2450 MHz Dipole Calibration Certificate

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

S Schweizerischer Kalibrierdienst
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Swiss Calibration Service

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Accreditation No.: SCS 0108

Client CTTL (Auden)

Certificate No: D2450V2-853_Jul18

CALIBRATION CERTIFICATE

Object	D2450V2 - SN:853
Calibration procedure(s)	QA CAL-05.v10 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	July 24, 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 (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-18 (No. 217-02672/02673)	Apr-19
Power sensor NRP-Z91	SN: 103244	04-Apr-18 (No. 217-02672)	Apr-19
Power sensor NRP-Z91	SN: 103245	04-Apr-18 (No. 217-02673)	Apr-19
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-18 (No. 217-02682)	Apr-19
Type-N mismatch combination	SN: 5047.2 / 06327	04-Apr-18 (No. 217-02683)	Apr-19
Reference Probe EX3DV4	SN: 7349	30-Dec-17 (No. EX3-7349_Dec17)	Dec-18
DAE4	SN: 601	26-Oct-17 (No. DAE4-601_Oct17)	Oct-18

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-17)	In house check: Oct-18

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: July 24, 2018

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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:

a) IEEE Std 1528-2013, “IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”, June 2013
b) IEC 62209-1, “Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)”, July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, “SAR Measurement Requirements for 100 MHz to 6 GHz”

Additional Documentation:

e) 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%.

Measurement Conditions

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

DASY Version	DASY5	V52.10.1
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 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 ± 0.2) °C	37.8 ± 6 %	1.85 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °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	**51.7 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.13 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.2 W/kg ± 16.5 % (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 ± 0.2) °C	51.9 ± 6 %	2.02 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.1 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**51.3 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.10 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**24.1 W/kg ± 16.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	54.1 Ω + 3.9 jΩ
Return Loss	- 25.2 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.5 Ω + 6.0 jΩ
Return Loss	- 24.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.161 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
Manufactured on	November 10, 2009

DASY5 Validation Report for Head TSL

Date: 24.07.2018

Test Laboratory: SPEAG, Zurich, Switzerland

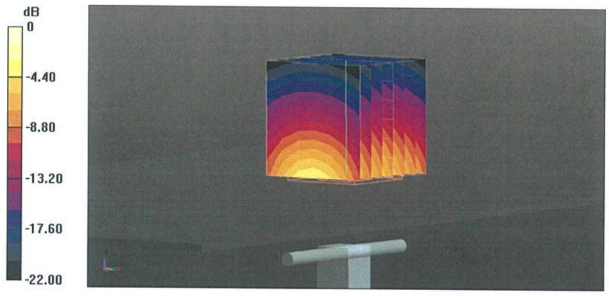
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:853

Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.85 S/m; ε_r = 37.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

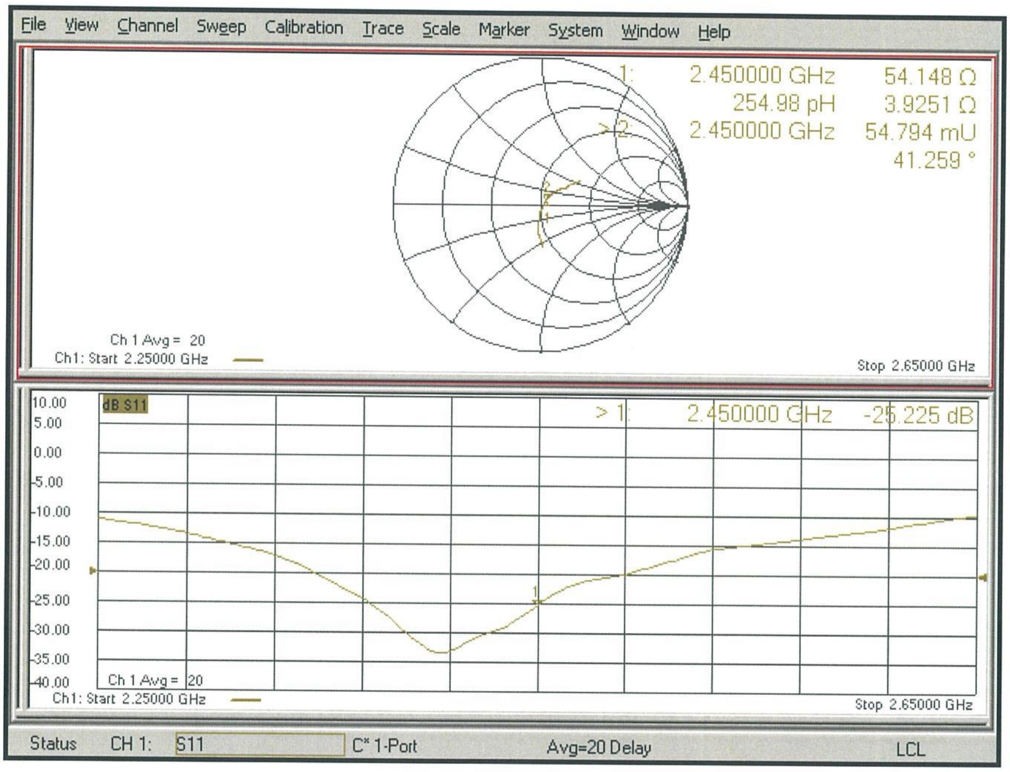
- Probe: EX3DV4 - SN7349; ConvF(7.88, 7.88, 7.88) @ 2450 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 115.3 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 26.1 W/kg
SAR(1 g) = 13.2 W/kg; SAR(10 g) = 6.13 W/kg
Maximum value of SAR (measured) = 21.6 W/kg



