the left ear reference point (ERP) is marked "LE," and the right ERP is marked "RE." Each ERP is 15 mm along the B-M (back-mouth) line behind the entrance-to-ear-canal (EEC) point, as shown in Figure 11.1.2 The Reference Plane is defined as passing through the two ear reference points and point M. The line N-F (neck-front), also called the reference pivoting line, is normal to the Reference Plane and perpendicular to both a line passing through RE and LE and the B-M line (see Figure 11.1.3). Both N-F and B-M lines should be marked on the exterior of the phantom shell to facilitate handset positioning. Posterior to the N-F line the ear shape is a flat surface with 6 mm thickness at each ERP, and forward of the N-F line the ear is truncated, as illustrated in Figure 11.1.2. The ear truncation is introduced to preclude the ear lobe from interfering with handset tilt, which could lead to unstable positioning at the cheek.

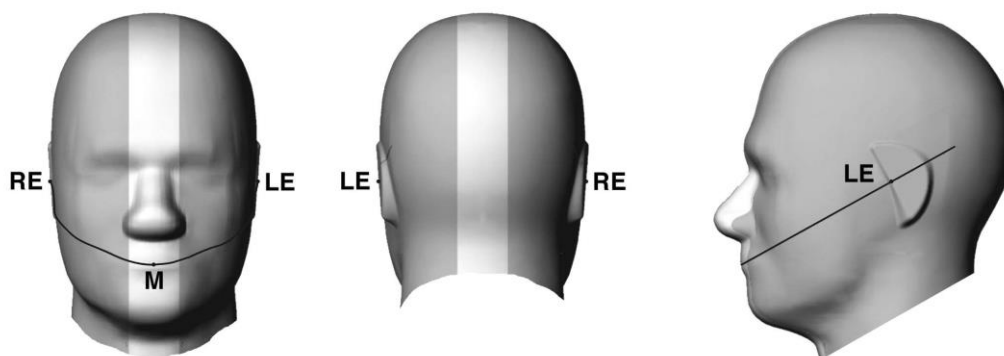


Fig 11.1.1 Front, back, and side views of SAM twin phantom

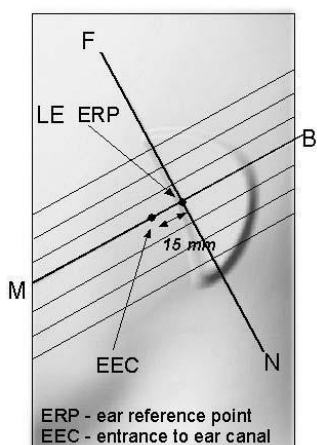


Fig 11.1.2 Close-up side view of phantom showing the ear region.

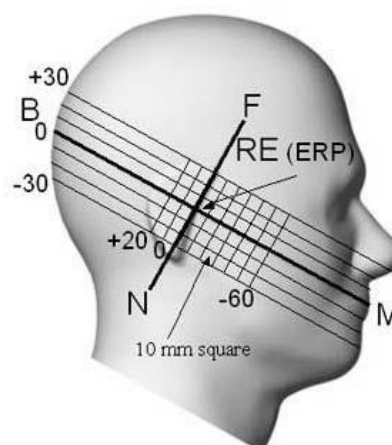


Fig 11.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

10.1 Definition of the cheek position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. Define two imaginary lines on the handset—the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset—the midpoint of the width w_t of the handset at the level of the acoustic output (point A in Figure 11.2.1 and Figure 11.2.2), and the midpoint of the width w_b of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 11.2.1). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 11.2.2), especially for clamshell handsets, handsets with flip covers, and other irregularly-shaped handsets.
3. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 11.2.3), such that the plane defined by the vertical centerline and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.
4. Translate the handset towards the phantom along the line passing through RE and LE until handset point A touches the pinna at the ERP.
5. While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to the plane containing B-M and N-F lines, i.e., the Reference Plane.
6. Rotate the handset around the vertical centerline until the handset (horizontal line) is parallel to the N-F line.
7. While maintaining the vertical centerline in the Reference Plane, keeping point A on the line passing through RE and LE, and maintaining the handset contact with the pinna, rotate the handset about the N-F line until any point on the handset is in contact with a phantom point below the pinna on the cheek. See Figure 11.2.3. The actual rotation angles should be documented in the test report.

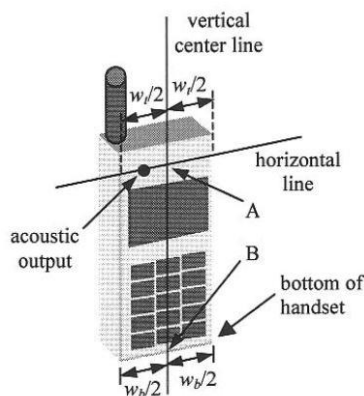


Fig 11.2.1 Handset vertical and horizontal reference lines—“fixed case”

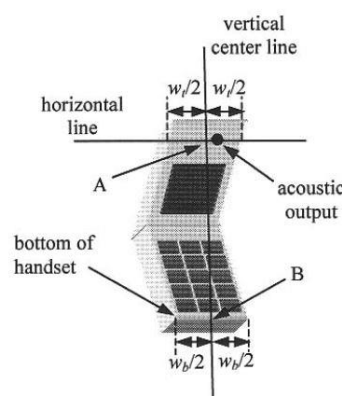


Fig 11.2.2 Handset vertical and horizontal reference lines—“clam-shell case”

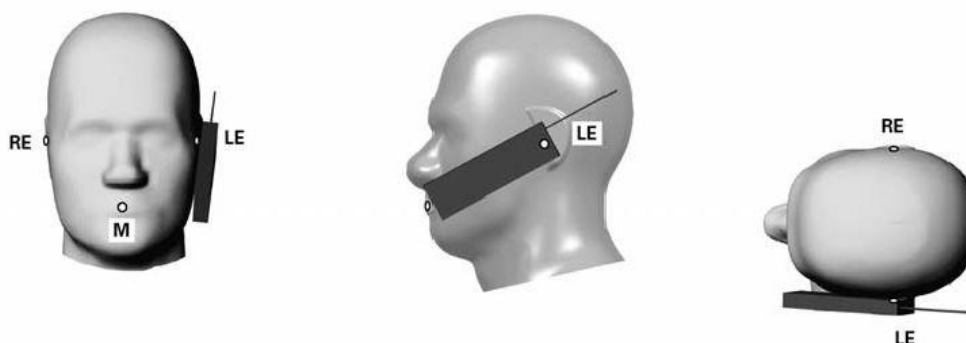


Fig 11.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

10.2 Definition of the tilt position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. While maintaining the orientation of the handset, move the handset away from the pinna along the line passing through RE and LE far enough to allow a rotation of the handset away from the cheek by 15°.
3. Rotate the handset around the horizontal line by 15°.
4. While maintaining the orientation of the handset, move the handset towards the phantom on the line passing through RE and LE until any part of the handset touches the ear. The tilt position is obtained when the contact point is on the pinna. See below figure 11.3.1. If contact occurs at any location other than the pinna, e.g., the antenna at the back of the phantom head, the angle of the handset should be reduced. In this case, the tilt position is obtained if any point on the handset is in contact with the pinna and a second point

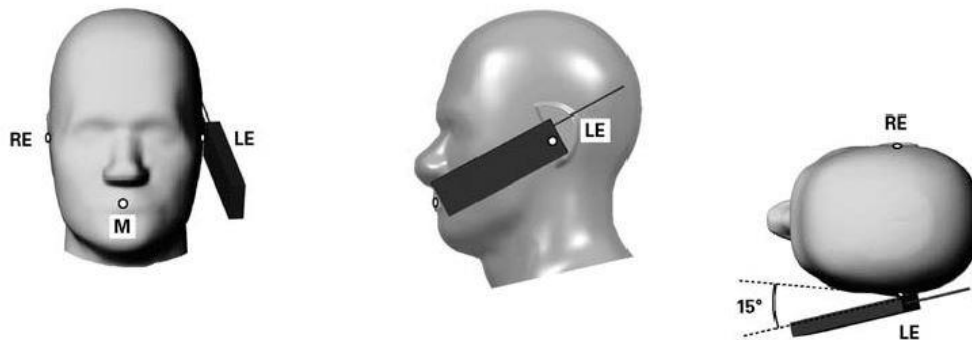


Fig 11.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

11 GSM/UMTS/LTE Conducted Power (Unit: dBm)

<GSM Power>

GSM900	Burst Average Power (dBm)			Frame-Average Power (dBm)		
TX Channel	1	37	124	1	37	124
Frequency (MHz)	890.2	897.4	914.8	890.2	897.4	914.8
GSM 1 Tx slot	32.82	32.85	32.92	23.82	23.85	23.92
GPRS 1 Tx slot	32.77	32.84	32.91	23.77	23.84	23.91
GPRS 2 Tx slots	31.60	31.67	31.78	25.60	25.67	25.78
GPRS 3 Tx slots	29.69	29.81	29.92	25.43	25.55	25.66
GPRS 4 Tx slots	27.56	27.61	27.65	24.56	24.61	24.65
EDGE 1 Tx slot	27.44	27.54	27.61	18.44	18.54	18.61
EDGE 2 Tx slots	25.76	25.94	25.98	19.76	19.94	19.98
EDGE 3 Tx slots	24.13	24.16	24.36	19.87	19.90	20.10
EDGE 4 Tx slots	22.38	22.44	22.55	19.38	19.44	19.55

<WCDMA Power>

Band		WCDMA B1			WCDMA B8		
TX Channel		9612	9750	9888	2737	2800	2863
Rx Channel		10562	10700	10838	2962	3025	3088
Frequency (MHz)		1922.4	1950	1977.6	887.4	900	912.6
3GPP Rel 99	AMR 12.2Kbps	22.64	22.65	22.54	22.61	22.62	22.54
3GPP Rel 99	RMC 12.2Kbps	22.66	22.67	22.57	22.62	22.64	22.59
3GPP Rel 6	HSDPA Subtest-1	22.06	21.87	21.94	21.95	22.02	22.22
3GPP Rel 6	HSDPA Subtest-2	22.03	21.92	21.87	21.84	22.08	22.15
3GPP Rel 6	HSDPA Subtest-3	21.60	21.51	21.56	21.64	21.68	21.72
3GPP Rel 6	HSDPA Subtest-4	21.56	21.57	21.62	21.60	21.64	21.56
3GPP Rel 8	DC-HSDPA Subtest-1	22.00	21.87	21.80	21.83	21.98	22.10
3GPP Rel 8	DC-HSDPA Subtest-2	21.88	21.80	21.74	21.73	22.07	22.02
3GPP Rel 8	DC-HSDPA Subtest-3	21.48	21.39	21.51	21.60	21.60	21.63
3GPP Rel 8	DC-HSDPA Subtest-4	21.53	21.45	21.53	21.42	21.61	21.50
3GPP Rel 6	HSUPA Subtest-1	21.69	21.74	21.64	21.76	21.74	21.79
3GPP Rel 6	HSUPA Subtest-2	19.54	19.46	19.43	20.18	20.19	20.33
3GPP Rel 6	HSUPA Subtest-3	20.57	20.46	20.41	21.12	21.06	21.16
3GPP Rel 6	HSUPA Subtest-4	19.03	19.11	19.13	20.05	19.84	19.89
3GPP Rel 6	HSUPA Subtest-5	21.50	21.40	21.30	21.59	21.72	21.62
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	19.20	19.13	19.22	19.06	19.16	19.11

<LTE Output Power>
Note:

Choose the highest output power among all configurations of bandwidths, RBs, modulations to test SAR at middle channel and determine the worst configuration for further high/low channel test.

