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

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

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	2600 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.0	1.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.2 ± 6 %	2.02 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	14.2 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**55.4 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.33 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.9 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	52.5	2.16 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.5 ± 6 %	2.20 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.7 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**54.1 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.17 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**24.5 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	47.4 Ω - 7.4 jΩ
Return Loss	- 21.9 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	44.1 Ω - 4.9 jΩ
Return Loss	- 21.8 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.154 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	October 30, 2007

DASY5 Validation Report for Head TSL

Date: 26.07.2018

Test Laboratory: SPEAG, Zurich, Switzerland

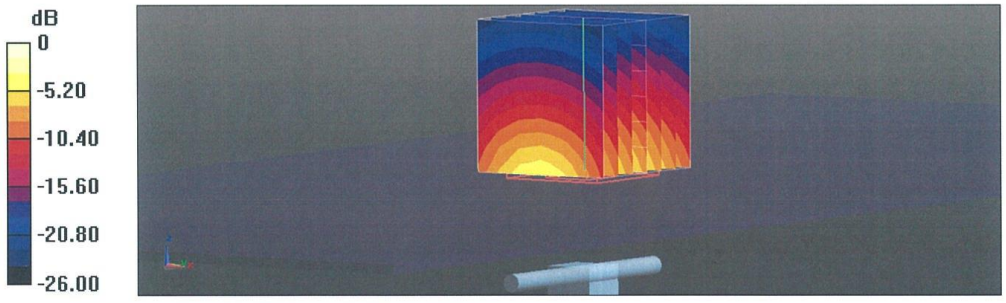
DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN:1012

Communication System: UID 0 - CW; Frequency: 2600 MHz
Medium parameters used: f = 2600 MHz; σ = 2.02 S/m; ε_r = 37.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

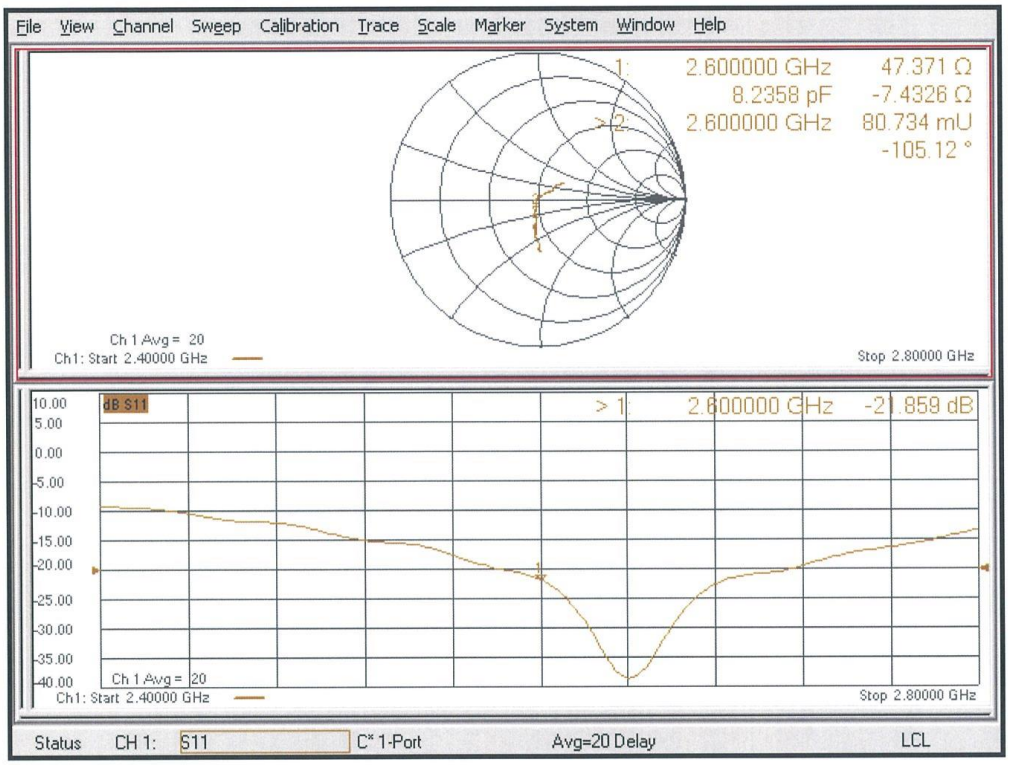
- Probe: EX3DV4 - SN7349; ConvF(7.7, 7.7, 7.7) @ 2600 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

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 = 118.3 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 28.3 W/kg
SAR(1 g) = 14.2 W/kg; SAR(10 g) = 6.33 W/kg
Maximum value of SAR (measured) = 23.7 W/kg



0 dB = 23.7 W/kg = 13.75 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 26.07.2018

Test Laboratory: SPEAG, Zurich, Switzerland

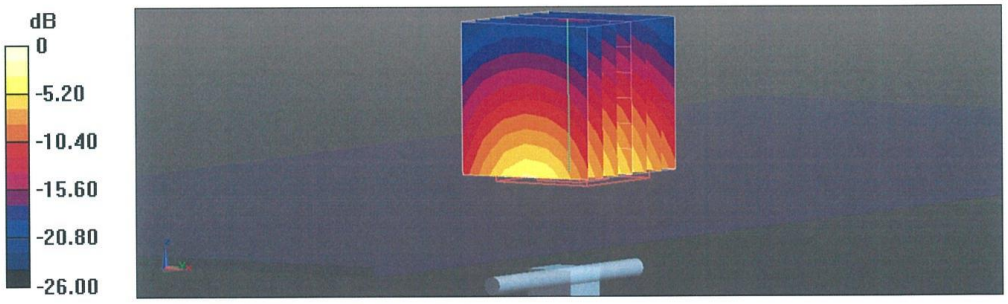
DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN:1012

Communication System: UID 0 - CW; Frequency: 2600 MHz
Medium parameters used: f = 2600 MHz; σ = 2.2 S/m; ε_r = 51.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

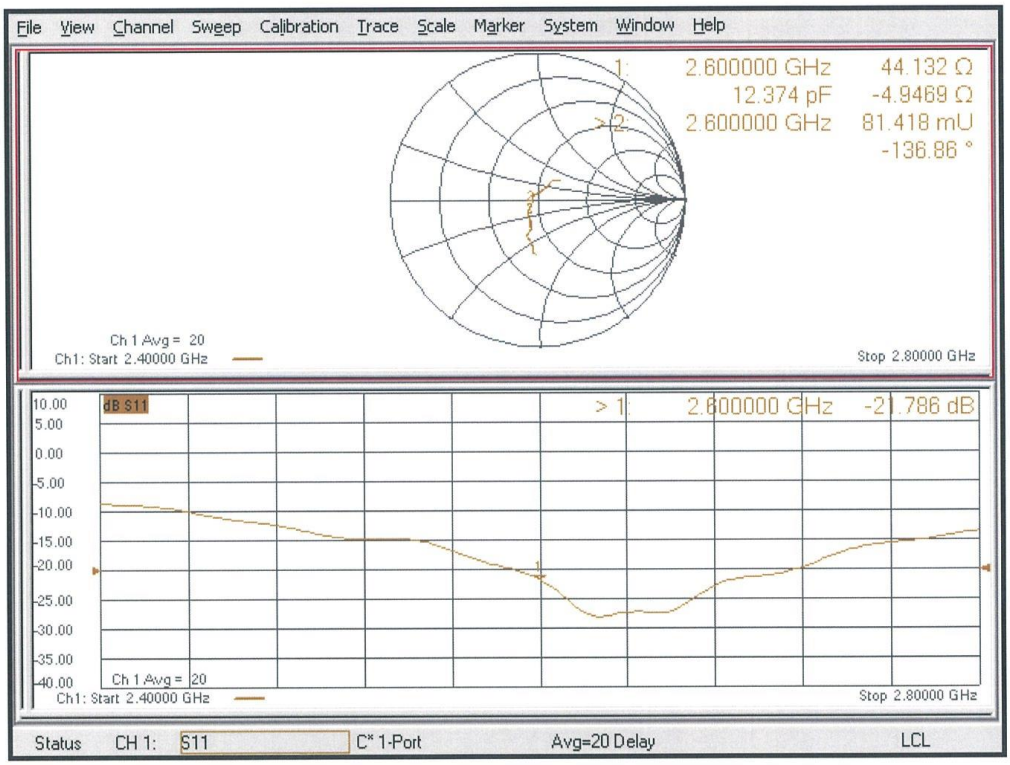
- Probe: EX3DV4 - SN7349; ConvF(7.81, 7.81, 7.81) @ 2600 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