0 dB = 21.6 W/kg = 13.34 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 16.07.2018

Test Laboratory: SPEAG, Zurich, Switzerland

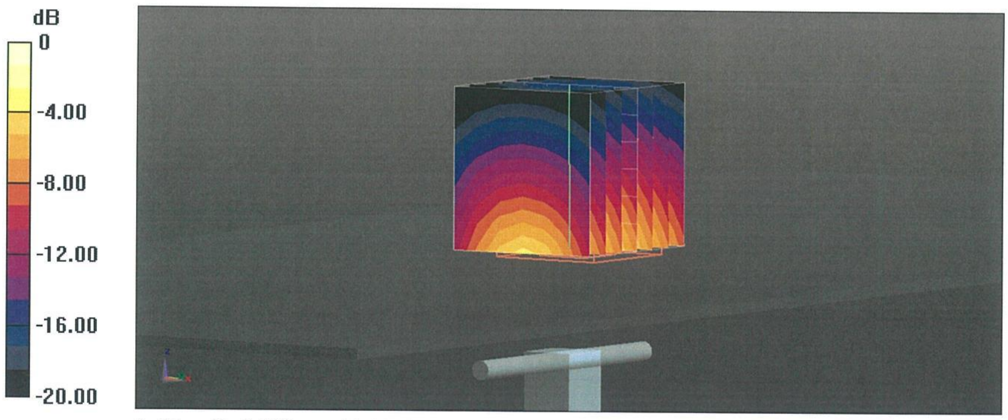
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:853

Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 2.02 S/m; ε_r = 51.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

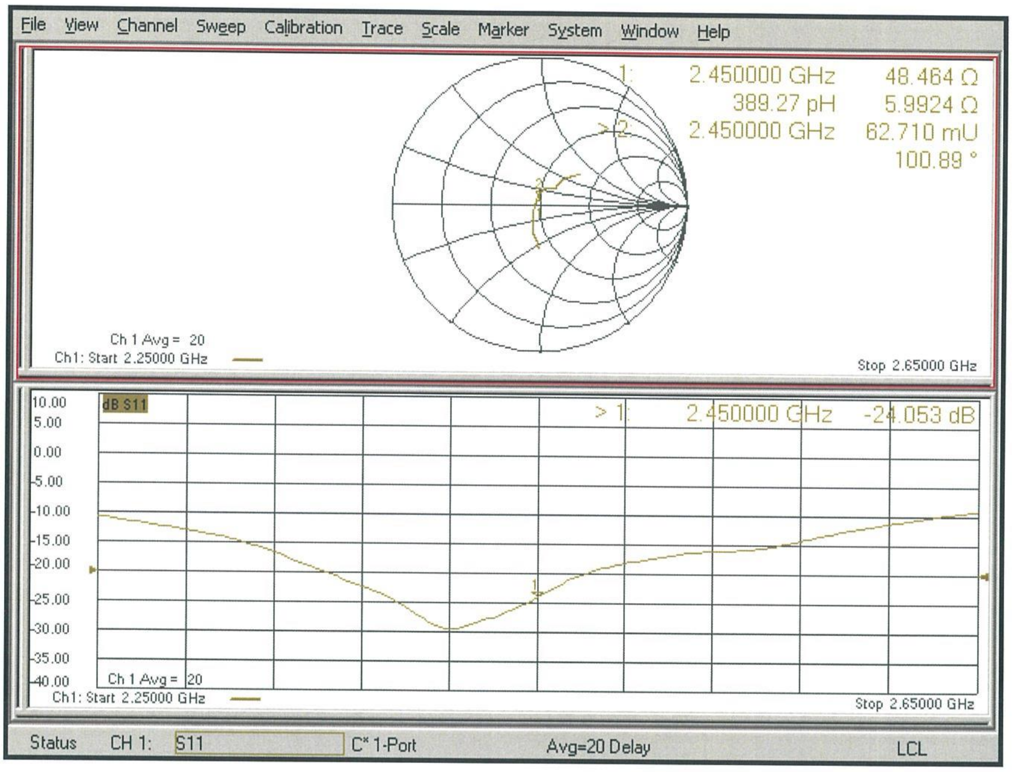
- Probe: EX3DV4 - SN7349; ConvF(8.01, 8.01, 8.01) @ 2450 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 108.0 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 25.6 W/kg
SAR(1 g) = 13.1 W/kg; SAR(10 g) = 6.1 W/kg
Maximum value of SAR (measured) = 21.0 W/kg