<LTE Band 1>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.
Channel				18100	18300	18500
Frequency (MHz)				1930	1950	1970
20	QPSK	1	0	22.52	22.78	22.56
20	QPSK	1	99	22.32	22.36	22.32
20	QPSK	18	0	22.66	22.43	22.45
20	QPSK	18	82	22.47	22.36	22.43
20	16QAM	1	0	21.68	21.79	21.85
20	16QAM	1	99	21.52	21.53	21.94
20	16QAM	18	0	21.63	21.50	21.41
20	16QAM	18	82	21.39	21.42	21.59
20	64QAM	1	0	20.47	20.60	20.13
20	64QAM	1	99	20.53	20.57	20.31
20	64QAM	18	0	20.58	20.51	20.31
20	64QAM	18	82	20.53	20.34	20.32
Channel				18050	18300	18550
Frequency (MHz)				1925	1950	1975
10	QPSK	1	0	22.75	22.56	22.49
10	QPSK	1	49	22.60	22.48	22.47
10	QPSK	12	0	22.68	22.63	22.52
10	QPSK	12	38	22.71	22.61	22.54
10	16QAM	1	0	21.48	21.66	21.59
10	16QAM	1	49	21.69	21.66	21.68
10	16QAM	12	0	21.91	21.61	21.70
10	16QAM	12	38	21.67	21.58	21.60
10	64QAM	1	0	20.66	20.63	20.63
10	64QAM	1	49	20.86	20.71	20.66
10	64QAM	12	0	20.77	20.53	20.54
10	64QAM	12	38	20.66	20.55	20.48
Channel				18025	18300	18575
Frequency (MHz)				1922.5	1950	1977.5
5	QPSK	1	0	22.76	22.57	22.44
5	QPSK	1	24	22.63	22.49	22.47
5	QPSK	8	0	22.71	22.56	22.48
5	QPSK	8	17	22.67	22.52	22.49
5	16QAM	1	0	21.66	21.59	21.41
5	16QAM	1	24	21.87	21.81	21.69
5	16QAM	8	0	21.93	21.69	21.73
5	16QAM	8	17	21.80	21.65	21.70
5	64QAM	1	0	20.48	20.44	20.60
5	64QAM	1	24	20.80	20.62	20.64
5	64QAM	8	0	20.74	20.50	20.50
5	64QAM	8	17	20.78	20.61	20.61

**<LTE Band 3>**

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.
Channel				19300	19575	19850
Frequency (MHz)				1720	1747.5	1775
20	QPSK	1	0	22.61	22.78	22.69
20	QPSK	1	99	22.65	22.50	22.43
20	QPSK	18	0	22.66	22.75	22.77
20	QPSK	18	82	22.69	22.64	22.58
20	16QAM	1	0	21.55	21.78	21.88
20	16QAM	1	99	21.79	21.86	21.76
20	16QAM	18	0	21.70	21.69	21.59
20	16QAM	18	82	21.62	21.54	21.39
20	64QAM	1	0	20.89	20.79	20.75
20	64QAM	1	99	20.58	20.78	20.62
20	64QAM	18	0	20.79	20.84	20.69
20	64QAM	18	82	20.66	20.73	20.40
Channel				19250	19575	19900
Frequency (MHz)				1715	1747.5	1780
10	QPSK	1	0	22.75	22.74	22.63
10	QPSK	1	49	22.71	22.66	22.55
10	QPSK	12	0	22.68	22.59	22.68
10	QPSK	12	38	22.77	22.75	22.62
10	16QAM	1	0	21.86	21.86	21.78
10	16QAM	1	49	21.84	21.80	21.67
10	16QAM	12	0	21.61	21.62	21.52
10	16QAM	12	38	21.90	21.86	21.72
10	64QAM	1	0	20.62	20.88	20.83
10	64QAM	1	49	20.82	20.71	20.84
10	64QAM	12	0	20.91	20.89	20.80
10	64QAM	12	38	20.89	20.85	20.71
Channel				19225	19575	19925
Frequency (MHz)				1712.5	1747.5	1782.5
5	QPSK	1	0	22.75	22.63	22.64
5	QPSK	1	24	22.76	22.73	22.61
5	QPSK	8	0	22.63	22.70	22.73
5	QPSK	8	17	22.76	22.69	22.69
5	16QAM	1	0	21.83	21.76	21.69
5	16QAM	1	24	21.79	21.73	21.62
5	16QAM	8	0	21.63	21.61	21.53
5	16QAM	8	17	21.96	21.88	21.76
5	64QAM	1	0	20.84	20.79	20.85
5	64QAM	1	24	20.68	20.92	20.85
5	64QAM	8	0	20.89	20.84	20.78
5	64QAM	8	17	20.91	20.84	20.72
Channel				19207	19575	19943
Frequency (MHz)				1710.7	1747.5	1784.3
1.4	QPSK	1	0	22.62	22.57	22.51
1.4	QPSK	1	5	22.62	22.55	22.49
1.4	QPSK	5	0	22.70	22.66	22.59
1.4	QPSK	5	1	22.71	22.68	22.61
1.4	16QAM	1	0	21.71	21.69	21.62
1.4	16QAM	1	5	21.74	21.66	21.59
1.4	16QAM	5	0	21.59	21.53	21.47
1.4	16QAM	5	1	21.60	21.55	21.49
1.4	64QAM	1	0	20.66	20.78	20.63
1.4	64QAM	1	5	20.87	20.64	20.59
1.4	64QAM	5	0	20.68	20.58	20.36
1.4	64QAM	5	1	20.74	20.68	20.56

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.
Channel				20850	21100	21350
Frequency (MHz)				2510	2535	2560
20	QPSK	1	0	22.48	22.67	22.49
20	QPSK	1	99	22.59	22.55	22.51
20	QPSK	18	0	22.66	22.56	22.63
20	QPSK	18	82	22.41	22.49	22.57
20	16QAM	1	0	21.81	21.77	21.80
20	16QAM	1	99	21.68	21.86	21.83
20	16QAM	18	0	21.69	21.59	21.64
20	16QAM	18	82	21.82	21.71	21.78
20	64QAM	1	0	20.72	20.62	20.68
20	64QAM	1	99	20.79	20.72	20.82
20	64QAM	18	0	20.60	20.54	20.58
20	64QAM	18	82	20.67	20.62	20.70
Channel				20800	21100	21400
Frequency (MHz)				2505	2535	2565
10	QPSK	1	0	22.49	22.45	22.50
10	QPSK	1	49	22.55	22.53	22.60
10	QPSK	12	0	22.60	22.51	22.61
10	QPSK	12	38	22.62	22.59	22.58
10	16QAM	1	0	21.78	21.78	21.79
10	16QAM	1	49	21.86	21.83	21.86
10	16QAM	12	0	21.57	21.48	21.58
10	16QAM	12	38	21.62	21.58	21.63
10	64QAM	1	0	20.68	20.61	20.71
10	64QAM	1	49	20.73	20.70	20.70
10	64QAM	12	0	20.55	20.47	20.58
10	64QAM	12	38	20.59	20.53	20.62
Channel				20775	21100	21425
Frequency (MHz)				2502.5	2535	2567.5
5	QPSK	1	0	22.63	22.59	22.65
5	QPSK	1	24	22.61	22.59	22.51
5	QPSK	8	0	22.49	22.51	22.58
5	QPSK	8	17	22.47	22.58	22.61
5	16QAM	1	0	21.74	21.70	21.78
5	16QAM	1	24	21.78	21.73	21.81
5	16QAM	8	0	21.77	21.73	21.81
5	16QAM	8	17	21.80	21.76	21.85
5	64QAM	1	0	20.80	20.74	20.80
5	64QAM	1	24	20.87	20.78	20.87
5	64QAM	8	0	20.75	20.67	20.77
5	64QAM	8	17	20.79	20.70	20.80

<LTE Band 8>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.
Channel				21550	21650	21750
Frequency (MHz)				890	900	910
10	QPSK	1	0	23.20	23.42	23.29
10	QPSK	1	49	23.20	23.15	23.36
10	QPSK	12	0	23.29	23.26	23.40
10	QPSK	12	38	23.22	23.22	23.40
10	16QAM	1	0	22.45	22.58	22.63
10	16QAM	1	49	22.59	22.53	22.71
10	16QAM	12	0	22.30	22.25	22.45
10	16QAM	12	38	22.26	22.35	22.43
10	64QAM	1	0	21.44	21.37	21.50
10	64QAM	1	49	21.34	21.47	21.58
10	64QAM	12	0	21.25	21.27	21.44
10	64QAM	12	38	21.25	21.29	21.42
Channel				21525	21650	21775
Frequency (MHz)				887.5	900	912.5
5	QPSK	1	0	23.26	23.36	23.26
5	QPSK	1	24	23.26	23.12	23.26
5	QPSK	8	0	23.24	23.29	23.38
5	QPSK	8	17	23.22	23.24	23.32
5	16QAM	1	0	22.47	22.49	22.64
5	16QAM	1	24	22.50	22.49	22.60
5	16QAM	8	0	22.26	22.23	22.52
5	16QAM	8	17	22.25	22.34	22.44
5	64QAM	1	0	21.44	21.32	21.47
5	64QAM	1	24	21.37	21.47	21.53
5	64QAM	8	0	21.30	21.23	21.44
5	64QAM	8	17	21.15	21.23	21.41
Channel				21507	21650	21793
Frequency (MHz)				885.7	900	914.3
1.4	QPSK	1	0	23.24	23.40	23.32
1.4	QPSK	1	5	23.23	23.18	23.32
1.4	QPSK	5	0	23.28	23.28	23.31
1.4	QPSK	5	1	23.21	23.28	23.35
1.4	16QAM	1	0	22.45	22.49	22.62
1.4	16QAM	1	5	22.56	22.49	22.62
1.4	16QAM	5	0	22.25	22.21	22.52
1.4	16QAM	5	1	22.18	22.26	22.53
1.4	64QAM	1	0	21.46	21.42	21.53
1.4	64QAM	1	5	21.40	21.40	21.49
1.4	64QAM	5	0	21.26	21.24	21.42
1.4	64QAM	5	1	21.25	21.27	21.42