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 = 107.5 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 27.7 W/kg
SAR(1 g) = 13.7 W/kg; SAR(10 g) = 6.17 W/kg
Maximum value of SAR (measured) = 22.6 W/kg



0 dB = 22.6 W/kg = 13.54 dBW/kg

Impedance Measurement Plot for Body TSL



J.12 DAE Calibration Certificate

In Collaboration with
s p e a g
CALIBRATION LABORATORY
Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com Http://www.chinattl.cn

中国认可 国际互认 校准 CALIBRATION CNAS L0570

Client : CTTL Certificate No: Z18-60359

CALIBRATION CERTIFICATE

Object	DAE4 - SN: 1525
Calibration Procedure(s)	FF-Z11-002-01 Calibration Procedure for the Data Acquisition Electronics (DAEx)
Calibration date:	September 18, 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)℃ and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Process Calibrator 753	1971018	20-Jun-18 (CTTL, No.J18X05034)	June-19

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

Issued: September 20, 2018

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

In Collaboration with
s p e a g
CALIBRATION LABORATORY
Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com Http://www.chinattl.cn

Glossary:

DAE	data acquisition electronics
Connector angle	information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters:

- *DC Voltage Measurement*: Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.

- *Connector angle*: The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.

- The report provide only calibration results for DAE, it does not contain other performance test results.

In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com Http://www.chinattl.cn

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1μV , full range = -100...+300 mV
Low Range: 1LSB = 61nV , full range = -1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	405.933 ± 0.15% (k=2)	405.969 ± 0.15% (k=2)	405.417 ± 0.15% (k=2)
Low Range	3.99161 ± 0.7% (k=2)	4.01041 ± 0.7% (k=2)	3.99418 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	53° ± 1 °

ANNEX K Spot Check

K.1 Dielectric Performance

Table K.1-1: Dielectric Performance of Tissue Simulating Liquid

Measurement Date yyyy/mm/dd	Frequency	Type	Permittivity ε	Drift (%)	Conductivity σ (S/m)	Drift (%)
2020/10/22	750 MHz	Head	41.7	-0.57	0.898	0.90
		Body	55.35	-0.27	0.951	-0.94
2020/10/22	835 MHz	Head	41.6	0.24	0.901	0.11
		Body	56.1	1.63	0.988	1.86
2020/10/22	1750 MHz	Head	40.68	1.50	1.38	0.73
		Body	53.22	-0.34	1.514	1.61
2020/10/23	1900 MHz	Head	39.55	-1.13	1.39	-0.71
		Body	53.19	-0.21	1.536	1.05
2020/10/23	2450 MHz	Head	39.05	-0.38	1.784	-0.89
		Body	53.36	1.25	1.966	0.82
2020/10/23	2600 MHz	Head	39.57	1.44	1.966	0.31
		Body	51.61	-1.70	2.138	-1.02

K.2 System Verification

Table K.2-1: System Verification of Head

Measurement Date (yyyy-mm-dd)	Frequency	Target value (W/kg)		Measured value (W/kg)		Deviation	
		10 g Average	1 g Average	10 g Average	1 g Average	10 g Average	1 g Average
2020/10/22	750 MHz	5.53	8.47	5.48	8.48	-0.90%	0.12%
2020/10/22	835 MHz	6.25	9.60	6.24	9.72	-0.16%	1.25%
2020/10/22	1750 MHz	19.1	36.5	19.2	35.92	0.52%	-1.59%
2020/10/23	1900 MHz	20.6	39.6	20.4	40.2	-0.97%	1.52%
2020/10/23	2450 MHz	24.5	52.5	24.92	53.44	1.71%	1.79%
2020/10/23	2600 MHz	25.3	57.0	25.44	57.92	0.55%	1.61%

Table K.2-2: System Verification of Body

Measurement Date (yyyy-mm-dd)	Frequency	Target value (W/kg)		Measured value (W/kg)		Deviation	
		10 g Average	1 g Average	10 g Average	1 g Average	10 g Average	1 g Average
2020/10/22	750 MHz	5.84	8.85	5.8	9	-0.68%	1.69%
2020/10/22	835 MHz	6.39	9.74	6.44	9.56	0.78%	-1.85%
2020/10/22	1750 MHz	19.9	37.6	20.16	37.28	1.31%	-0.85%
2020/10/23	1900 MHz	20.8	39.5	20.52	39.12	-1.35%	-0.96%
2020/10/23	2450 MHz	24.6	52.4	24.24	51.88	-1.46%	-0.99%
2020/10/23	2600 MHz	24.6	55.1	25	54.24	1.63%	-1.56%

K.3 Conducted power of selected case

Table K.3-1: The conducted power results for 2G

GSM 850MHZ	Measured Power (dBm)		
	251	190	128
Speech	32.59	/	/
GPRS(2Tx)	/	30.27	/
GSM1900MHZ	Measured Power (dBm)		
	810	661	512
Speech	/	/	29.95
GPRS(2Tx)	/	/	27.23

Table K.3-2: The conducted Power for WCDMA

Item	band	FDDII result		
	ARFCN	9538/9938	9400/9800	9262/9662
WCDMA	\	(1907.6MHz)	(1880MHz)	(1852.4MHz)
		/	/	22.95
Item	band	FDDIV result		
	ARFCN	1513/1738	1412/1637	1312/1537
WCDMA	\	(1752.6MHz)	(1732.4MHz)	(1712.4MHz)
		/	22.93	/
Item	band	FDDV result		
	ARFCN	4233/4458	4183/4408	4132/4357
WCDMA	\	(846.6MHz)	(836.6MHz)	(826.4MHz)
		22.74	22.89	/

Table K.3-3: The conducted Power for LTE

LTE Band2	1RB-Middle	1900 (19100)	23.27
LTE Band2	1RB-Middle	1860 (18700)	23.18
LTE Band4	1RB-Middle	1720 (20050)	23.26
LTE Band4	1RB-Middle	1745 (20300)	23.34

LTE Band5	1RB-Middle	829 (20450)	23.46
LTE Band7	1RB-Middle	2510 (20850)	21.96
LTE Band7	1RB-Middle	2560 (21350)	22.11
LTE Band12	1RB-Middle	704 (23060)	23.31
LTE Band13	1RB-Middle	782 (23230)	23.52

Table K.3-4: The conducted Power for WLAN

Mode / data rate	Channel	Measured Power (dBm)
2.4G-11b	6	16.04

J.4 Measurement results for spot check

Table J.4-1: The spot check results

Test Band	Channel	Frequency	Tune-Up	Measured Power	Test Position	Measured 10g SAR	Measured 1g SAR	Reported 10g SAR	Reported 1g SAR	Power Drift
GSM850	251	848.8 MHz	33.3	32.59	Left Cheek	0.327	0.429	0.39	0.51	0.12
GSM850	190	836.6 MHz	30.5	30.27	Rear	0.511	0.655	0.54	0.69	-0.02
PCS1900	512	1850.2 MHz	30.3	29.95	Right Cheek	0.17	0.273	0.18	0.30	-0.08
PCS1900	512	1850.2 MHz	28	27.23	Rear	0.526	0.915	0.63	1.09	0.1
WCDMA1900-BII	9262	1852.4 MHz	23.5	22.95	Left Cheek	0.32	0.517	0.36	0.59	-0.13
WCDMA1900-BII	9262	1852.4 MHz	23.5	22.95	Bottom edge	0.576	1.05	0.65	1.19	-0.02
WCDMA1700-BIV	1412	1732.4 MHz	23.5	22.93	Left Cheek	0.321	0.529	0.37	0.60	-0.16
WCDMA1700-BIV	1412	1732.4 MHz	23.5	22.93	Rear	0.42	0.706	0.48	0.81	0.1
WCDMA850-BV	4182	835.4 MHz	24	22.89	Left Cheek	0.26	0.344	0.34	0.44	0.02
WCDMA850-BV	4233	846.6 MHz	24	22.74	Rear	0.361	0.463	0.48	0.62	0.02
LTE1900-FDD2	19100	1900 MHz	23.5	23.27	Left Cheek	0.288	0.471	0.30	0.50	-0.09
LTE1900-FDD2	18700	1860 MHz	23.5	23.18	Bottom edge	0.597	1.09	0.64	1.17	0.02
LTE1700-FDD4	20050	1720 MHz	23.5	23.26	Left Cheek	0.278	0.448	0.29	0.47	-0.09
LTE1700-FDD4	20300	1745 MHz	23.5	23.34	Rear	0.602	1.02	0.62	1.06	-0.09
LTE850-FDD5	20450	829 MHz	24	23.46	Left Cheek	0.275	0.358	0.31	0.41	0.05
LTE850-FDD5	20450	829 MHz	24	23.46	Rear	0.409	0.523	0.46	0.59	-0.14
LTE2500-FDD7	20850	2510 MHz	22.2	21.96	Right Cheek	0.0696	0.131	0.07	0.14	-0.05
LTE2500-FDD7	21350	2560 MHz	22.2	22.11	Bottom edge	0.51	1.05	0.52	1.07	0.05
LTE700-FDD12	23060	704 MHz	24	23.31	Right Cheek	0.143	0.183	0.17	0.21	-0.05
LTE700-FDD12	23060	704 MHz	24	23.31	Rear	0.248	0.317	0.29	0.37	-0.19
LTE750-FDD13	23230	782 MHz	24	23.52	Left Cheek	0.208	0.27	0.23	0.30	0.02
LTE750-FDD13	23230	782 MHz	24	23.52	Rear	0.294	0.375	0.33	0.42	-0.15
WLAN2450	6	2437 MHz	16.5	16.04	Right Cheek	0.359	0.719	0.40	0.80	0.01
WLAN2450	6	2437 MHz	16.5	16.04	Rear	0.0882	0.174	0.10	0.19	0.13