0 dB = 21.0 W/kg = 13.22 dBW/kg

Impedance Measurement Plot for Body TSL



ANNEX I SPOT CHECK

I.1 Conducted power of selected case

Table I.1-1: The conducted power results for Speech

GSM 850	Measured Power (dBm)		
	251	190	128
Speech	/	32.69	/
PCS1900	Measured Power (dBm)		
	810	661	512
Speech	/	/	29.85

Table I.1-2: The conducted Power for WCDMA

Item	band	FDDV result		
	ARFCN	4233 (846.6MHz)	4182 (836.4MHz)	4132 (826.4MHz)
WCDMA	\	/	/	23.37
Item	band	FDDII result		
	ARFCN	9538 (1907.6MHz)	9400 (1880MHz)	9262 (1852.4MHz)
WCDMA	\	/	23.57	/
Item	band	FDDIV result		
	ARFCN	1513 (1752.6MHz)	1412 (1732.4MHz)	1312 (1712.4MHz)
WCDMA	\	/	23.59	/

Table I.1-3: The conducted Power for LTE

LTE Band2 20MHz	1RB-High (99)	1880 (18900)	23.51
LTE Band5 10MHz	1RB-Middle (24)	844 (20600)	23.31
LTE Band13 10MHz	1RB-Low (0)	782 (23230)	23.15

Table I.1-4: The conducted Power for WLAN

Mode / data rate	Channel	Measured Power (dBm)
802.11b / 1Mbps	6	18.96

I.2 Measurement results

Test Band	Channel	Frequency	Test Position	Figure No./Note	Conducted Power (dBm)	Tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
GSM850	190	836.6	Right	Fig I.1	32.69	33.2	0.402	**0.45**	0.692	**0.78**	-0.03
GSM1900	512	1850.2	Left	Fig I.2	29.85	30.7	0.090	**0.11**	0.144	**0.18**	-0.09
WCDMA 850	4132	826.4	Right	Fig I.3	23.37	23.7	0.319	**0.34**	0.498	**0.54**	-0.02
WCDMA1700	1412	1732.4	Left	Fig I.4	23.59	23.7	0.222	**0.23**	0.337	**0.35**	-0.01
WCDMA1900	9800	1880	Left	Fig I.5	23.57	23.7	0.179	**0.18**	0.267	**0.28**	-0.03
LTE Band2	18900	1880	Left	Fig I.6	23.51	24	0.157	**0.18**	0.234	**0.26**	-0.06
LTE Band5	20600	844	Right	Fig I.7	23.31	24	0.334	**0.39**	0.524	**0.61**	-0.09
LTE Band13	23230	782	Right	Fig I.8	23.15	24	0.311	**0.38**	0.504	**0.61**	-0.07
WLAN	6	2437	Right	Fig I.9	18.96	20	0.111	**0.14**	0.221	**0.28**	0.03

Table I.2-1: SAR Values (WLAN - Head) – 802.11b (Scaled Reported SAR)

Frequency		Side	Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g) (W/kg)	Scaled reported SAR (1g) (W/kg)
MHz	Ch.						
2437	6	Right	Touch	97.64%	100%	**0.28**	**0.29**

I.3 Reported SAR Comparison

Exposure Configuration	Technology Band	Reported SAR 1g (W/Kg): spot check	Reported SAR 1g (W/Kg): original
Head (Separation Distance 0mm)	GSM 850	0.78	1.08
	PCS 1900	0.18	0.66
	UMTS FDD 5	0.54	0.62
	UMTS FDD 4	0.35	0.38
	UMTS FDD 2	0.28	0.83
	LTE Band 2	0.26	0.27
	LTE Band 5	0.61	0.61
	LTE Band 13	0.61	0.61
	WLAN 2.4 GHz	0.28	0.30

Note: All the spot check results are not larger than the original result. So we share all original results for head.

I.4 Graph Results of spot check

GSM850_CH190 Right Cheek
Date: 2019-1-17
Electronics: DAE4 Sn1525
Medium: Head 835 MHz
Medium parameters used: f = 836.6 MHz; σ = 0.879 mho/m; εr = 41.8; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: GSM850 836.6 MHz Duty Cycle: 1:8.3
Probe: EX3DV4 – SN7514 ConvF(9.09,9.09,9.09)

Area Scan (61x161x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.906 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.098 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.94 W/kg
SAR(1 g) = 0.692 W/kg; SAR(10 g) = 0.402 W/kg
Maximum value of SAR (measured) = 1.19 W/kg