<LTE Band 28>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.
Channel				27310	27435	27560
Frequency (MHz)				713	725.5	738
20	QPSK	1	0	23.17	23.49	23.10
20	QPSK	1	99	23.38	23.18	23.29
20	QPSK	18	0	23.27	23.24	23.24
20	QPSK	18	82	23.32	23.39	23.36
20	16QAM	1	0	22.44	22.37	22.39
20	16QAM	1	99	22.67	22.58	22.56
20	16QAM	18	0	22.27	22.24	22.27
20	16QAM	18	82	22.50	22.42	22.41
20	64QAM	1	0	21.31	21.23	21.28
20	64QAM	1	99	21.59	21.39	21.46
20	64QAM	18	0	21.23	21.12	21.22
20	64QAM	18	82	21.44	21.33	21.33
Channel				27260	27435	27610
Frequency (MHz)				708	725.5	743
10	QPSK	1	0	23.34	23.44	23.25
10	QPSK	1	49	23.41	23.21	23.36
10	QPSK	12	0	23.42	23.20	23.34
10	QPSK	12	38	23.32	23.39	23.41
10	16QAM	1	0	22.59	22.28	22.50
10	16QAM	1	49	22.79	22.50	22.66
10	16QAM	12	0	22.37	22.27	22.32
10	16QAM	12	38	22.50	22.39	22.37
10	64QAM	1	0	21.48	21.30	21.42
10	64QAM	1	49	21.69	21.39	21.55
10	64QAM	12	0	21.37	21.16	21.29
10	64QAM	12	38	21.53	21.31	21.36
Channel				27235	27435	27635
Frequency (MHz)				705.5	725.5	745.5
5	QPSK	1	0	23.29	23.43	23.21
5	QPSK	1	24	23.36	23.19	23.27
5	QPSK	8	0	23.40	23.23	23.38
5	QPSK	8	17	23.47	23.40	23.32
5	16QAM	1	0	22.55	22.37	22.50
5	16QAM	1	24	22.61	22.56	22.54
5	16QAM	8	0	22.42	22.23	22.44
5	16QAM	8	17	22.50	22.40	22.37
5	64QAM	1	0	21.46	21.27	21.37
5	64QAM	1	24	21.49	21.38	21.41
5	64QAM	8	0	21.38	21.12	21.38
5	64QAM	8	17	21.45	21.35	21.33
Channel				27225	27435	27645
Frequency (MHz)				704.5	725.5	746.5
3	QPSK	1	0	23.44	23.44	23.38
3	QPSK	1	14	23.38	23.26	23.36
3	QPSK	4	0	23.43	23.27	23.36
3	QPSK	4	11	23.41	23.38	23.37
3	16QAM	1	0	22.64	22.34	22.62
3	16QAM	1	14	22.70	22.56	22.61
3	16QAM	4	0	22.47	22.28	22.43
3	16QAM	4	11	22.51	22.34	22.43
3	64QAM	1	0	21.52	21.23	21.56
3	64QAM	1	14	21.62	21.43	21.54
3	64QAM	4	0	21.42	21.16	21.37
3	64QAM	4	11	21.48	21.28	21.36

<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

SAR was tested with a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by 3GPP.

- 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations
- “special subframe S” contains both uplink and downlink transmissions, it has been taken into consideration to determine the transmission duty factor according to the worst case uplink and downlink cyclic prefix requirements for UpPTS

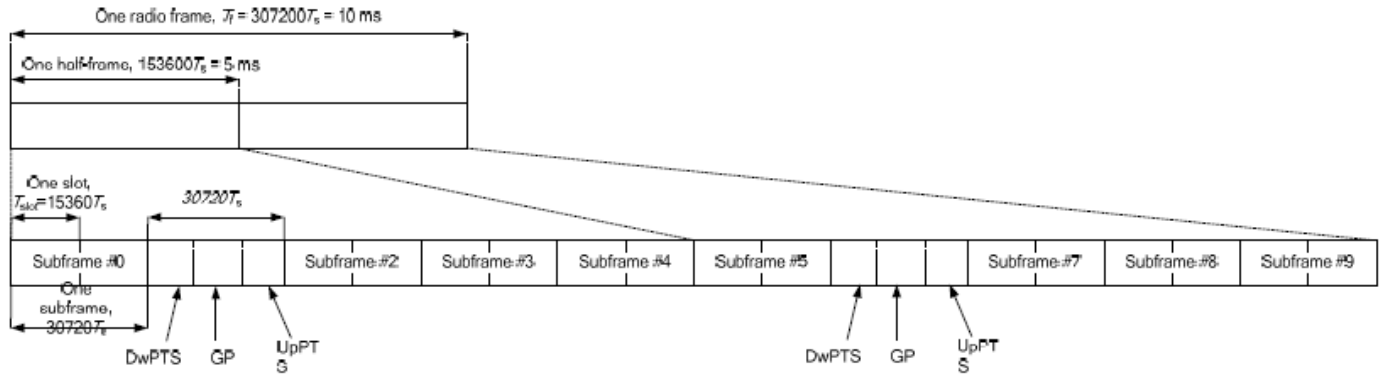


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$			$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	
9	$13168 \cdot T_s$			-	-	

Special subframe (30720·T _s): Normal cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
Uplink duty factor in one special subframe	0~4	7.13%	8.33%
	5~9	14.3%	16.7%

Special subframe(30720·T _s): Extended cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
Uplink duty factor in one special subframe	0~3	7.13%	8.33%
	4~7	14.3%	16.7%

The highest duty factor is resulted from:

- uplink-downlink configuration: 0. In a half-frame consisted of 5 subframes, uplink operation is in 3 uplink subframes and 1 special subframe.
- special subframe configuration: 5-9 for normal cyclic prefix in downlink, 4-7 for extended cyclic prefix in downlink
- for special subframe with extended cyclic prefix in uplink, the total uplink duty factor in one half-frame is:
 $(3+0.167)/5 = 63.3\%$
- for special subframe with normal cyclic prefix in uplink, the total uplink duty factor in one half-frame is:
 $(3+0.143)/5 = 62.9\%$
- For SAR measurement the duty cycle 1:1.59 (62.9 %) was used perform testing.
- Considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix $63.3\%/62.9\% = 1.006$ is applied to scale-up the measured SAR result. The scaled TDD LTE SAR = (measured SAR) * (scaling factor for extended cyclic prefix).

<LTE Band 38>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.
Channel				37850	38000	38150
Frequency (MHz)				2580	2595	2610
20	QPSK	1	0	22.55	22.71	22.59
20	QPSK	1	99	22.59	22.62	22.63
20	QPSK	18	0	22.67	22.64	22.65
20	QPSK	18	82	22.70	22.70	22.70
20	16QAM	1	0	21.65	21.64	21.66
20	16QAM	1	99	21.66	21.68	21.67
20	16QAM	18	0	21.55	21.57	21.56
20	16QAM	18	82	21.69	21.69	21.67
20	64QAM	1	0	20.40	20.38	20.41
20	64QAM	1	99	20.40	20.41	20.41
20	64QAM	18	0	20.64	20.63	20.63
20	64QAM	18	82	20.63	20.68	20.64
Channel				37800	38000	38200
Frequency (MHz)				2575	2595	2615
10	QPSK	1	0	22.57	22.47	22.49
10	QPSK	1	49	22.44	22.53	22.59
10	QPSK	12	0	22.53	22.58	22.56
10	QPSK	12	38	22.60	22.67	22.64
10	16QAM	1	0	21.83	21.82	21.83
10	16QAM	1	49	21.84	21.83	21.85
10	16QAM	12	0	21.81	21.76	21.77
10	16QAM	12	38	21.80	21.79	21.80
10	64QAM	1	0	20.56	20.55	20.54
10	64QAM	1	49	20.56	20.56	20.58
10	64QAM	12	0	20.79	20.75	20.75
10	64QAM	12	38	20.79	20.76	20.77
Channel				37775	38000	38225
Frequency (MHz)				2572.5	2595	2617.5
5	QPSK	1	0	22.65	22.68	22.58
5	QPSK	1	24	22.68	22.65	22.51
5	QPSK	8	0	22.49	22.47	22.60
5	QPSK	8	17	22.56	22.56	22.58
5	16QAM	1	0	21.76	21.79	21.81
5	16QAM	1	24	21.76	21.77	21.80
5	16QAM	8	0	21.75	21.73	21.79
5	16QAM	8	17	21.75	21.75	21.80
5	64QAM	1	0	20.49	20.50	20.53
5	64QAM	1	24	20.51	20.51	20.54
5	64QAM	8	0	20.81	20.80	20.83
5	64QAM	8	17	20.79	20.81	20.85

<LTE Band 41>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.
Channel				39790	40640	41490
Frequency (MHz)				2510	2595	2680
20	QPSK	1	0	22.66	22.81	22.70
20	QPSK	1	99	22.61	22.70	22.68
20	QPSK	18	0	22.66	22.56	22.77
20	QPSK	18	82	22.69	22.72	22.73
20	16QAM	1	0	21.67	21.78	21.76
20	16QAM	1	99	21.68	21.75	21.73
20	16QAM	18	0	21.56	21.69	21.69
20	16QAM	18	82	21.70	21.75	21.73
20	64QAM	1	0	20.41	20.54	20.50
20	64QAM	1	99	20.43	20.56	20.48
20	64QAM	18	0	20.72	20.82	20.78
20	64QAM	18	82	20.67	20.82	20.72
Channel				39740	40640	41540
Frequency (MHz)				2505	2595	2685
10	QPSK	1	0	22.63	22.74	22.49
10	QPSK	1	49	22.63	22.74	22.47
10	QPSK	12	0	22.71	22.57	22.59
10	QPSK	12	38	22.74	22.65	22.55
10	16QAM	1	0	21.66	21.74	21.95
10	16QAM	1	49	21.68	21.80	21.92
10	16QAM	12	0	21.56	21.65	21.92
10	16QAM	12	38	21.75	21.76	21.88
10	64QAM	1	0	20.43	20.48	20.68
10	64QAM	1	49	20.47	20.49	20.68
10	64QAM	12	0	20.64	20.75	20.90
10	64QAM	12	38	20.71	20.74	20.89
Channel				39715	40640	41565
Frequency (MHz)				2502.5	2595	2687.5
5	QPSK	1	0	22.61	22.80	22.66
5	QPSK	1	24	22.66	22.76	22.66
5	QPSK	8	0	22.66	22.55	22.80
5	QPSK	8	17	22.71	22.69	22.61
5	16QAM	1	0	21.75	21.74	21.85
5	16QAM	1	24	21.65	21.75	21.84
5	16QAM	8	0	21.65	21.68	21.84
5	16QAM	8	17	21.71	21.77	21.83
5	64QAM	1	0	20.49	20.55	20.59
5	64QAM	1	24	20.47	20.47	20.61
5	64QAM	8	0	20.69	20.75	20.89
5	64QAM	8	17	20.69	20.80	20.90

12 SAR Test Result

General Note:

1. For TDD LTE SAR measurement the duty cycle 1:1.59 (62.9 %) was used perform testing.
2. Considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix $63.3\%/62.9\% = 1.006$ is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = (measured SAR) * (scaling factor for extended cyclic prefix).