K.5 Reported SAR Comparison

Exposure Configuration	Technology Band	Reported SAR 1g (W/Kg): original	Reported SAR 1g (W/Kg): spot check
Head (Separation Distance 0mm)	GSM850	0.39	**0.51**
	PCS1900	0.38	**0.30**
	WCDMA1900-BII	0.23	**0.59**
	WCDMA1700-BIV	0.46	**0.60**
	WCDMA850-BV	0.39	**0.44**
	LTE1900-FDD2	0.16	**0.50**
	LTE1700-FDD4	0.33	**0.47**
	LTE850-FDD5	0.36	**0.41**
	LTE2500-FDD7	0.20	**0.14**
	LTE700-FDD12	0.22	**0.21**
	LTE750-FDD13	0.34	**0.30**
	WLAN 2.4 GHz	0.99	**0.80**
Hotspot (Separation Distance 10mm)	GSM850	0.46	**0.69**
	PCS1900	1.09	**1.09**
	WCDMA1900-BII	1.19	**1.19**
	WCDMA1700-BIV	1.18	**0.81**
	WCDMA850-BV	0.44	**0.62**
	LTE1900-FDD2	1.19	**1.17**
	LTE1700-FDD4	1.16	**1.06**
	LTE850-FDD5	0.41	**0.59**
	LTE2500-FDD7	1.28	**1.07**
	LTE700-FDD12	0.30	**0.37**
	LTE750-FDD13	0.37	**0.42**
	WLAN 2.4 GHz	0.16	**0.19**

Note: All the spot check results marked blue are larger than the original resultd. So it replace the original results and others are shared.

K.6 Evaluation of Simultaneous

Table K.6-1: The sum of reported SAR values for main antenna and WiFi

	Position	Main antenna	WiFi	Sum
Highest reported SAR value for Head	Right hand, Touch cheek	0.39	0.99	**1.38**
Highest reported SAR value for Body	Rear	1.18	0.19	**1.37**

Table K.6-2: The sum of reported SAR values for main antenna and BT

	Position	Main antenna	BT	Sum
Maximum reported SAR value for Head	Right hand, Touch cheek	0.39	0.21	**0.60**
Maximum reported SAR value for Body	Rear	1.18	0.10	**1.28**

K.7 List of Main Instruments

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Network analyzer	N5239A	MY46110673	January 24, 2020	One year
02	Power meter	NRP2	101919	May 12, 2020	One year
03	Power sensor	NRP-Z91	101547		
04	Signal Generator	E4438C	MY49070393	January 4, 2020	One Year
05	Amplifier	60S1G4	0331848	No Calibration Requested	
06	BTS	CMW500	129942	February 10, 2020	One year
07	E-field Probe	SPEAG EX3DV4	3617	Jan 30, 2020	One year
08	DAE	SPEAG DAE4	777	January 8, 2020	One year
09	Dipole Validation Kit	SPEAG D750V3	1017	July 24,2020	One year
10	Dipole Validation Kit	SPEAG D835V2	4d069	July 24,,2020	One year
11	Dipole Validation Kit	SPEAG D1750V2	1003	July 24, 2020	One year
12	Dipole Validation Kit	SPEAG D1900V2	5d101	July 28,2020	One year
13	Dipole Validation Kit	SPEAG D2450V2	853	July 21,2020	One year
14	Dipole Validation Kit	SPEAG D2600V2	1012	July 21,2020	One year

K.8 Graph Results

GSM850_CH251 Left Cheek
Date: 10/22/2020
Electronics: DAE4 Sn777
Medium: head 835 MHz
Medium parameters used: f = 848.8 MHz; σ = 0.914 mho/m; εr = 41.58; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: GSM850 848.8 MHz Duty Cycle: 1：8.3
Probe: EX3DV4 – SN3617 ConvF(9.66,9.66,9.66)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.542 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.629 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.548 W/kg
SAR(1 g) = 0.429 W/kg; SAR(10 g) = 0.327 W/kg
Maximum value of SAR (measured) = 0.443 W/kg

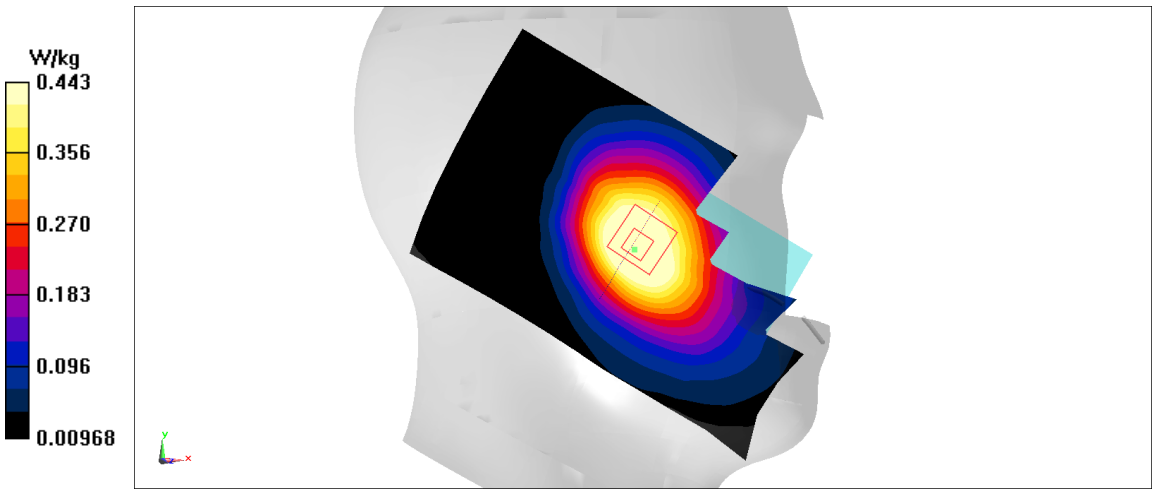


Fig A.1

GSM850_CH190 Rear
Date: 10/22/2020
Electronics: DAE4 Sn777
Medium: body 835 MHz
Medium parameters used: f = 836.6 MHz; σ = 0.99 mho/m; εr = 56.1; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: GSM850 836.6 MHz Duty Cycle: 1：4
Probe: EX3DV4 – SN3617 ConvF(9.66,9.66,9.66)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.765 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.6 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.815 W/kg
SAR(1 g) = 0.655 W/kg; SAR(10 g) = 0.511 W/kg
Maximum value of SAR (measured) = 0.76 W/kg