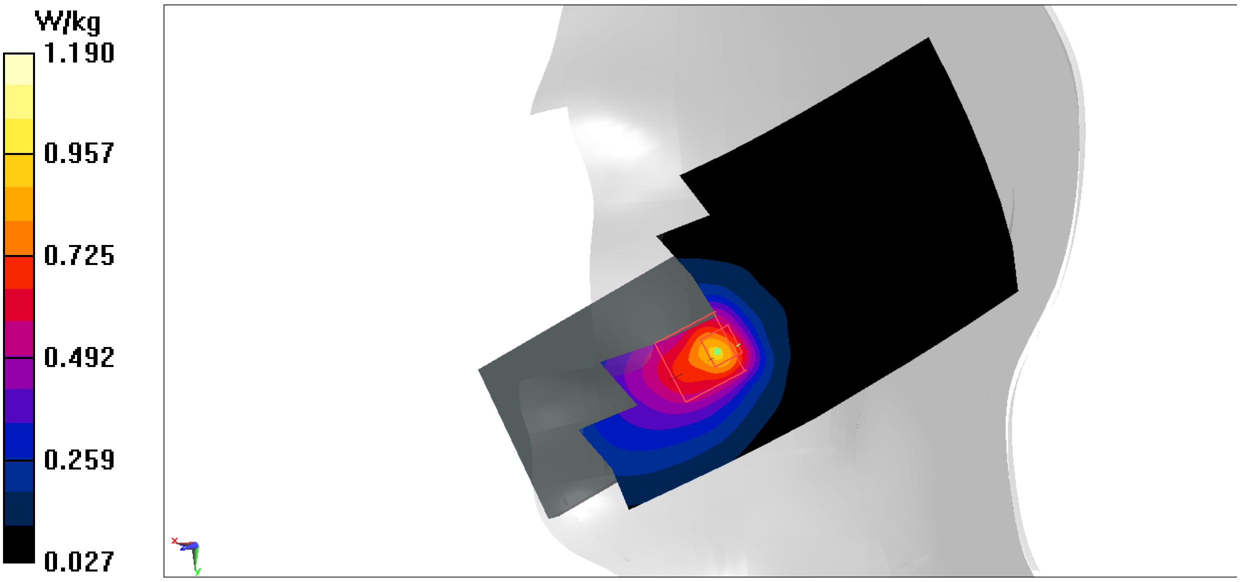


Fig I.1

PCS1900_CH512 Left Cheek
Date: 2019-1-19
Electronics: DAE4 Sn1525
Medium: Head 1900 MHz
Medium parameters used: f = 1850.2 MHz; σ = 1.342 mho/m; εr = 40.73; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: PCS1900 1850.2 MHz Duty Cycle: 1:8.3
Probe: EX3DV4 – SN7514 ConvF(7.73,7.73,7.73)

Area Scan (71x161x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.163 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.673 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.216 W/kg
SAR(1 g) = 0.144 W/kg; SAR(10 g) = 0.090 W/kg
Maximum value of SAR (measured) = 0.188 W/kg

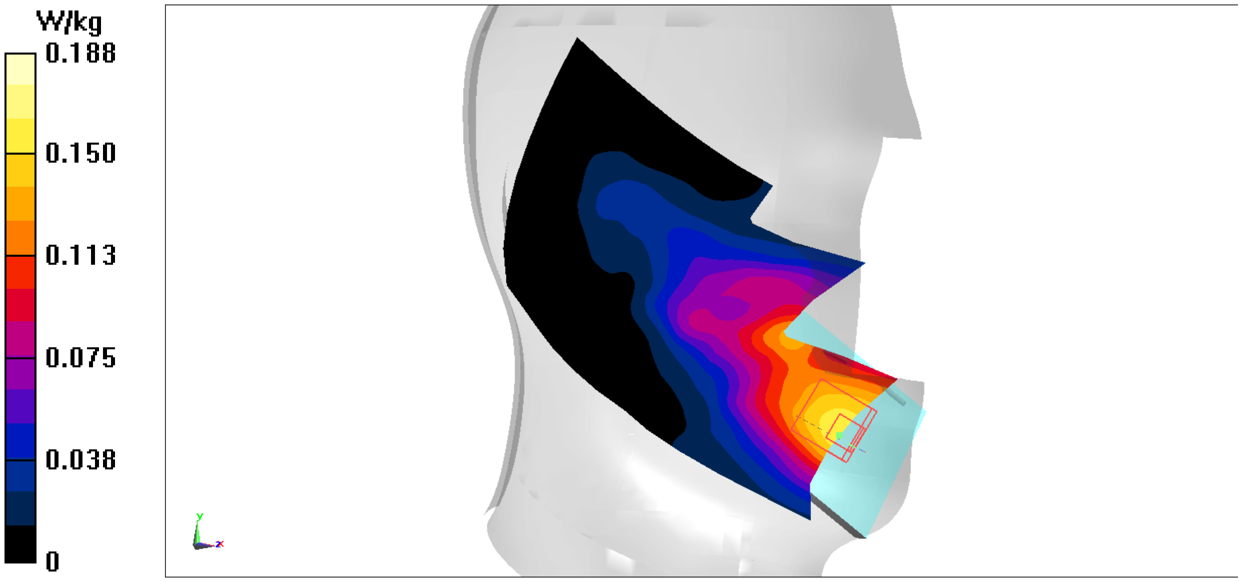


Fig I.2

WCDMA850-BV_CH4132 Right Cheek

Date: 2019-1-17

Electronics: DAE4 Sn1525

Medium: Head 835 MHz

Medium parameters used: f = 826.4 MHz; σ = 0.868 mho/m; εr = 41.81; ρ = 1000 kg/m^3

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: WCDMA850-BV 826.4 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7514 ConvF(9.09,9.09,9.09)

Area Scan (61x161x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.620 W/kg

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

Reference Value = 3.243 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.16 W/kg