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Sample	Ch.	Freq. (MHz)	Power Drift (dB)	Measured 10g SAR (W/kg)
01	GSM900	GPRS (2 Tx slots)	Right Cheek	0mm	Sample 1	37	897.4	-0.07	0.280
	GSM900	GPRS (2 Tx slots)	Right Tilted	0mm	Sample 1	37	897.4	-0.09	0.144
	GSM900	GPRS (2 Tx slots)	Left Cheek	0mm	Sample 1	37	897.4	0.16	0.276
	GSM900	GPRS (2 Tx slots)	Left Tilted	0mm	Sample 1	37	897.4	-0.06	0.126
	GSM900	GPRS (2 Tx slots)	Right Cheek	0mm	Sample 1	1	890.2	-0.13	0.223
	GSM900	GPRS (2 Tx slots)	Right Cheek	0mm	Sample 1	124	914.8	-0.1	0.231
	GSM900	GPRS (2 Tx slots)	Right Cheek	0mm	Sample 2	37	897.4	0.05	0.208
	GSM900	GPRS (2 Tx slots)	Right Cheek	0mm	Sample 3	37	897.4	0.04	0.210
	GSM900	GPRS (2 Tx slots)	Right Cheek	0mm	Sample 4	37	897.4	0.16	0.171

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Sample	Ch.	Freq. (MHz)	Power Drift (dB)	Measured 10g SAR (W/kg)
	WCDMA I	RMC 12.2Kbps	Right Cheek	0mm	Sample 1	9750	1950	-0.19	0.107
	WCDMA I	RMC 12.2Kbps	Right Tilted	0mm	Sample 1	9750	1950	0.15	0.079
	WCDMA I	RMC 12.2Kbps	Left Cheek	0mm	Sample 1	9750	1950	-0.06	0.101
	WCDMA I	RMC 12.2Kbps	Left Tilted	0mm	Sample 1	9750	1950	-0.13	0.089
	WCDMA I	RMC 12.2Kbps	Right Cheek	0mm	Sample 1	9612	1922.4	0	0.087
02	WCDMA I	RMC 12.2Kbps	Right Cheek	0mm	Sample 1	9888	1977.6	0.05	0.129
	WCDMA I	RMC 12.2Kbps	Right Cheek	0mm	Sample 2	9888	1977.6	-0.04	0.113
	WCDMA I	RMC 12.2Kbps	Right Cheek	0mm	Sample 3	9888	1977.6	0.01	0.113
	WCDMA I	RMC 12.2Kbps	Right Cheek	0mm	Sample 4	9888	1977.6	-0.01	0.126
	WCDMA VIII	RMC 12.2Kbps	Right Cheek	0mm	Sample 1	2800	900	-0.13	0.308
	WCDMA VIII	RMC 12.2Kbps	Right Tilted	0mm	Sample 1	2800	900	0.04	0.199
	WCDMA VIII	RMC 12.2Kbps	Left Cheek	0mm	Sample 1	2800	900	0.04	0.335
	WCDMA VIII	RMC 12.2Kbps	Left Tilted	0mm	Sample 1	2800	900	-0.16	0.211
03	WCDMA VIII	RMC 12.2Kbps	Left Cheek	0mm	Sample 1	2737	887.4	0.02	0.381
	WCDMA VIII	RMC 12.2Kbps	Left Cheek	0mm	Sample 1	2863	912.6	-0.03	0.256
	WCDMA VIII	RMC 12.2Kbps	Left Cheek	0mm	Sample 2	2737	887.4	-0.08	0.263
	WCDMA VIII	RMC 12.2Kbps	Left Cheek	0mm	Sample 3	2737	887.4	0.04	0.290
	WCDMA VIII	RMC 12.2Kbps	Left Cheek	0mm	Sample 4	2737	887.4	0.1	0.201

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Sample	Ch.	Freq. (MHz)	Power Drift (dB)	Measured 10g SAR (W/kg)
	LTE Band 1	20M	QPSK	1	0	Right Cheek	0mm	Sample 1	18300	1950	-0.14	0.082
	LTE Band 1	20M	QPSK	1	0	Right Tilted	0mm	Sample 1	18300	1950	0.13	0.064
	LTE Band 1	20M	QPSK	1	0	Left Cheek	0mm	Sample 1	18300	1950	-0.03	0.083
	LTE Band 1	20M	QPSK	1	0	Left Tilted	0mm	Sample 1	18300	1950	0.07	0.075
	LTE Band 1	20M	QPSK	1	0	Left Cheek	0mm	Sample 1	18100	1930	-0.11	0.069
04	LTE Band 1	20M	QPSK	1	0	Left Cheek	0mm	Sample 1	18500	1970	0.02	0.098
	LTE Band 1	20M	QPSK	1	0	Left Cheek	0mm	Sample 2	18500	1970	0.03	0.083
	LTE Band 1	20M	QPSK	1	0	Left Cheek	0mm	Sample 3	18500	1970	-0.09	0.084
	LTE Band 1	20M	QPSK	1	0	Left Cheek	0mm	Sample 4	18500	1970	0.18	0.093
	LTE Band 3	20M	QPSK	1	0	Right Cheek	0mm	Sample 1	19575	1747.5	0.17	0.154
	LTE Band 3	20M	QPSK	1	0	Right Tilted	0mm	Sample 1	19575	1747.5	-0.12	0.103
	LTE Band 3	20M	QPSK	1	0	Left Cheek	0mm	Sample 1	19575	1747.5	0.05	0.128
	LTE Band 3	20M	QPSK	1	0	Left Tilted	0mm	Sample 1	19575	1747.5	-0.17	0.103
05	LTE Band 3	20M	QPSK	1	0	Right Cheek	0mm	Sample 1	19300	1720	0.15	0.156
	LTE Band 3	20M	QPSK	1	0	Right Cheek	0mm	Sample 1	19850	1775	0.18	0.137
	LTE Band 3	20M	QPSK	1	0	Right Cheek	0mm	Sample 2	19300	1720	0.12	0.122
	LTE Band 3	20M	QPSK	1	0	Right Cheek	0mm	Sample 3	19300	1720	-0.01	0.114
	LTE Band 3	20M	QPSK	1	0	Right Cheek	0mm	Sample 4	19300	1720	0.16	0.135
	LTE Band 7	20M	QPSK	1	0	Right Cheek	0mm	Sample 1	21100	2535	0.06	0.094
	LTE Band 7	20M	QPSK	1	0	Right Tilted	0mm	Sample 1	21100	2535	-0.15	0.031
	LTE Band 7	20M	QPSK	1	0	Left Cheek	0mm	Sample 1	21100	2535	0.03	0.047
	LTE Band 7	20M	QPSK	1	0	Left Tilted	0mm	Sample 1	21100	2535	0.1	0.039
	LTE Band 7	20M	QPSK	1	0	Right Cheek	0mm	Sample 1	20850	2510	0.02	0.090
06	LTE Band 7	20M	QPSK	1	0	Right Cheek	0mm	Sample 1	21350	2560	0.04	0.096
	LTE Band 7	20M	QPSK	1	0	Right Cheek	0mm	Sample 2	19300	2560	-0.12	0.094
	LTE Band 7	20M	QPSK	1	0	Right Cheek	0mm	Sample 3	19300	2560	0.08	0.092
	LTE Band 7	20M	QPSK	1	0	Right Cheek	0mm	Sample 4	19300	2560	0.11	0.072
	LTE Band 8	10M	QPSK	1	0	Right Cheek	0mm	Sample 1	21650	900	0.13	0.308
	LTE Band 8	10M	QPSK	1	0	Right Tilted	0mm	Sample 1	21650	900	0.02	0.191
	LTE Band 8	10M	QPSK	1	0	Left Cheek	0mm	Sample 1	21650	900	0.03	0.327
	LTE Band 8	10M	QPSK	1	0	Left Tilted	0mm	Sample 1	21650	900	0.18	0.201
07	LTE Band 8	10M	QPSK	1	0	Left Cheek	0mm	Sample 1	21550	890	-0.04	0.366
	LTE Band 8	10M	QPSK	1	0	Left Cheek	0mm	Sample 1	21750	910	0.07	0.248
	LTE Band 8	10M	QPSK	1	0	Left Cheek	0mm	Sample 2	21550	890	0.02	0.213
	LTE Band 8	10M	QPSK	1	0	Left Cheek	0mm	Sample 3	21550	890	-0.09	0.217
	LTE Band 8	10M	QPSK	1	0	Left Cheek	0mm	Sample 4	21550	890	0.1	0.191
08	LTE Band 28	20M	QPSK	1	0	Right Cheek	0mm	Sample 1	27435	725.5	-0.01	0.217
	LTE Band 28	20M	QPSK	1	0	Right Tilted	0mm	Sample 1	27435	725.5	-0.04	0.147
	LTE Band 28	20M	QPSK	1	0	Left Cheek	0mm	Sample 1	27435	725.5	0.17	0.190
	LTE Band 28	20M	QPSK	1	0	Left Tilted	0mm	Sample 1	27435	725.5	0.03	0.138
	LTE Band 28	20M	QPSK	1	0	Right Cheek	0mm	Sample 1	27310	713	0.16	0.199
	LTE Band 28	20M	QPSK	1	0	Right Cheek	0mm	Sample 1	27560	738	0.07	0.198
	LTE Band 28	20M	QPSK	1	0	Right Cheek	0mm	Sample 2	27435	725.5	0.02	0.127
	LTE Band 28	20M	QPSK	1	0	Right Cheek	0mm	Sample 3	27435	725.5	0.06	0.161
	LTE Band 28	20M	QPSK	1	0	Right Cheek	0mm	Sample 4	27435	725.5	0.17	0.085

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Sample	Ch.	Freq. (MHz)	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	LTE Band 38	20M	QPSK	1	0	Right Cheek	0mm	Sample 1	38000	2595	62.9	1.006	-0.02	0.084	0.085
	LTE Band 38	20M	QPSK	1	0	Right Tilted	0mm	Sample 1	38000	2595	62.9	1.006	0.11	0.029	0.029
	LTE Band 38	20M	QPSK	1	0	Left Cheek	0mm	Sample 1	38000	2595	62.9	1.006	0.16	0.059	0.059
	LTE Band 38	20M	QPSK	1	0	Left Tilted	0mm	Sample 1	38000	2595	62.9	1.006	0.04	0.045	0.045
	LTE Band 38	20M	QPSK	1	0	Right Cheek	0mm	Sample 1	37850	2580	62.9	1.006	0.05	0.075	0.075
09	LTE Band 38	20M	QPSK	1	0	Right Cheek	0mm	Sample 1	38150	2610	62.9	1.006	0.01	0.090	0.091
	LTE Band 38	20M	QPSK	1	0	Right Cheek	0mm	Sample 2	38150	2610	62.9	1.006	-0.05	0.075	0.075
	LTE Band 38	20M	QPSK	1	0	Right Cheek	0mm	Sample 3	38150	2610	62.9	1.006	0.09	0.084	0.085
	LTE Band 38	20M	QPSK	1	0	Right Cheek	0mm	Sample 4	38150	2610	62.9	1.006	0.12	0.030	0.030
10	LTE Band 41	20M	QPSK	1	0	Right Cheek	0mm	Sample 1	40640	2595	62.9	1.006	-0.03	0.081	0.081
	LTE Band 41	20M	QPSK	1	0	Right Tilted	0mm	Sample 1	40640	2595	62.9	1.006	0.16	0.029	0.029
	LTE Band 41	20M	QPSK	1	0	Left Cheek	0mm	Sample 1	40640	2595	62.9	1.006	0.03	0.057	0.057
	LTE Band 41	20M	QPSK	1	0	Left Tilted	0mm	Sample 1	40640	2595	62.9	1.006	0.14	0.044	0.044
	LTE Band 41	20M	QPSK	1	0	Right Cheek	0mm	Sample 1	39790	2510	62.9	1.006	0.18	0.065	0.065
	LTE Band 41	20M	QPSK	1	0	Right Cheek	0mm	Sample 1	41490	2680	62.9	1.006	-0.1	0.074	0.074
	LTE Band 41	20M	QPSK	1	0	Right Cheek	0mm	Sample 2	40640	2595	62.9	1.006	0.04	0.077	0.077
	LTE Band 41	20M	QPSK	1	0	Right Cheek	0mm	Sample 3	40640	2595	62.9	1.006	-0.06	0.076	0.076
	LTE Band 41	20M	QPSK	1	0	Right Cheek	0mm	Sample 4	40640	2595	62.9	1.006	0.12	0.036	0.036

Test Engineer : Sing Lim and Bob Cheng

13 Uncertainty Assessment

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 Table below

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

(a) standard uncertainty is determined as the product of the multiplying factor and the estimated range of variations in the measured quantity

(b) k is the coverage factor

Table of 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 showed in Table 11.2.