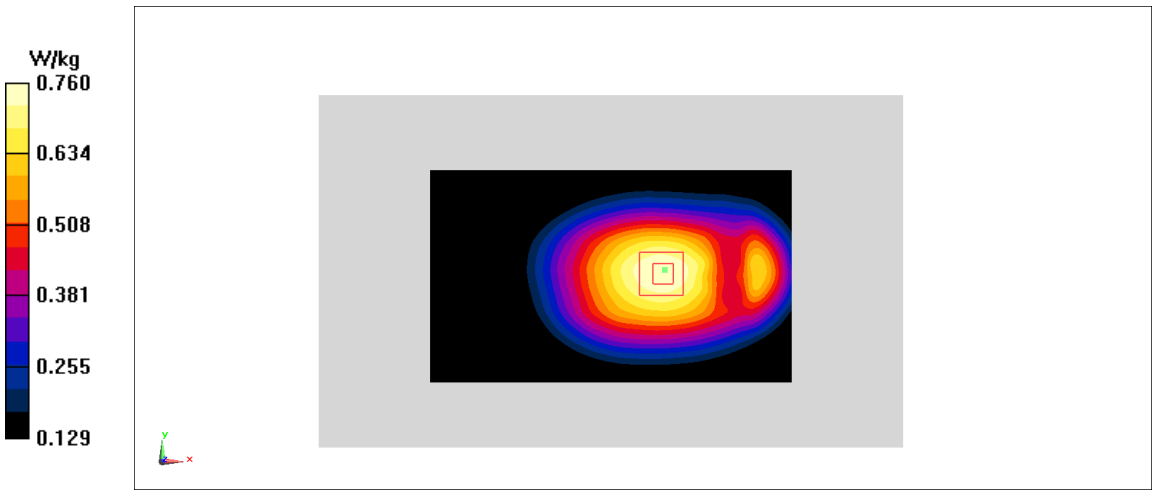


Fig A.2

PCS1900_CH512 Right Cheek
Date: 10/23/2020
Electronics: DAE4 Sn777
Medium: head 1900 MHz
Medium parameters used: f = 1850.2 MHz; σ = 1.342 mho/m; εr = 39.61; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: PCS1900 1850.2 MHz Duty Cycle: 1：8.3
Probe: EX3DV4 – SN3617 ConvF(8.14,8.14,8.14)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.402 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.307 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.409 W/kg
SAR(1 g) = 0.273 W/kg; SAR(10 g) = 0.17 W/kg
Maximum value of SAR (measured) = 0.298 W/kg

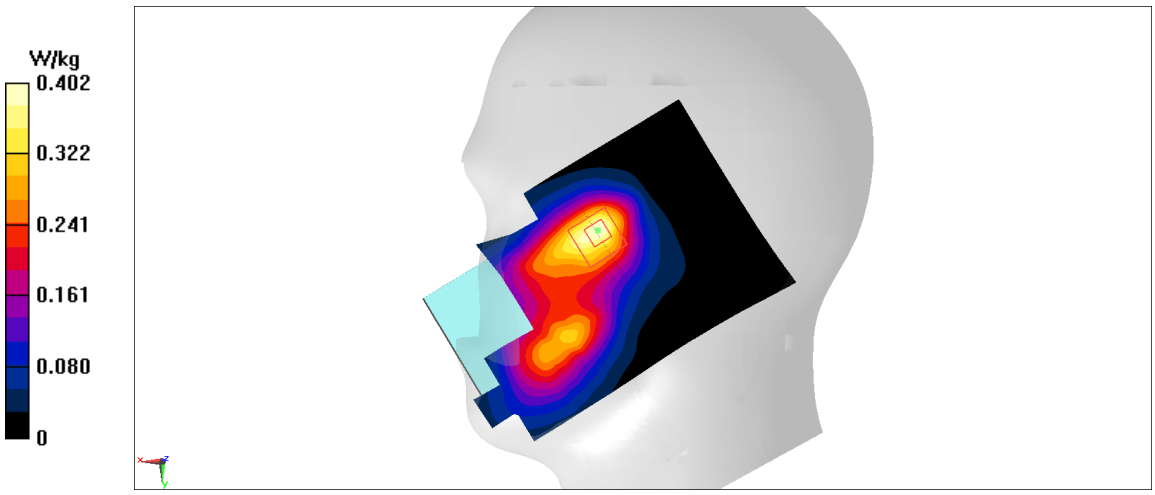


Fig A.3

PCS1900_CH512 Rear
Date: 10/23/2020
Electronics: DAE4 Sn777
Medium: body 1900 MHz
Medium parameters used: f = 1850.2 MHz; σ = 1.488 mho/m; εr = 53.25; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: PCS1900 1850.2 MHz Duty Cycle: 1：4
Probe: EX3DV4 – SN3617 ConvF(8.14,8.14,8.14)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.15 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.1 V/m; Power Drift = 0.1 dB
Peak SAR (extrapolated) = 1.6 W/kg
SAR(1 g) = 0.915 W/kg; SAR(10 g) = 0.526 W/kg
Maximum value of SAR (measured) = 1.35 W/kg

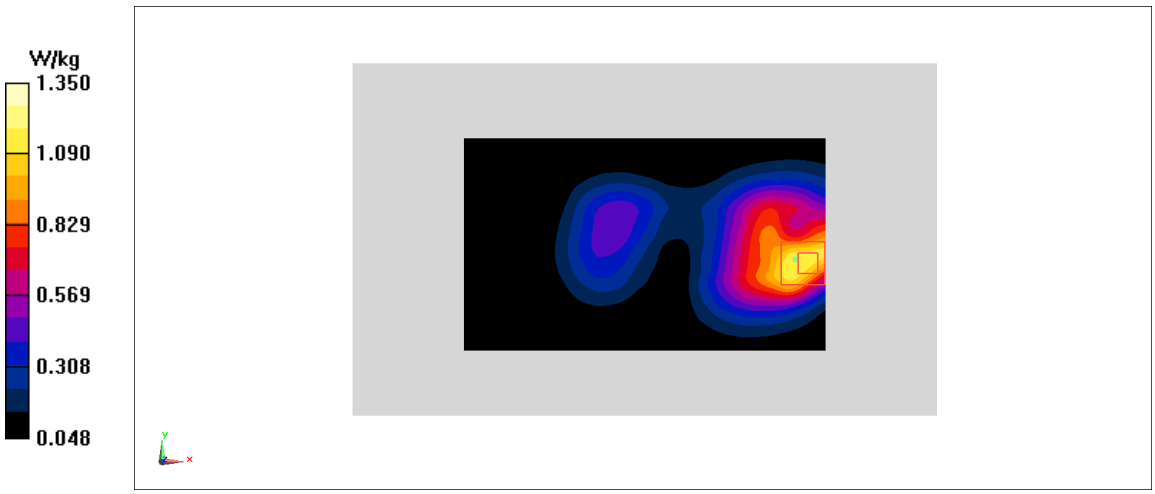


Fig A.4

WCDMA1900-BII_CH9262 Left Cheek
Date: 10/23/2020
Electronics: DAE4 Sn777
Medium: head 1900 MHz
Medium parameters used: f = 1852.4 MHz; σ = 1.344 mho/m; εr = 39.61; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: WCDMA1900-BII 1852.4 MHz Duty Cycle: 1：1
Probe: EX3DV4 – SN3617 ConvF(8.14,8.14,8.14)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.743 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.79 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.797 W/kg
SAR(1 g) = 0.517 W/kg; SAR(10 g) = 0.32 W/kg
Maximum value of SAR (measured) = 0.563 W/kg