SAR(1 g) = 0.498 W/kg; SAR(10 g) = 0.319 W/kg

Maximum value of SAR (measured) = 0.785 W/kg

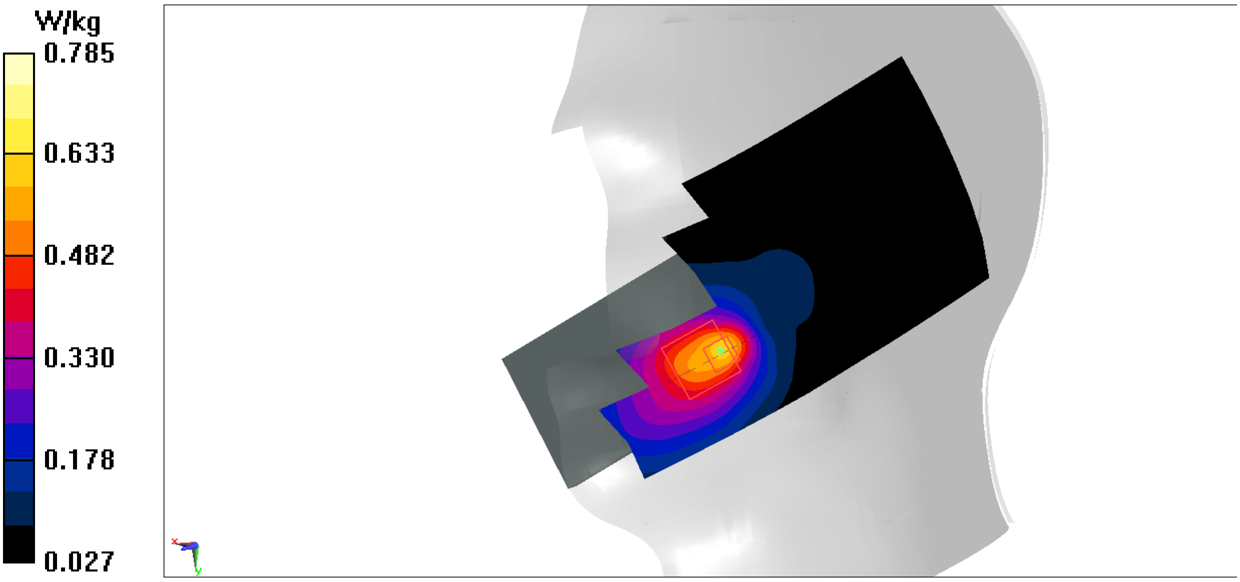


Fig I.3

WCDMA1700-BIV_CH1412 Left Cheek
Date: 2019-1-18
Electronics: DAE4 Sn1525
Medium: Head 1750 MHz
Medium parameters used: f = 1732.4 MHz; σ = 1.39 mho/m; εr = 40.51; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: WCDMA1700-BIV 1732.4 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(8.10,8.10,8.10)

Area Scan (71x161x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.499 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.736 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.486 W/kg
SAR(1 g) = 0.337 W/kg; SAR(10 g) = 0.222 W/kg
Maximum value of SAR (measured) = 0.424 W/kg

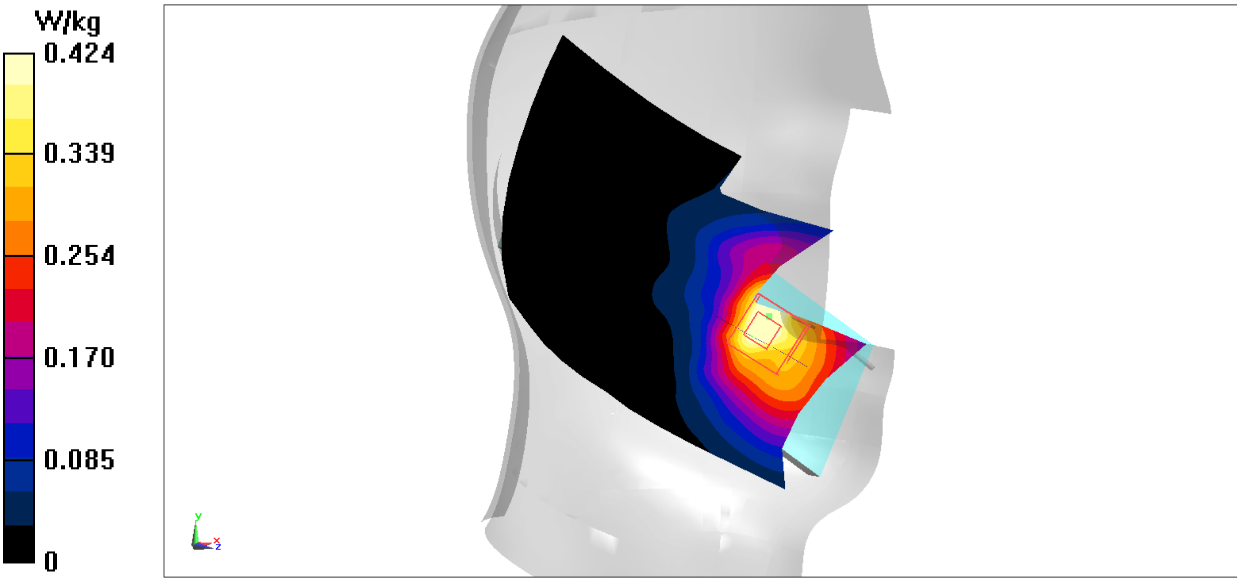


Fig I.4

WCDMA1900-BII_CH9800 Left Cheek
Date: 2019-1-19
Electronics: DAE4 Sn1525
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.369 mho/m; εr = 40.52; ρ = 1000 kg/m^3
Ambient Temperature: 22.5^{o}C, Liquid Temperature: 22.3^{o}C
Communication System: WCDMA1900-BII 1880 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(7.73,7.73,7.73)