The judgment of conformity in the report is based on the measurement results excluding the measurement uncertainty.

Error Description	Uncertainty Value (±%)	Probability Distribution	Divisor	Ci (10g)	Standard Uncertainty (10g)
Measurement System					
Probe Calibration	6.0	Normal	1	1	± 6.0 %
Axial Isotropy	4.7	Rectangular	√3	0.7	± 1.9 %
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	± 3.9 %
Boundary Effects	1.0	Rectangular	√3	1	± 0.6 %
Linearity	4.7	Rectangular	√3	1	± 2.7 %
System Detection Limits	1.0	Rectangular	√3	1	± 0.6 %
Readout Electronics	0.3	Normal	1	1	± 0.3 %
Response Time	0.8	Rectangular	√3	1	± 0.5 %
Integration Time	2.6	Rectangular	√3	1	± 1.5 %
RF Ambient Noise	3.0	Rectangular	√3	1	± 1.7 %
RF Ambient Reflections	3.0	Rectangular	√3	1	± 1.7 %
Probe Positioner	0.4	Rectangular	√3	1	± 0.2 %
Probe Positioning	2.9	Rectangular	√3	1	± 1.7 %
Max. SAR Eval.	1.0	Rectangular	√3	1	± 0.6 %
Test Sample Related					
Device Positioning	2.9	Normal	1	1	± 2.9 %
Device Holder	3.6	Normal	1	1	± 3.6 %
Power Drift	5.0	Rectangular	√3	1	± 2.9 %
Phantom and Setup					
Phantom Uncertainty	4.0	Rectangular	√3	1	± 2.3 %
Liquid Conductivity (Target)	5.0	Rectangular	√3	0.43	± 1.2 %
Liquid Conductivity (Meas.)	2.5	Normal	1	0.43	± 1.1 %
Liquid Permittivity (Target)	5.0	Rectangular	√3	0.49	± 1.4 %
Liquid Permittivity (Meas.)	2.5	Normal	1	0.49	± 1.2 %
Combined Standard Uncertainty					± 10.8 %
Coverage Factor for 95 %					K = 2
Expanded Uncertainty					± 21.5 %

Table of Uncertainty Budget of DASY

14 References

- [1] CNS 14959, "Limits for exposure to time-varying electric, magnetic and electromagnetic fields (up to 300 GHz)", December 2005
- [2] CNS 14958-1, "Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", December 2005
- [3] IEC 62209-1:2016, "Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Devices used next to the ear (Frequency range of 300 MHz to 6 GHz)".
- [4] SPEAG DASY System Handbook

Appendix A. Plots of System Performance Check

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab

Date: 2021/8/24

System Check_Head_750MHz

DUT: D750V3-1107

Communication System: CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: HSL 750 210824 Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.885 \text{ S/m}$; $\epsilon_r = 41.732$; $\rho = 1000$

kg/m^3

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration

- Probe: ES3DV3 - SN3270; ConvF(6.44, 6.44, 6.44) (@ 750 MHz; Calibrated: 2020/9/23)
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn853; Calibrated: 2021/7/14
- Phantom: Twin-SAM V5.0 LEFT; Type: QD 000 P40 CD; Serial: 1718
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.63 W/kg

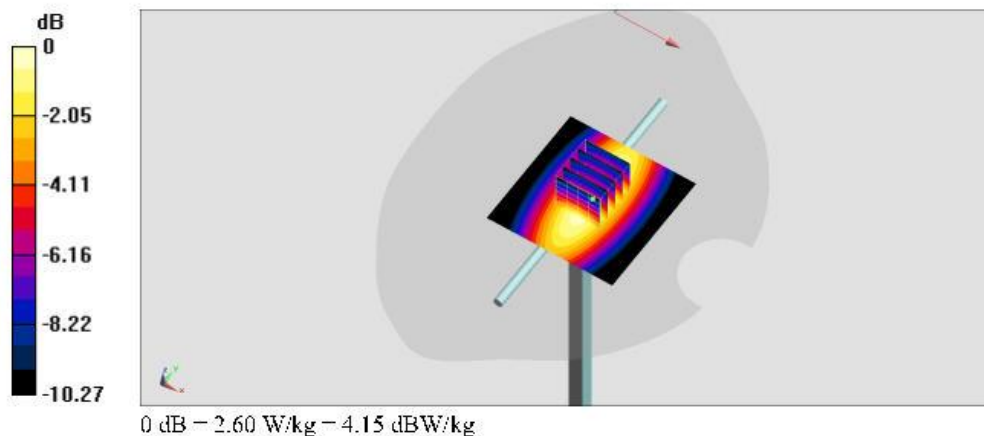
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 58.67 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 3.29 W/kg

SAR(1 μ) = 2.22 W/kg; SAR(10 μ) = 1.46 W/kg

Maximum value of SAR (measured) = 2.60 W/kg



Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab

Date: 2021/9/17

System Check_Head_750MHz

DUT: D750V3-1107

Communication System: CW ; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: HSL 750 2109717 Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.898 \text{ S/m}$; $\epsilon_r = 42.908$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.5 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3169; ConvF(6.54, 6.54, 6.54) @ 750 MHz; Calibrated: 2021/5/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn393; Calibrated: 2021/4/9
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP1815
- Measurement SW: DASY52, Version52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 2.41 W/kg

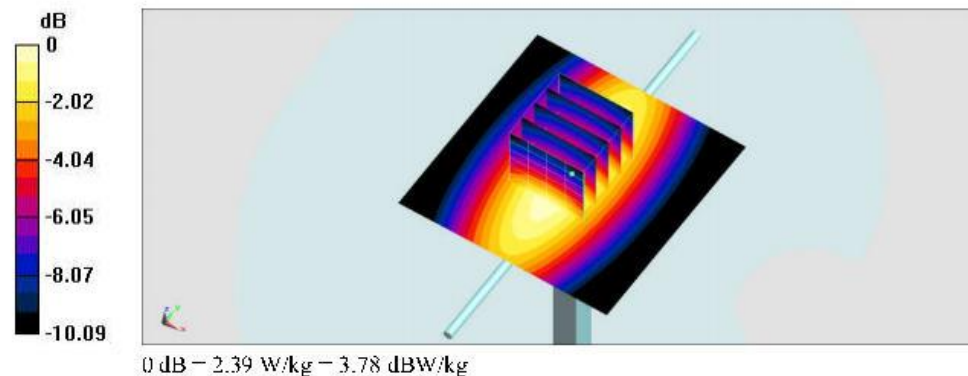
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 53.43 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 3.00 W/kg

SAR(1 g) = 2.05 W/kg; SAR(10 g) = 1.36 W/kg

Maximum value of SAR (measured) = 2.39 W/kg



Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab

Date: 2021/8/24

System Check_Head_900MHz

DUT: D900V2-1d165

Communication System: CW ; Frequency: 900 MHz; Duty Cycle: 1:1

Medium: HSL 900 210824 Medium parameters used: $f = 900 \text{ MHz}$; $\sigma = 0.942 \text{ S/m}$; $\epsilon_r = 41.079$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration

- Probe: ES3DV3 - SN3270; ConvF(6.21, 6.21, 6.21) (@ 900 MHz; Calibrated: 2020/9/23)
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn853; Calibrated: 2021/7/14
- Phantom: Twin-SAM V5.0 LEFT; Type: QD 000 P40 CD; Serial: 1718
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 3.03 W/kg

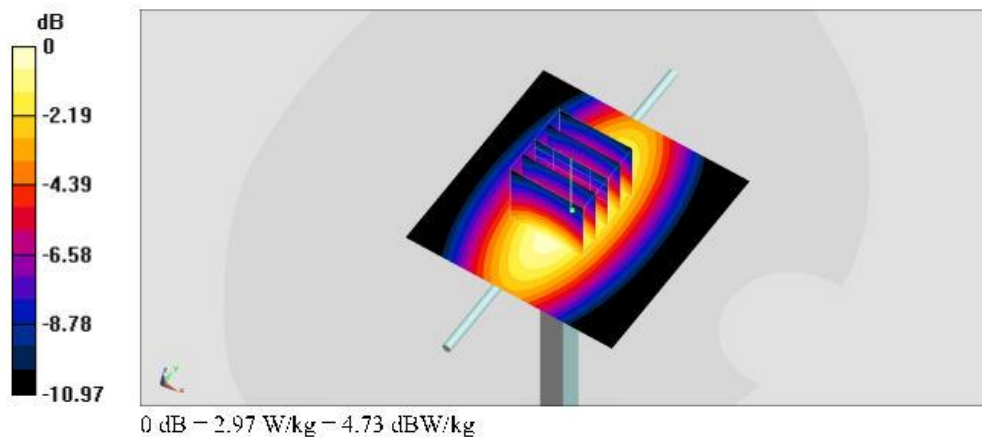
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 59.07 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 3.76 W/kg

SAR(1 g) = 2.54 W/kg; SAR(10 g) = 1.65 W/kg

Maximum value of SAR (measured) = 2.97 W/kg



Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab

Date: 2021/9/17

System Check_Head_900MHz

DUT: D900V2-1d165

Communication System: CW; Frequency: 900 MHz; Duty Cycle: 1:1

Medium: HSL 900 210917 Medium parameters used: $f = 900 \text{ MHz}$; $\sigma = 0.951 \text{ S/m}$; $\epsilon_r = 41.271$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.5 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3169; ConvF(6.17, 6.17, 6.17) @ 900 MHz; Calibrated: 2021/5/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn393; Calibrated: 2021/4/9
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP1815
- Measurement SW: DASY52, Version52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.582 W/kg

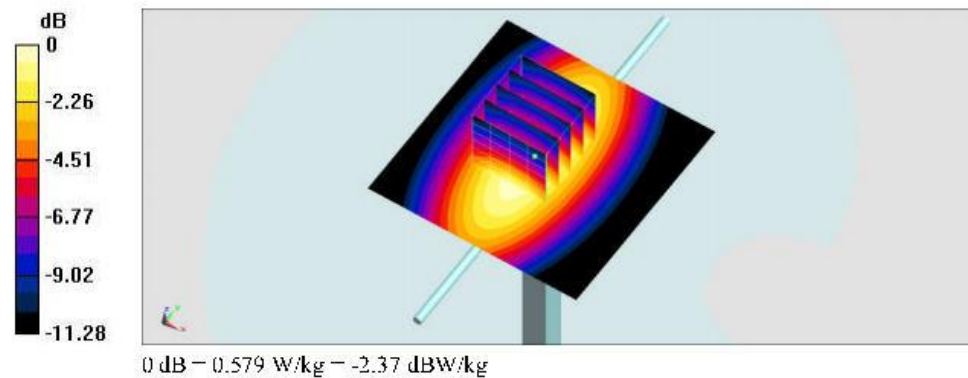
Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 25.56 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.735 W/kg

SAR(1 g) = 0.493 W/kg; SAR(10 g) = 0.317 W/kg

Maximum value of SAR (measured) = 0.579 W/kg



Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab

Date: 2021/8/24

System Check_Head_1800MHz

DUT: D1800V2-2d076

Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: HSL 1800 210824 Medium parameters used: $f = 1800$ MHz; $\sigma = 1.399$ S/m; $\epsilon_r = 40.219$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration