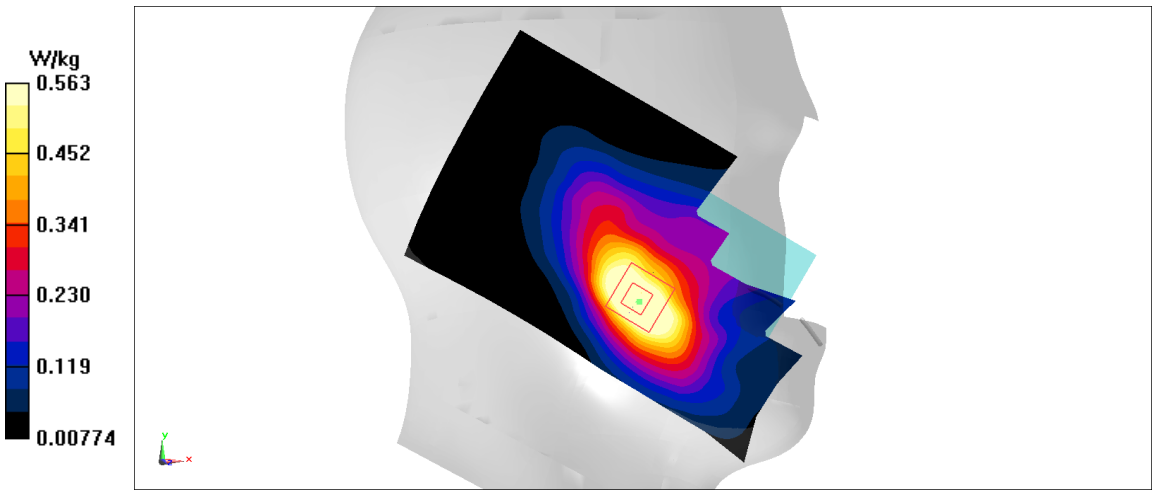


Fig A.5

WCDMA1900-BII_CH9262 Bottom edge
Date: 10/23/2020
Electronics: DAE4 Sn777
Medium: body 1900 MHz
Medium parameters used: f = 1852.4 MHz; σ = 1.49 mho/m; εr = 53.25; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: WCDMA1900-BII 1852.4 MHz Duty Cycle: 1：1
Probe: EX3DV4 – SN3617 ConvF(8.14,8.14,8.14)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.43 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.34 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.77 W/kg
SAR(1 g) = 1.05 W/kg; SAR(10 g) = 0.576 W/kg
Maximum value of SAR (measured) = 1.52 W/kg

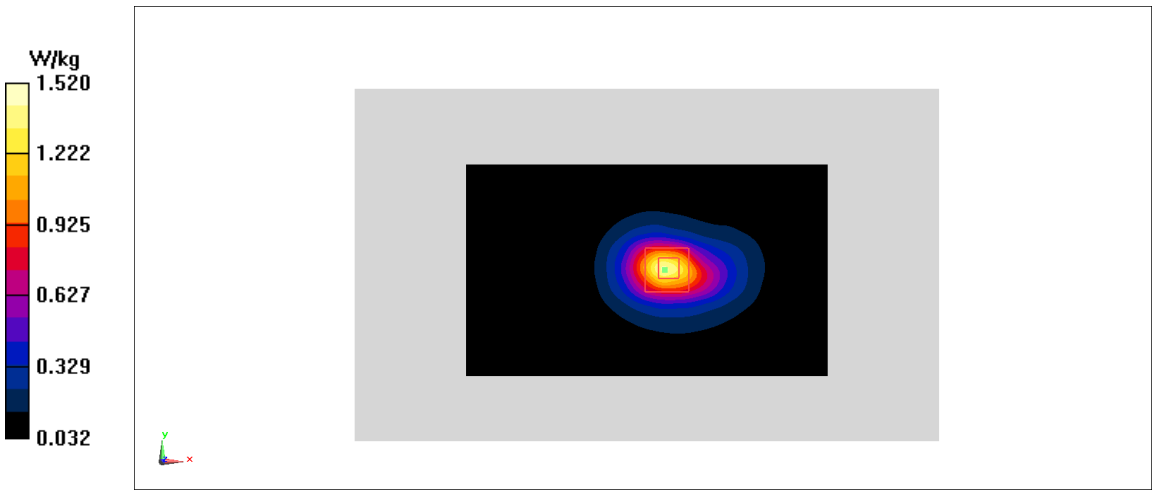


Fig A.6

WCDMA1700-BIV_CH1412 Left Cheek
Date: 10/22/2020
Electronics: DAE4 Sn777
Medium: head 1750 MHz
Medium parameters used: f = 1732.4 MHz; σ = 1.363 mho/m; εr = 40.7; 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 – SN3617 ConvF(8.41,8.41,8.41)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.727 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.817 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 0.822 W/kg
SAR(1 g) = 0.529 W/kg; SAR(10 g) = 0.321 W/kg
Maximum value of SAR (measured) = 0.574 W/kg

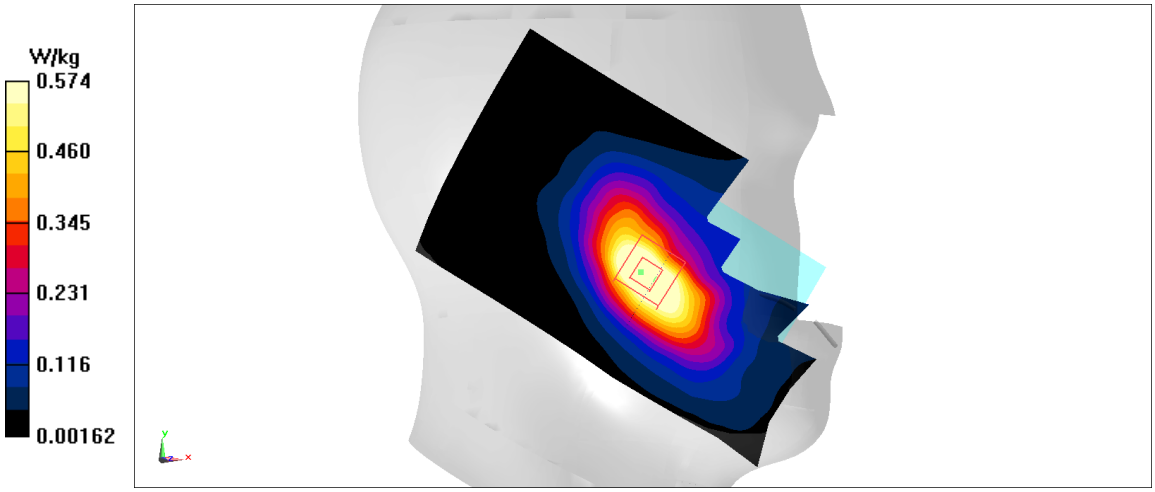


Fig A.7

WCDMA1700-BIV_CH1412 Rear
Date: 10/22/2020
Electronics: DAE4 Sn777
Medium: body 1750 MHz
Medium parameters used: f = 1732.4 MHz; σ = 1.497 mho/m; εr = 53.24; 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 – SN3617 ConvF(8.41,8.41,8.41)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.06 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.37 V/m; Power Drift = 0.1 dB
Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.706 W/kg; SAR(10 g) = 0.42 W/kg
Maximum value of SAR (measured) = 1.01 W/kg

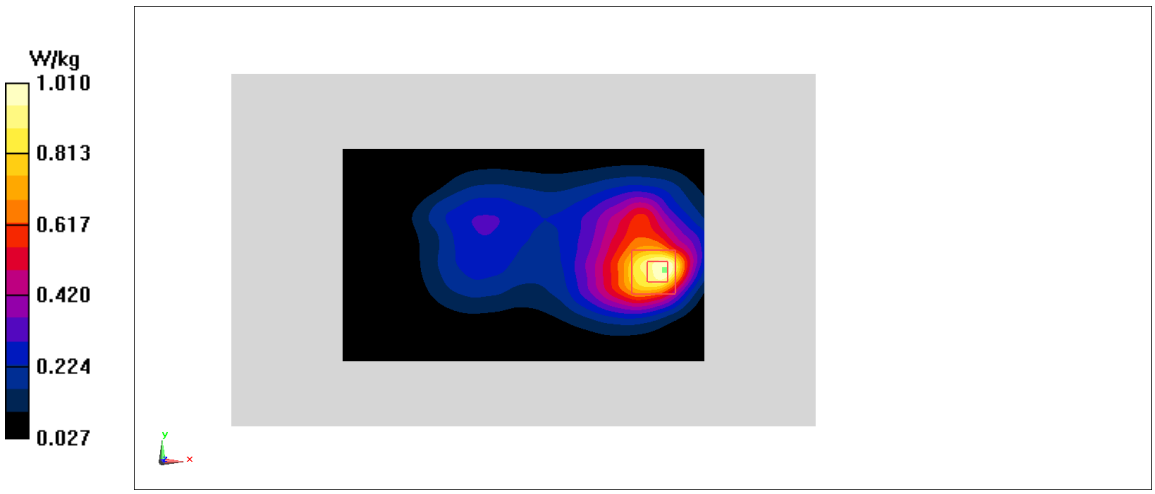


Fig A.8

WCDMA850-BV_CH4182 Left Cheek
Date: 10/22/2020
Electronics: DAE4 Sn777
Medium: head 835 MHz
Medium parameters used: f = 835.4 MHz; σ = 0.901 mho/m; εr = 41.6; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: WCDMA850-BV 835.4 MHz Duty Cycle: 1：1
Probe: EX3DV4 – SN3617 ConvF(9.66,9.66,9.66)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.446 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.827 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.445 W/kg
SAR(1 g) = 0.344 W/kg; SAR(10 g) = 0.26 W/kg
Maximum value of SAR (measured) = 0.357 W/kg