Area Scan (71x161x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.319 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.068 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.401 W/kg
SAR(1 g) = 0.267 W/kg; SAR(10 g) = 0.179 W/kg
Maximum value of SAR (measured) = 0.355 W/kg

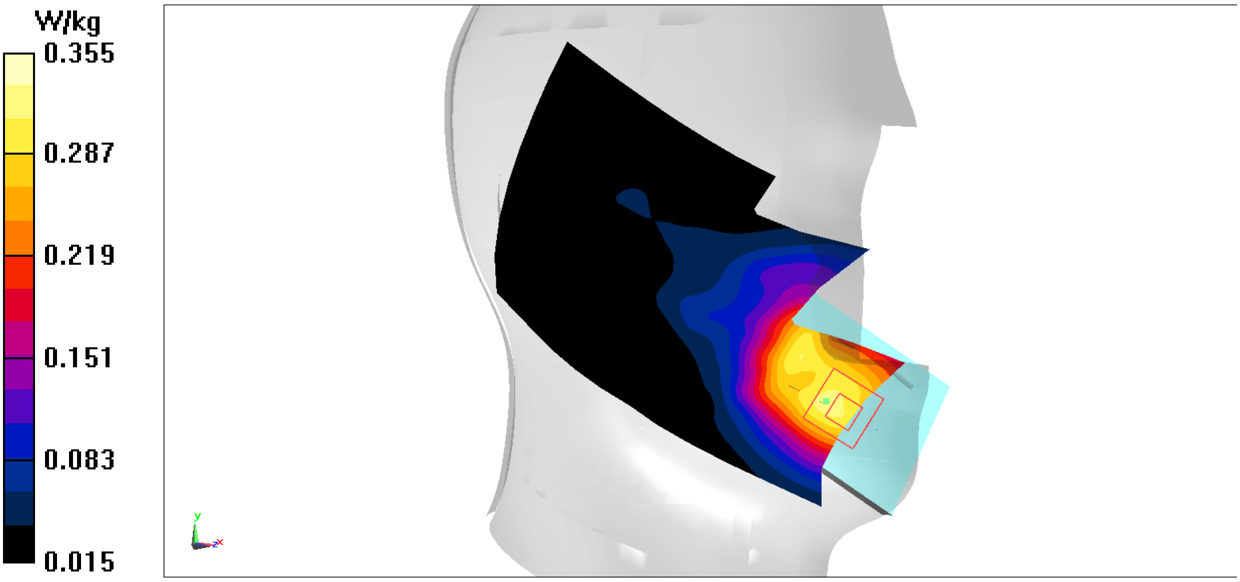


Fig I.5

LTE1900-FDD2_CH18900 Left Cheek
Date: 2019-1-19
Electronics: DAE4 Sn1525
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.369 mho/m; εr = 40.52; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C,   Liquid Temperature: 22.3°C
Communication System: LTE1900-FDD2 1880 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(7.73,7.73,7.73)

Area Scan (71x161x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.367 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.171 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.345 W/kg
SAR(1 g) = 0.234 W/kg; SAR(10 g) = 0.157 W/kg
Maximum value of SAR (measured) = 0.304 W/kg