- Probe: ES3DV3 - SN3270; ConvF(5.34, 5.34, 5.34) (@ 1800 MHz; Calibrated: 2020/9/23
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn853; Calibrated: 2021/7/14
- Phantom: Twin-SAM V5.0 LEFT; Type: QD 000 P40 CD; Serial: 1718
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 11.4 W/kg

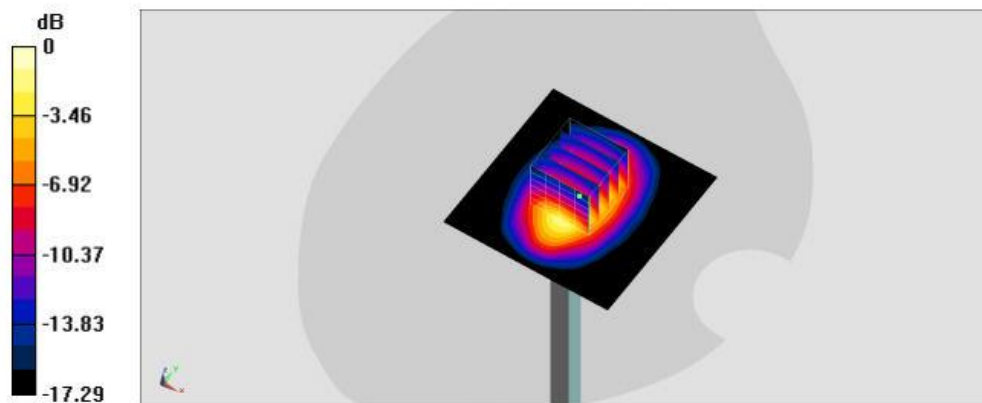
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 93.05 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 16.0 W/kg

SAR(1 g) = 8.96 W/kg; SAR(10 g) = 4.73 W/kg

Maximum value of SAR (measured) = 11.3 W/kg



0 dB = 11.3 W/kg = 10.53 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab

Date: 2021/9/17

System Check_Head_1800MHz

DUT: D1800V2-2d220

Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: HSL 1800 210917 Medium parameters used: $f = 1800$ MHz; $\sigma = 1.4$ S/m; $\epsilon_r = 40.023$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3169; ConvF(5.36, 5.36, 5.36) @ 1800 MHz; Calibrated: 2021/5/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn393; Calibrated: 2021/4/9
- Phantom: SAM_Right; Type: QD000P40CD; Serial: TP1815
- Measurement SW: DASY52, Version52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 12.4 W/kg

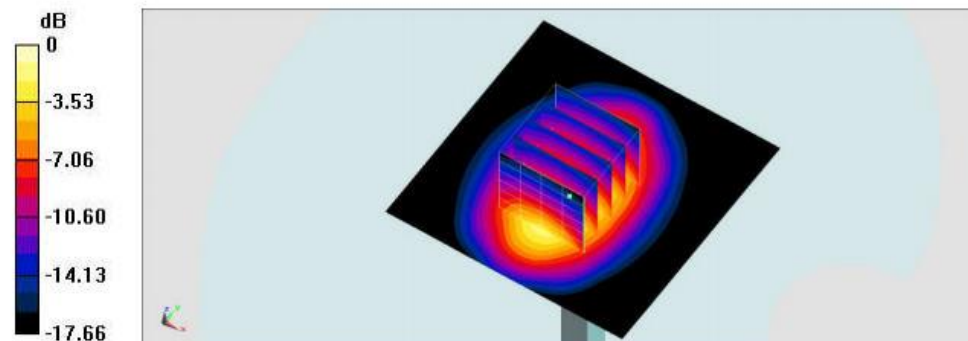
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 91.13 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 16.1 W/kg

SAR(1 g) = 9.07 W/kg; SAR(10 g) = 4.81 W/kg

Maximum value of SAR (measured) = 11.4 W/kg



0 dB = 11.4 W/kg = 10.57 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab

Date: 2021/8/24

System Check_Head_2000MHz

DUT: D2000V2-1010

Communication System: CW; Frequency: 2000 MHz; Duty Cycle: 1:1

Medium: HSL 2000 210824 Medium parameters used: $f = 2000$ MHz; $\sigma = 1.416$ S/m; $\epsilon_r = 39.014$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration

- Probe: ES3DV3 - SN3270; ConvF(5.09, 5.09, 5.09) (@ 2000 MHz; Calibrated: 2020/9/23
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn853; Calibrated: 2021/7/14
- Phantom: Twin-SAM V5.0 LEFT; Type: QD 000 P40 CD; Serial: 1718
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 11.9 W/kg

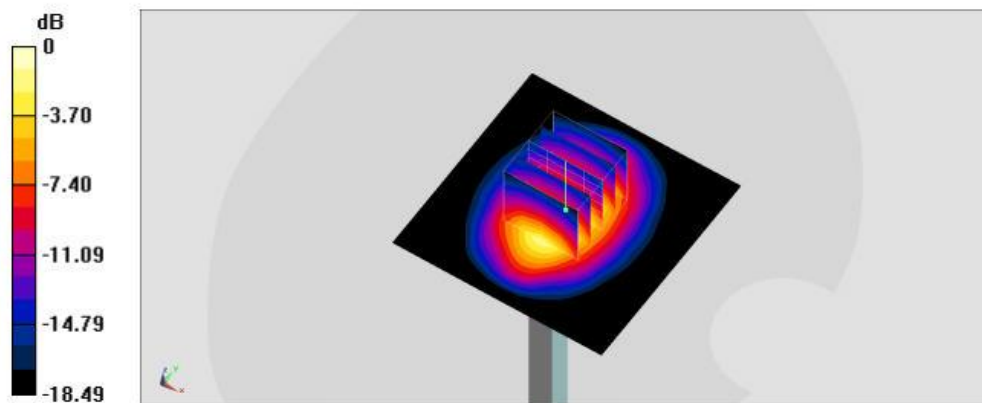
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 94.27 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 17.0 W/kg

SAR(1 g) = 9.24 W/kg; SAR(10 g) = 4.73 W/kg

Maximum value of SAR (measured) = 11.8 W/kg



0 dB = 11.8 W/kg = 10.72 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab

Date: 2021/9/17

System Check_Head_2000MHz

DUT: D2000V2-1070

Communication System: CW; Frequency: 2000 MHz; Duty Cycle: 1:1

Medium: HSL 2000 210917 Medium parameters used: $f = 2000$ MHz; $\sigma = 1.438$ S/m; $\epsilon_r = 40.581$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3169; ConvF(5.03, 5.03, 5.03) @ 2000 MHz; Calibrated: 2021/5/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn393; Calibrated: 2021/4/9
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP1815
- Measurement SW: DASY52, Version52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 13.2 W/kg

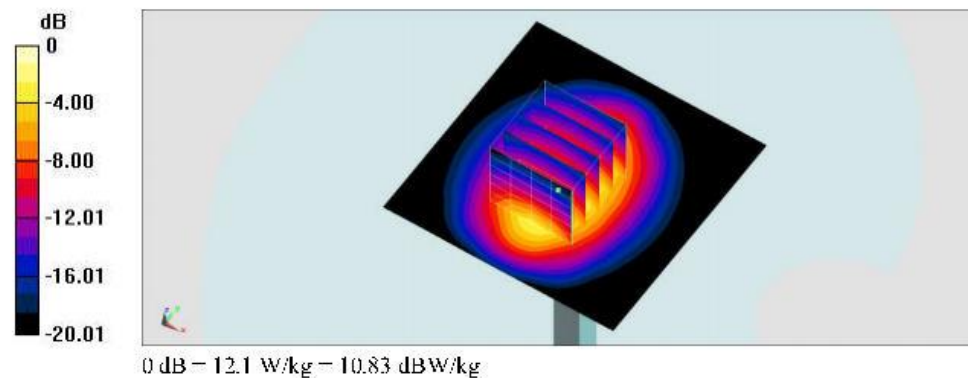
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 92.91 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 18.1 W/kg

SAR(1 g) = 9.63 W/kg; SAR(10 g) = 4.85 W/kg

Maximum value of SAR (measured) = 12.1 W/kg



Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab

Date: 2021/8/25

System Check_Head_2600MHz

DUT: D2600V2-1078

Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium: HSL 2600 210825 Medium parameters used: $f = 2600$ MHz; $\sigma = 1.923$ S/m; $\epsilon_r = 38.425$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration

- Probe: ES3DV3 - SN3270; ConvF(4.42, 4.42, 4.42) @ 2600 MHz; Calibrated: 2020/9/23
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn853; Calibrated: 2021/7/14
- Phantom: Twin-SAM V5.0 LEFT; Type: QD 000 P40 CD; Serial: 1718
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 20.3 W/kg

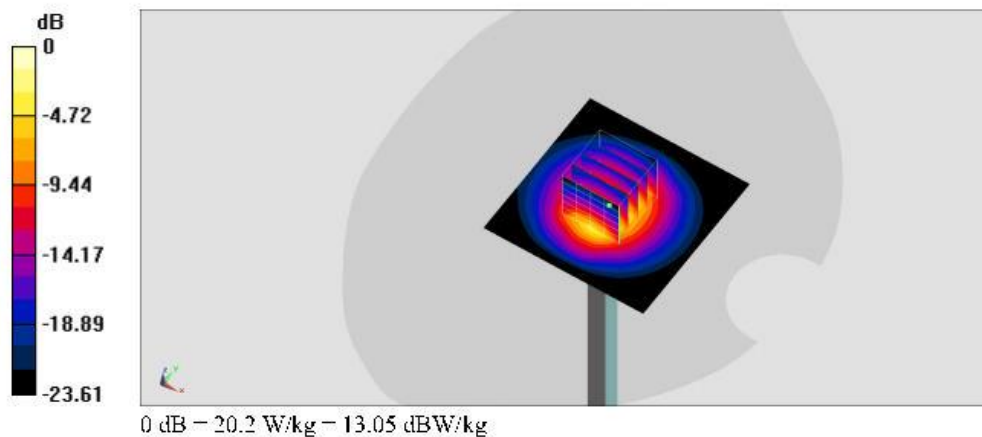
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 104.0 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 32.5 W/kg

SAR(1 g) = 15.1 W/kg; SAR(10 g) = 6.73 W/kg

Maximum value of SAR (measured) = 20.2 W/kg



Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab

Date: 2021/9/17

System Check_Head_2600MHz

DUT: D2600V2-1078

Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium: HSL 2600 210917 Medium parameters used: $f = 2600$ MHz; $\sigma = 2.006$ S/m; $\epsilon_r = 38.438$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3169; ConvF(4.29, 4.29, 4.29) @ 2600 MHz; Calibrated: 2021/5/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn393; Calibrated: 2021/4/9
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP1815
- Measurement SW: DASY52, Version52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 19.5 W/kg

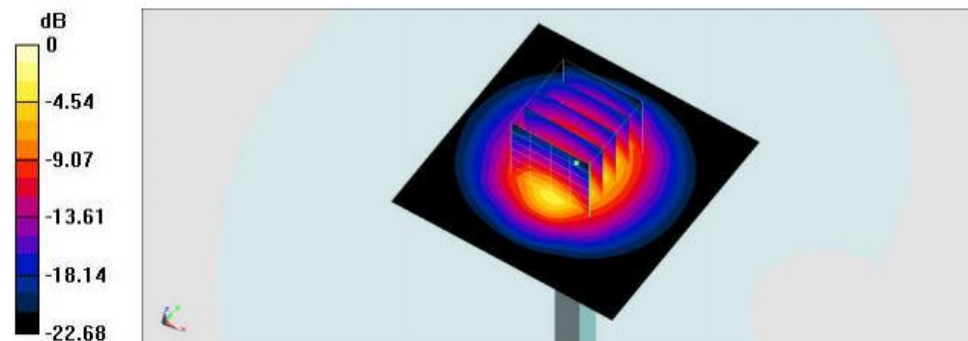
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 101.4 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 29.8 W/kg