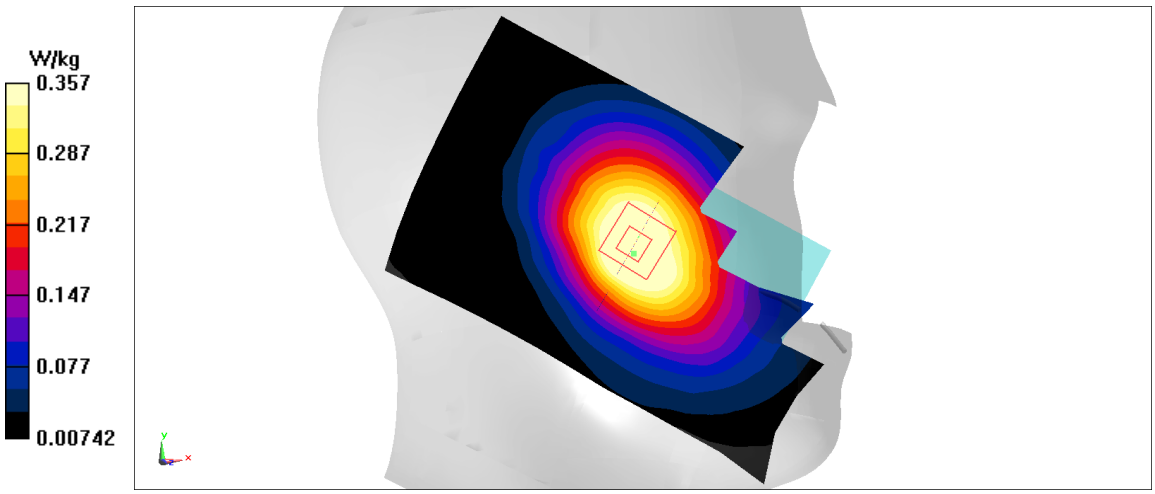


Fig A.9

WCDMA850-BV_CH4233 Rear
Date: 10/22/2020
Electronics: DAE4 Sn777
Medium: body 835 MHz
Medium parameters used: f = 846.6 MHz; σ = 0.999 mho/m; εr = 56.09; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: WCDMA850-BV 846.6 MHz Duty Cycle: 1：1
Probe: EX3DV4 – SN3617 ConvF(9.66,9.66,9.66)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.541 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.49 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.578 W/kg
SAR(1 g) = 0.463 W/kg; SAR(10 g) = 0.361 W/kg
Maximum value of SAR (measured) = 0.539 W/kg

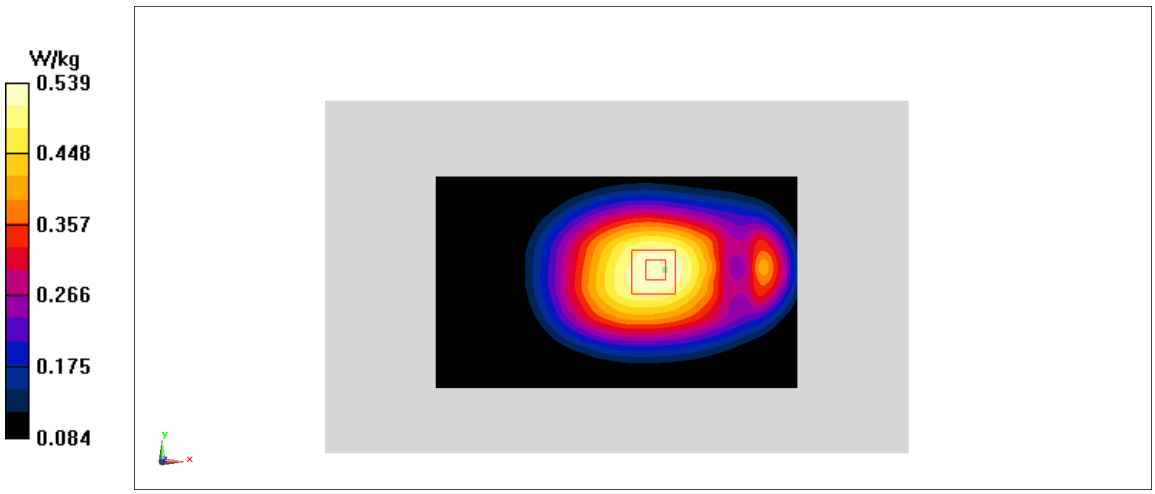


Fig A.10

LTE1900-FDD2_CH19100 Left Cheek
Date: 10/23/2020
Electronics: DAE4 Sn777
Medium: head 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.39 mho/m; εr = 39.55; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE1900-FDD2 1900 MHz Duty Cycle: 1：1
Probe: EX3DV4 – SN3617 ConvF(8.14,8.14,8.14)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.68 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.342 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.737 W/kg
SAR(1 g) = 0.471 W/kg; SAR(10 g) = 0.288 W/kg
Maximum value of SAR (measured) = 0.505 W/kg

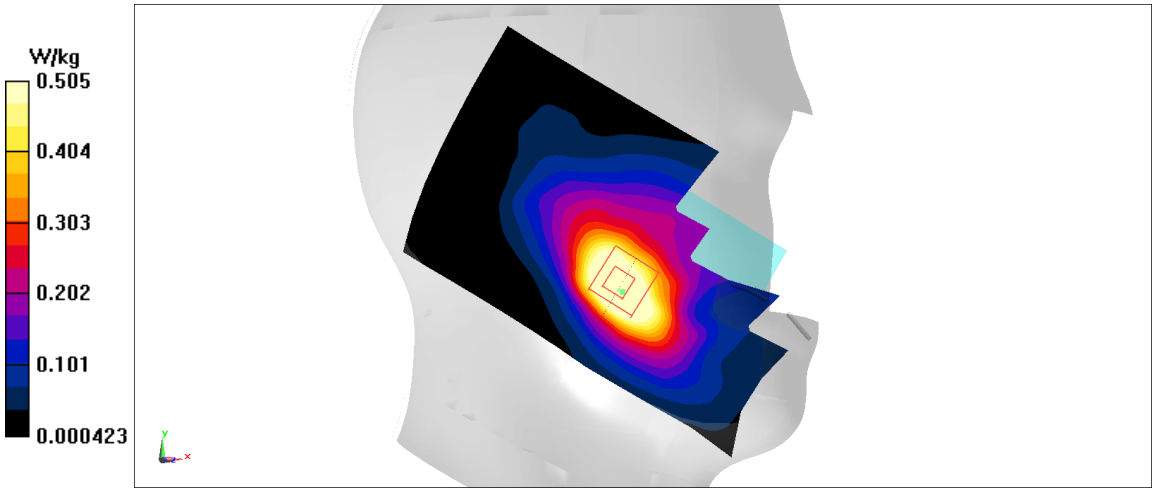


Fig A.11

LTE1900-FDD2_CH18700 Bottom edge
Date: 10/23/2020
Electronics: DAE4 Sn777
Medium: body 1900 MHz
Medium parameters used: f = 1860 MHz; σ = 1.498 mho/m; εr = 53.24; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: LTE1900-FDD2 1860 MHz Duty Cycle: 1：1
Probe: EX3DV4 – SN3617 ConvF(8.14,8.14,8.14)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.51 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.08 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.85 W/kg
SAR(1 g) = 1.09 W/kg; SAR(10 g) = 0.597 W/kg
Maximum value of SAR (measured) = 1.59 W/kg