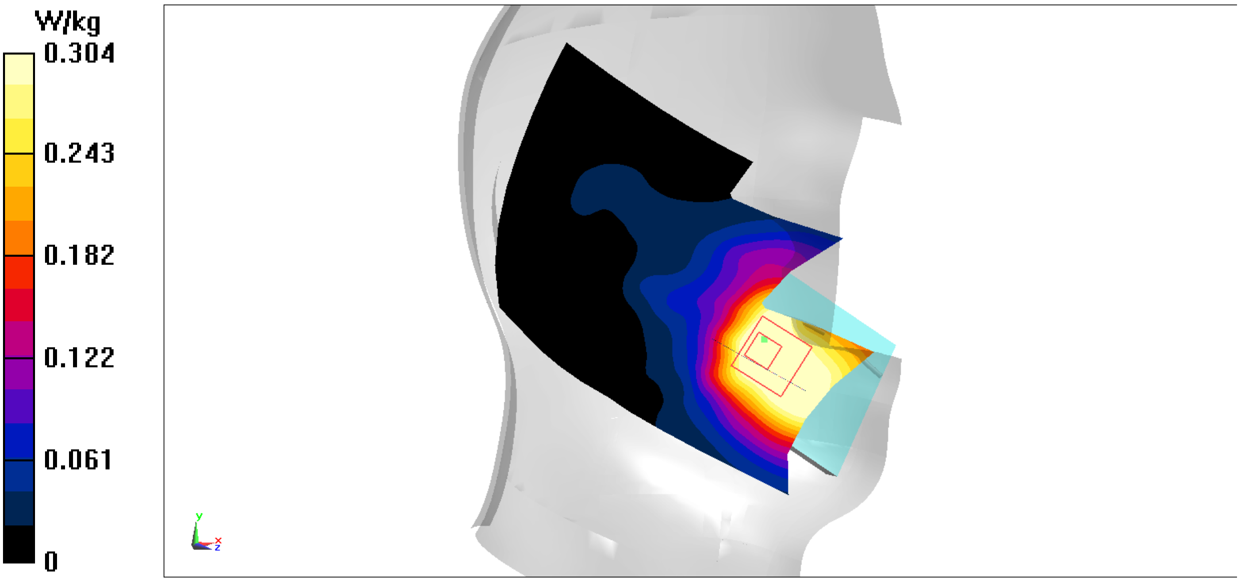


Fig I.6

LTE850-FDD5_CH20600 Right Cheek
Date: 2019-1-17
Electronics: DAE4 Sn1525
Medium: Head 835 MHz
Medium parameters used: f = 844 MHz; σ = 0.886 mho/m; εr = 41.79; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: LTE850-FDD5 844 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(9.09,9.09,9.09)

Area Scan (61x161x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.748 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.906 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.10 W/kg
SAR(1 g) = 0.524 W/kg; SAR(10 g) = 0.334 W/kg
Maximum value of SAR (measured) = 0.796 W/kg

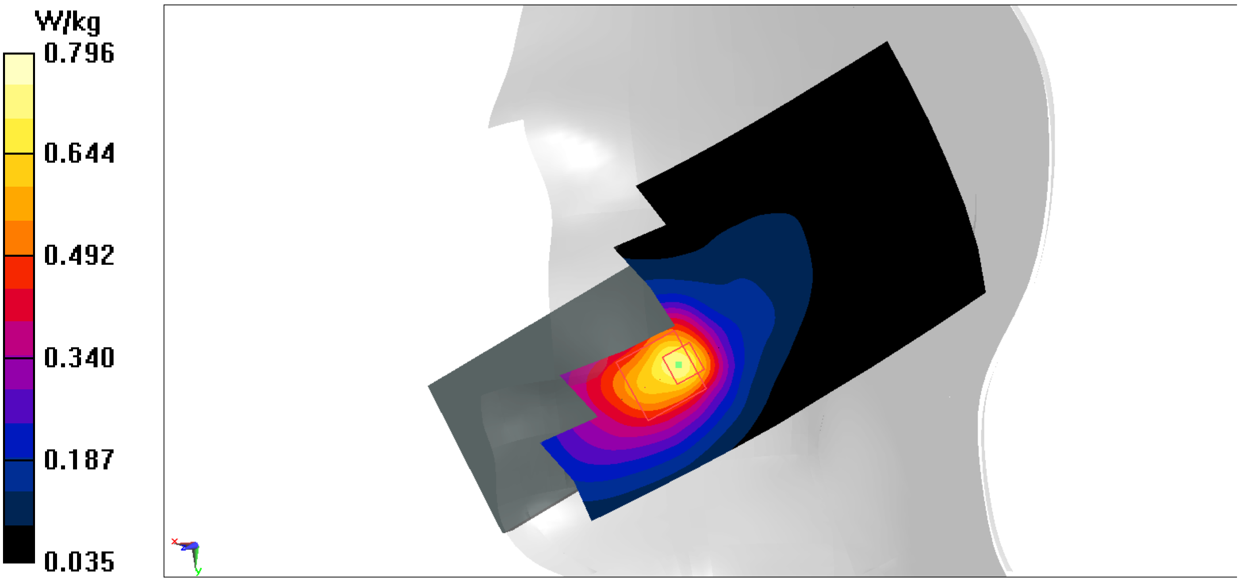


Fig I.7

LTE750-FDD13_CH23230 Right Cheek
Date: 2019-1-16
Electronics: DAE4 Sn1525
Medium: Head 750 MHz
Medium parameters used: f = 782 MHz; σ = 0.916 mho/m; εr = 42.47; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: LTE750-FDD13 782 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(9.47,9.47,9.47)

Area Scan (61x161x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.618 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.029 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.18 W/kg
SAR(1 g) = 0.504 W/kg; SAR(10 g) = 0.311 W/kg
Maximum value of SAR (measured) = 0.830 W/kg