SAR(1 g) = 14.8 W/kg; SAR(10 g) = 6.81 W/kg

Maximum value of SAR (measured) = 19.5 W/kg



0 dB = 19.5 W/kg = 12.90 dBW/kg

Appendix B. Plots of SAR Measurement

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab

Date: 2021/8/24

#01_GSM900_GPRS (2 Tx slots)_Right Check_0mm_Ch37

Communication System: EGSM; Frequency: 897.4 MHz; Duty Cycle: 1:4.15

Medium: HSL 900 210824 Medium parameters used: $f = 897.4$ MHz; $\sigma = 0.941$ S/m; $\epsilon_r = 41.09$; $\rho = 1000$

kg/m³

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration

- Probe: ES3DV3 - SN3270; ConvF(6.21, 6.21, 6.21) (@ 897.4 MHz; Calibrated: 2020/9/23)
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn853; Calibrated: 2021/7/14
- Phantom: Twin-SAM V5.0 LEFT; Type: QD 000 P40 CD; Serial: 1718
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.412 W/kg

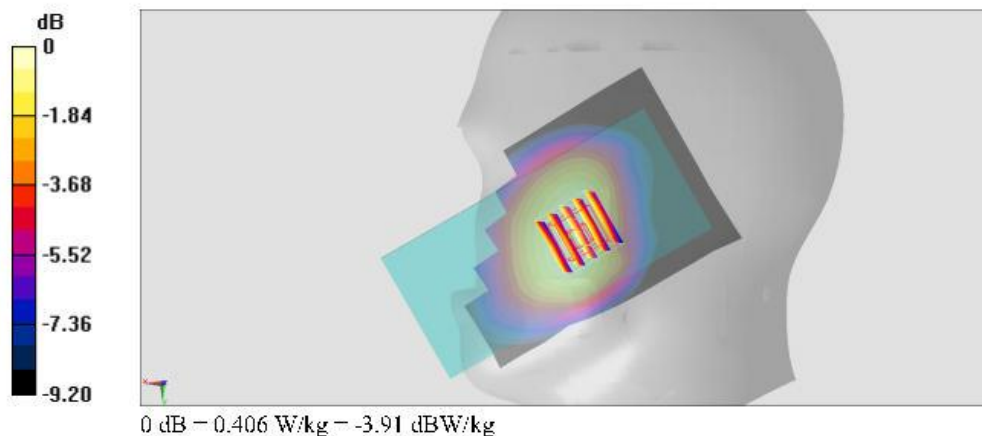
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 19.54 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.462 W/kg

SAR(1 g) = 0.370 W/kg; SAR(10 g) = 0.280 W/kg

Maximum value of SAR (measured) = 0.406 W/kg



Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab

Date: 2021/8/24

#02_WCDMA I_RMC 12.2Kbps_Right Check_0mm_Ch9888

Communication System: WCDMA; Frequency: 1977.6 MHz; Duty Cycle: 1:1

Medium: HSL 2000 210824 Medium parameters used: $f = 1978$ MHz; $\sigma = 1.396$ S/m; $\epsilon_r = 39.044$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration

- Probe: ES3DV3 - SN3270; ConvF(5.09, 5.09, 5.09) (@ 1977.6 MHz; Calibrated: 2020/9/23
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn853; Calibrated: 2021/7/14
- Phantom: Twin-SAM V5.0 LEFT; Type: QD 000 P40 CD; Serial: 1718
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.235 W/kg

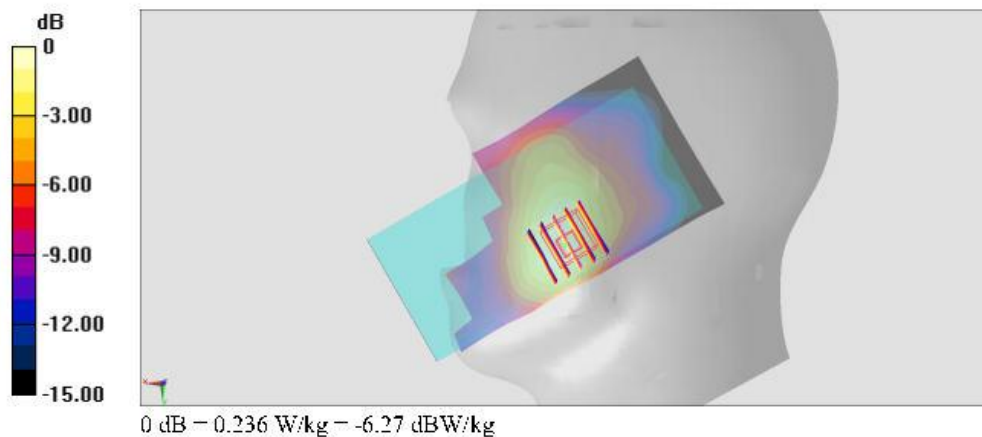
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.42 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.294 W/kg

SAR(1 g) = 0.203 W/kg; SAR(10 g) = 0.129 W/kg

Maximum value of SAR (measured) = 0.236 W/kg



Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab

Date: 2021/8/24

#03_WCDMA VIII_RMC 12.2Kbps_Left Cheek_0mm_Ch2737

Communication System: WCDMA; Frequency: 887.4 MHz; Duty Cycle: 1:1

Medium: HSL 900 210824 Medium parameters used: $f = 887.4$ MHz; $\sigma = 0.937$ S/m; $\epsilon_r = 41.127$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration

- Probe: ES3DV3 - SN3270; ConvF(6.21, 6.21, 6.21) (@ 887.4 MHz; Calibrated: 2020/9/23)
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn853; Calibrated: 2021/7/14
- Phantom: Twin-SAM V5.0 LEFT; Type: QD 000 P40 CD; Serial: 1718
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.556 W/kg

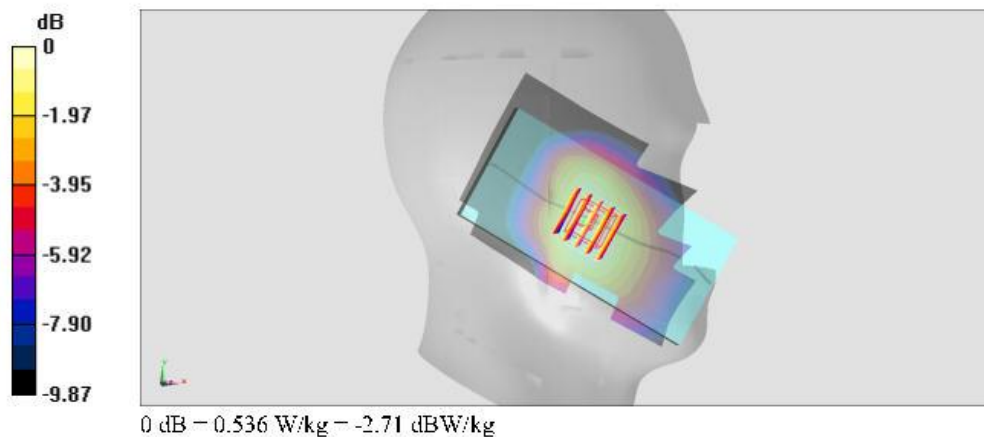
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 22.65 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.618 W/kg

SAR(1 g) = 0.497 W/kg; SAR(10 g) = 0.381 W/kg

Maximum value of SAR (measured) = 0.536 W/kg



Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab

Date: 2021/8/24

#04_LTE Band 1_20M_QPSK_1_0_Left Cheek_0mm_Ch18500

Communication System: LTE; Frequency: 1970 MHz; Duty Cycle: 1:1

Medium: HSL 2000 210824 Medium parameters used: $f = 1970$ MHz; $\sigma = 1.387$ S/m; $\epsilon_r = 39.075$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration

- Probe: ES3DV3 - SN3270; ConvF(5.09, 5.09, 5.09) (@ 1970 MHz; Calibrated: 2020/9/23
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn853; Calibrated: 2021/7/14
- Phantom: Twin-SAM V5.0 LEFT; Type: QD 000 P40 CD; Serial: 1718
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.170 W/kg

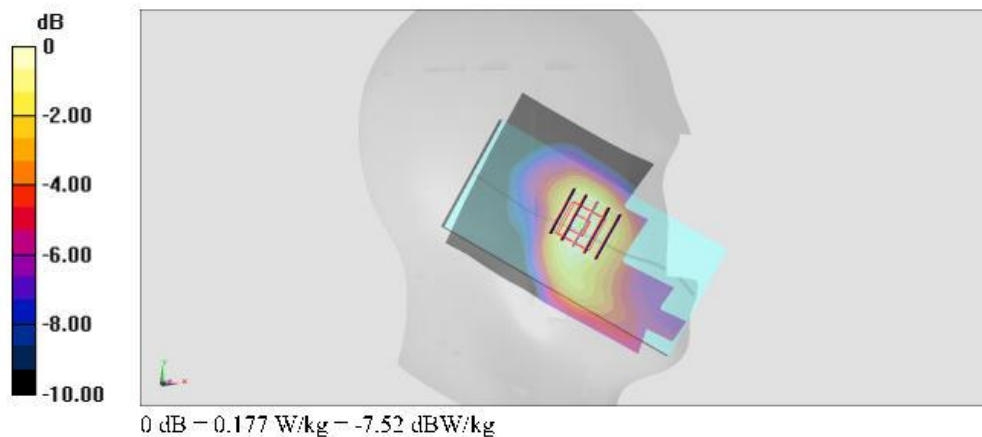
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 2.938 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.225 W/kg

SAR(1 g) = 0.152 W/kg; SAR(10 g) = 0.098 W/kg

Maximum value of SAR (measured) = 0.177 W/kg



Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab

Date: 2021/8/24

#05_LTE Band 3_20M_QPSK_1_0_Right Check_0mm_Ch19300

Communication System: LTE ; Frequency: 1720 MHz; Duty Cycle: 1:1

Medium: HSL 1800 210824 Medium parameters used: $f = 1720$ MHz; $\sigma = 1.322$ S/m; $\epsilon_r = 40.563$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration

- Probe: ES3DV3 - SN3270; ConvF(5.34, 5.34, 5.34) (@ 1720 MHz; Calibrated: 2020/9/23)
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn853; Calibrated: 2021/7/14
- Phantom: Twin-SAM V5.0 LEFT; Type: QD 000 P40 CD; Serial: 1718
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.272 W/kg