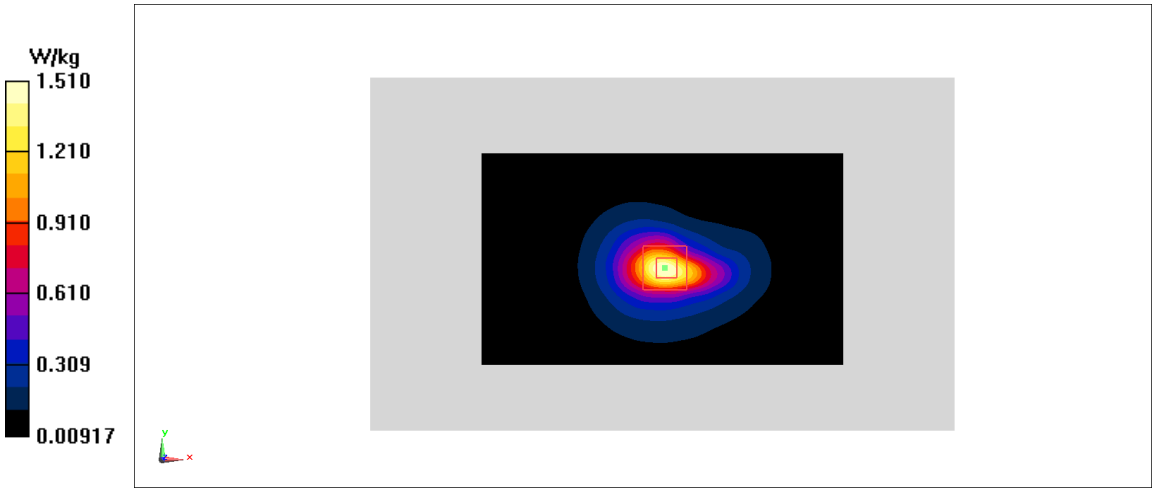


Fig A.12

LTE1700-FDD4_CH20050 Left Cheek
Date: 10/22/2020
Electronics: DAE4 Sn777
Medium: head 1750 MHz
Medium parameters used: f = 1720 MHz; σ = 1.352 mho/m; εr = 40.72; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: LTE1700-FDD4 1720 MHz Duty Cycle: 1：1
Probe: EX3DV4 – SN3617 ConvF(8.41,8.41,8.41)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.594 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.18 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.68 W/kg
SAR(1 g) = 0.448 W/kg; SAR(10 g) = 0.278 W/kg
Maximum value of SAR (measured) = 0.472 W/kg

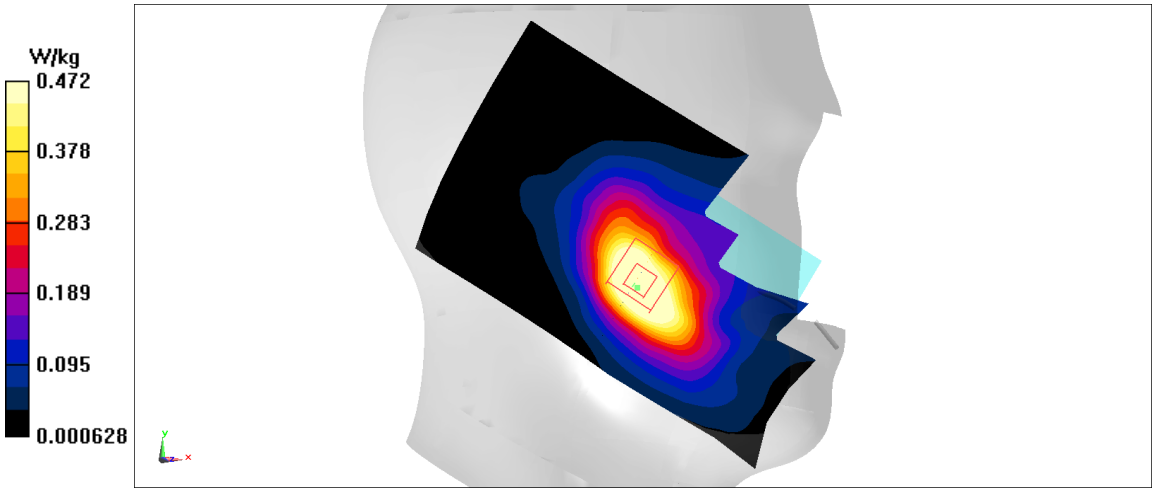


Fig A.13

LTE1700-FDD4_CH20300 Rear
Date: 10/22/2020
Electronics: DAE4 Sn777
Medium: body 1750 MHz
Medium parameters used: f = 1745 MHz; σ = 1.509 mho/m; εr = 53.23; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: LTE1700-FDD4 1745 MHz Duty Cycle: 1：1
Probe: EX3DV4 – SN3617 ConvF(8.41,8.41,8.41)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.51 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.85 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.67 W/kg
SAR(1 g) = 1.02 W/kg; SAR(10 g) = 0.602 W/kg
Maximum value of SAR (measured) = 1.37 W/kg

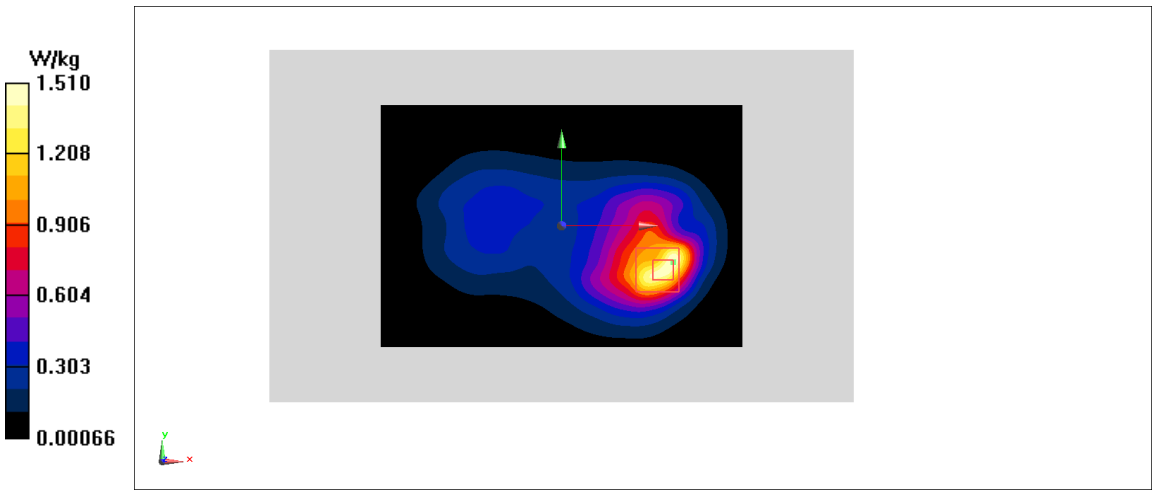


Fig A.14

LTE850-FDD5_CH20450 Left Cheek
Date: 10/22/2020
Electronics: DAE4 Sn777
Medium: head 835 MHz
Medium parameters used: f = 829 MHz; σ = 0.895 mho/m; εr = 41.61; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: LTE850-FDD5 829 MHz Duty Cycle: 1：1
Probe: EX3DV4 – SN3617 ConvF(9.66,9.66,9.66)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.44 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.611 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.446 W/kg
SAR(1 g) = 0.358 W/kg; SAR(10 g) = 0.275 W/kg
Maximum value of SAR (measured) = 0.369 W/kg

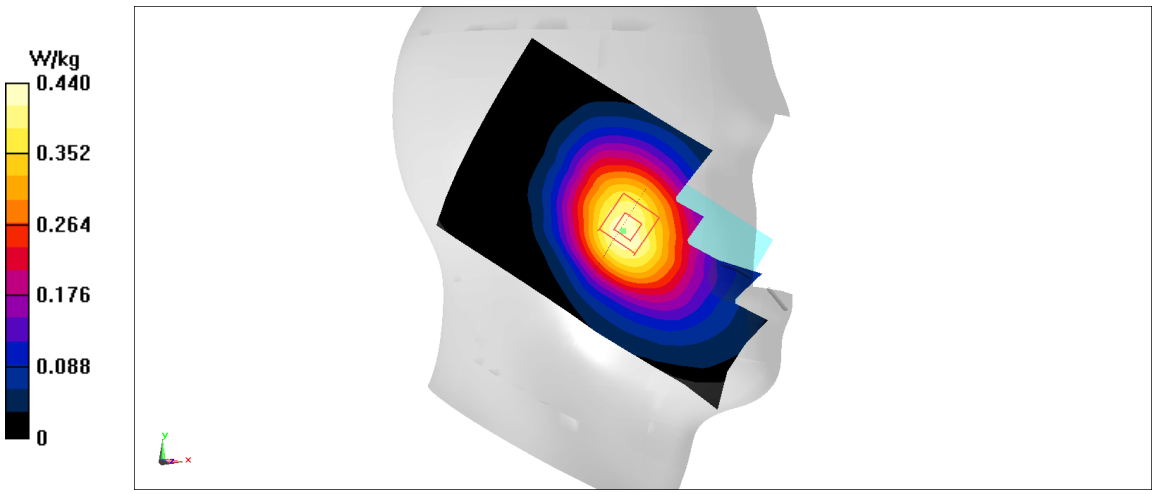


Fig A.15

LTE850-FDD5_CH20450 Rear
Date: 10/22/2020
Electronics: DAE4 Sn777
Medium: body 835 MHz
Medium parameters used: f = 829 MHz; σ = 0.982 mho/m; εr = 56.11; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: LTE850-FDD5 829 MHz Duty Cycle: 1：1
Probe: EX3DV4 – SN3617 ConvF(9.66,9.66,9.66)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.622 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.15 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.65 W/kg
SAR(1 g) = 0.523 W/kg; SAR(10 g) = 0.409 W/kg
Maximum value of SAR (measured) = 0.608 W/kg