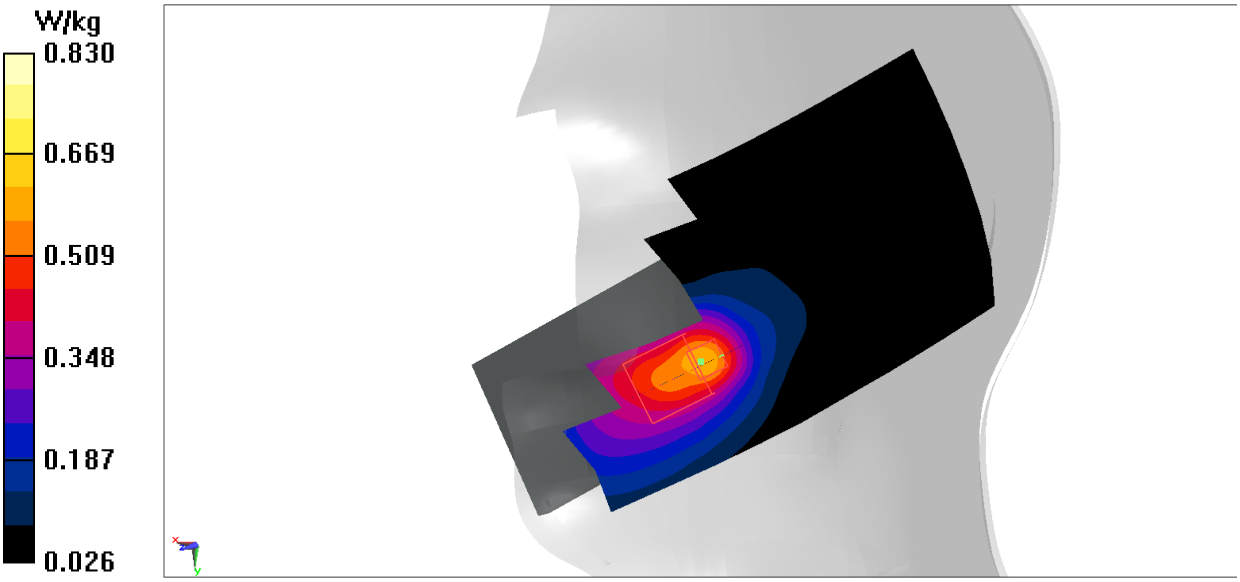


Fig I.8

WLAN2450_CH6 Right Cheek
Date: 2019-1-20
Electronics: DAE4 Sn1525
Medium: Head 2450 MHz
Medium parameters used: f = 2437 MHz; σ = 1.793 mho/m; εr = 39.18; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: WLAN2450 2437 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(6.95, 6.95, 6.95)

Area Scan (61x161x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.303 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0.7850 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.439 W/kg
SAR(1 g) = 0.221 W/kg; SAR(10 g) = 0.111 W/kg
Maximum value of SAR (measured) = 0.356 W/kg

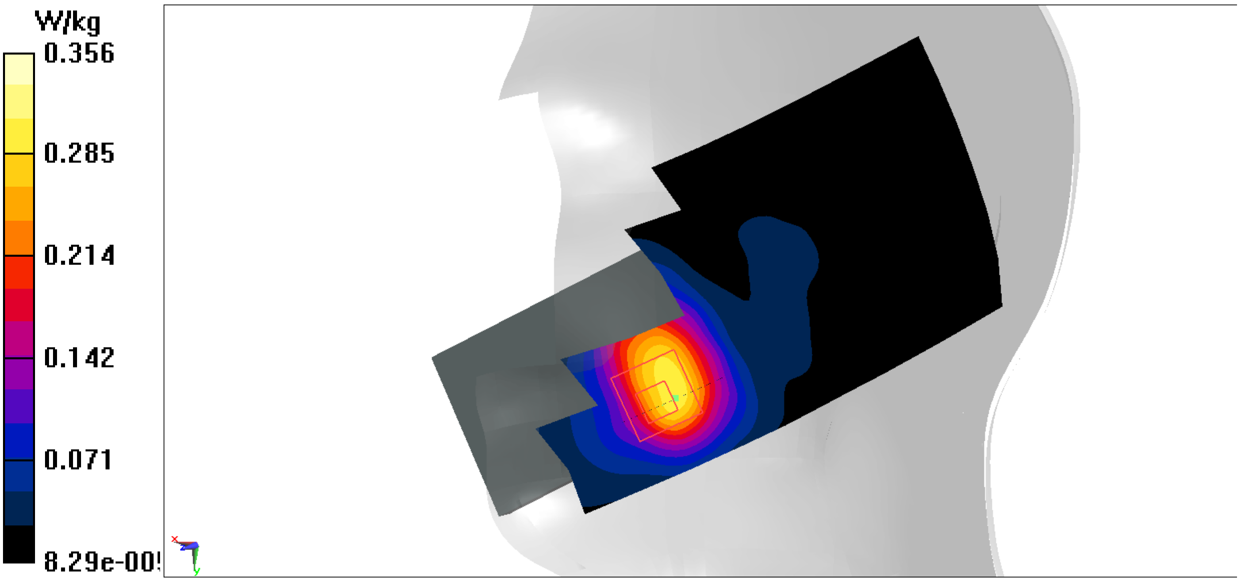


Fig I.9

ANNEX J Accreditation Certificate

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 600118-0

Telecommunication Technology Labs, CAICT
Beijing
China

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Electromagnetic Compatibility & Telecommunications

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

DEPARTMENT OF COMMERCE · UNITED STATES OF AMERICA

2018-09-28 through 2019-09-30
Effective Dates

For the National Voluntary Laboratory Accreditation Program