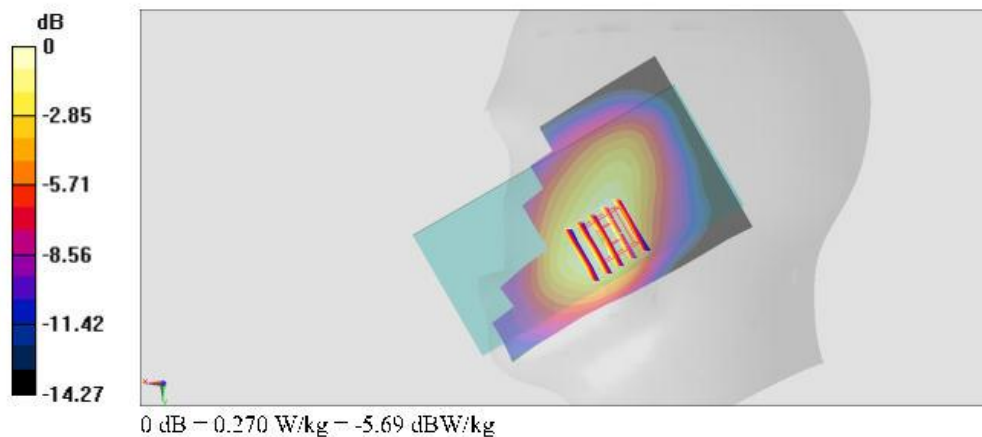
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.691 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.335 W/kg

SAR(1 g) = 0.237 W/kg; SAR(10 g) = 0.156 W/kg

Maximum value of SAR (measured) = 0.270 W/kg



Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab

Date: 2021/8/25

#06_LTE Band 7_20M_QPSK_1_0_Right Check_0mm_Ch21350

Communication System: LTE; Frequency: 2560 MHz; Duty Cycle: 1:1

Medium: HSL 2600 210825 Medium parameters used: $f = 2560$ MHz; $\sigma = 1.874$ S/m; $\epsilon_r = 38.574$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration

- Probe: ES3DV3 - SN3270; ConvF(4.42, 4.42, 4.42) (@ 2560 MHz; Calibrated: 2020/9/23)
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn853; Calibrated: 2021/7/14
- Phantom: Twin-SAM V5.0 LEFT; Type: QD 000 P40 CD; Serial: 1718
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.254 W/kg

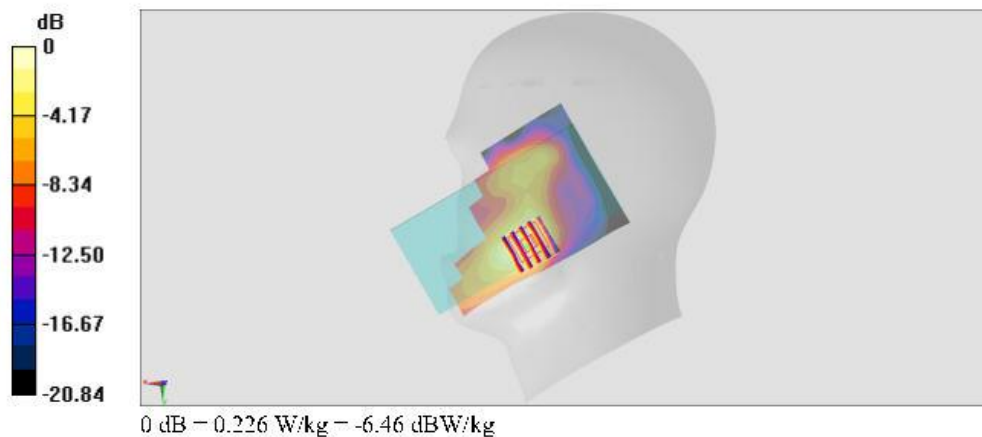
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.151 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.322 W/kg

SAR(1 g) = 0.182 W/kg; SAR(10 g) = 0.096 W/kg

Maximum value of SAR (measured) = 0.226 W/kg



Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab

Date: 2021/8/24

#07_LTE Band 8_10M_QPSK_1_0_Left Cheek_0mm_Ch21550

Communication System: LTE; Frequency: 890 MHz; Duty Cycle: 1:1

Medium: HSL 900 210824 Medium parameters used: $f = 890 \text{ MHz}$; $\sigma = 0.938 \text{ S/m}$; $\epsilon_r = 41.117$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration

- Probe: ES3DV3 - SN3270; ConvF(6.21, 6.21, 6.21) @ 890 MHz; Calibrated: 2020/9/23
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn853; Calibrated: 2021/7/14
- Phantom: Twin-SAM V5.0 LEFT; Type: QD 000 P40 CD; Serial: 1718
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (71x121x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.539 W/kg

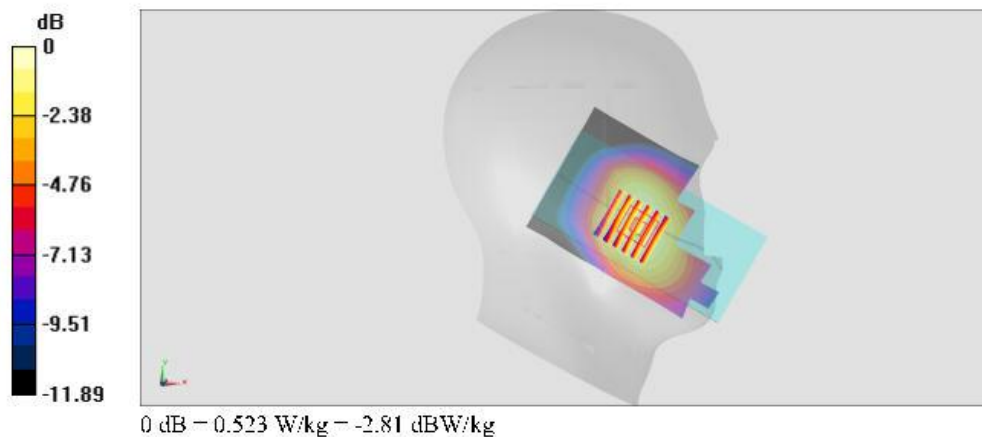
Zoom Scan (6x6x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.076 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.595 W/kg

SAR(1 g) = 0.480 W/kg; SAR(10 g) = 0.366 W/kg

Maximum value of SAR (measured) = 0.523 W/kg



Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab

Date: 2021/8/24

#08_LTE Band 28_20M_QPSK_1_0_Right Cheek_0mm_Ch27435

Communication System: LTE; Frequency: 725.5 MHz; Duty Cycle: 1:1

Medium: HSL 750 210824 Medium parameters used: $f = 725.5$ MHz; $\sigma = 0.878$ S/m; $\epsilon_r = 41.907$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration

- Probe: ES3DV3 - SN3270; ConvF(6.44, 6.44, 6.44) (@ 725.5 MHz; Calibrated: 2020/9/23)
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn853; Calibrated: 2021/7/14
- Phantom: Twin-SAM V5.0 LEFT; Type: QD 000 P40 CD; Serial: 1718
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.299 W/kg

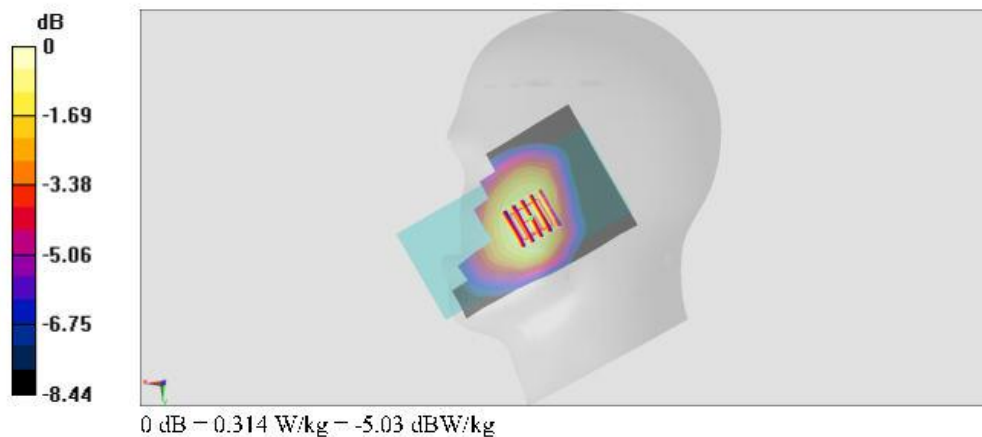
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.660 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.353 W/kg

SAR(1 g) = 0.281 W/kg; SAR(10 g) = 0.217 W/kg

Maximum value of SAR (measured) = 0.314 W/kg



Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab

Date: 2021/8/25

#09_LTE Band 38_20M_QPSK_1_0_Right Check_0mm_Ch38150

Communication System: LTE; Frequency: 2610 MHz; Duty Cycle: 1:1.59

Medium: HSL 2600 210825 Medium parameters used : $f = 2610$ MHz; $\sigma = 1.934$ S/m; $\epsilon_r = 38.393$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration

- Probe: ES3DV3 - SN3270; ConvF(4.42, 4.42, 4.42) (@ 2610 MHz; Calibrated: 2020/9/23)
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn853; Calibrated: 2021/7/14
- Phantom: Twin-SAM V5.0 LEFT; Type: QD 000 P40 CD; Serial: 1718
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.250 W/kg

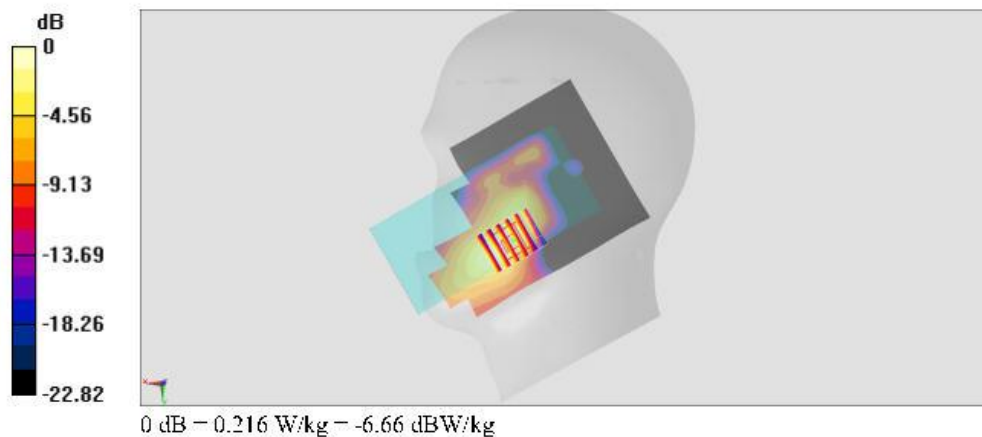
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.11 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.238 W/kg

SAR(1 g) = 0.164 W/kg; SAR(10 g) = 0.090 W/kg

Maximum value of SAR (measured) = 0.216 W/kg



Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab

Date: 2021/8/25

#10_LTE Band 41_20M_QPSK_1_0_Right Chcek_0mm_Ch40640

Communication System: LTE; Frequency: 2595 MHz; Duty Cycle: 1:1.59

Medium: HSL 2600 210825 Medium parameters used : $f = 2595$ MHz; $\sigma = 1.918$ S/m; $\epsilon_r = 38.44$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration

- Probe: ES3DV3 - SN3270; ConvF(4.42, 4.42, 4.42) (@ 2595 MHz; Calibrated: 2020/9/23)
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn853; Calibrated: 2021/7/14
- Phantom: Twin-SAM V5.0 LEFT; Type: QD 000 P40 CD; Serial: 1718
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.225 W/kg

Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.75 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.212 W/kg

SAR(1 g) = 0.147 W/kg; SAR(10 g) = 0.081 W/kg

Maximum value of SAR (measured) = 0.194 W/kg