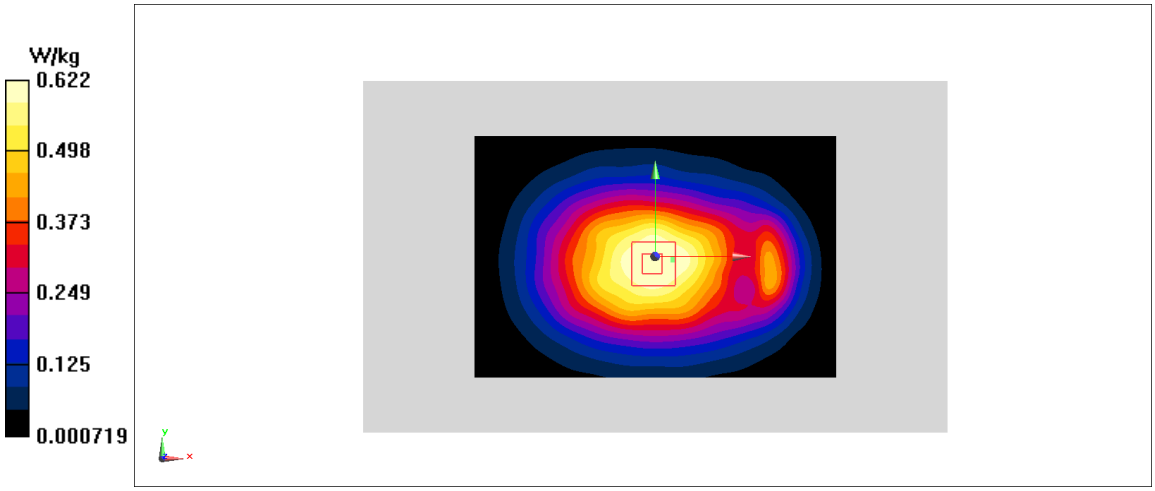


Fig A.16

LTE2500-FDD7_CH20850 Right Cheek
Date: 10/23/2020
Electronics: DAE4 Sn777
Medium: head 2600 MHz
Medium parameters used: f = 2510 MHz; σ = 1.88 mho/m; εr = 39.68; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: LTE2500-FDD7 2510 MHz Duty Cycle: 1：1
Probe: EX3DV4 – SN3617 ConvF(7.52,7.52,7.52)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.203 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.612 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.241 W/kg
SAR(1 g) = 0.131 W/kg; SAR(10 g) = 0.0696 W/kg
Maximum value of SAR (measured) = 0.201 W/kg

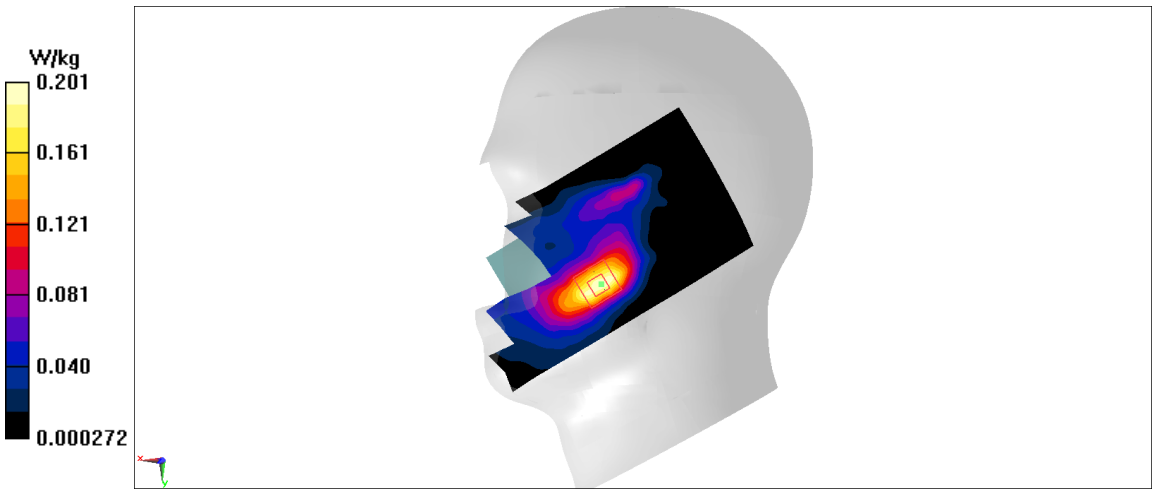


Fig A.17

LTE2500-FDD7_CH21350 Bottom edge
Date: 10/23/2020
Electronics: DAE4 Sn777
Medium: body 2600 MHz
Medium parameters used: f = 2560 MHz; σ = 2.1 mho/m; εr = 51.66; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: LTE2500-FDD7 2560 MHz Duty Cycle: 1：1
Probe: EX3DV4 – SN3617 ConvF(7.65,7.65,7.65)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.82 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.53 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 2.12 W/kg
SAR(1 g) = 1.05 W/kg; SAR(10 g) = 0.51 W/kg
Maximum value of SAR (measured) = 1.73 W/kg

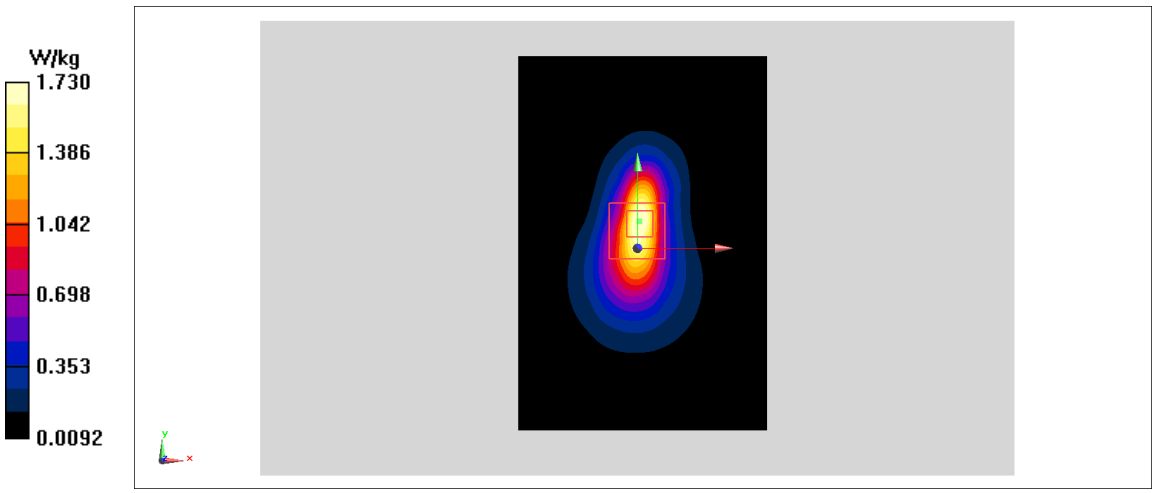


Fig A.18

LTE700-FDD12_CH23060 Right Cheek
Date: 10/22/2020
Electronics: DAE4 Sn777
Medium: head 750 MHz
Medium parameters used: f = 704 MHz; σ = 0.854 mho/m; εr = 41.76; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: LTE700-FDD12 704 MHz Duty Cycle: 1：1
Probe: EX3DV4 – SN3617 ConvF(10.07,10.07,10.07)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.22 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.96 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.218 W/kg
SAR(1 g) = 0.183 W/kg; SAR(10 g) = 0.143 W/kg
Maximum value of SAR (measured) = 0.19 W/kg

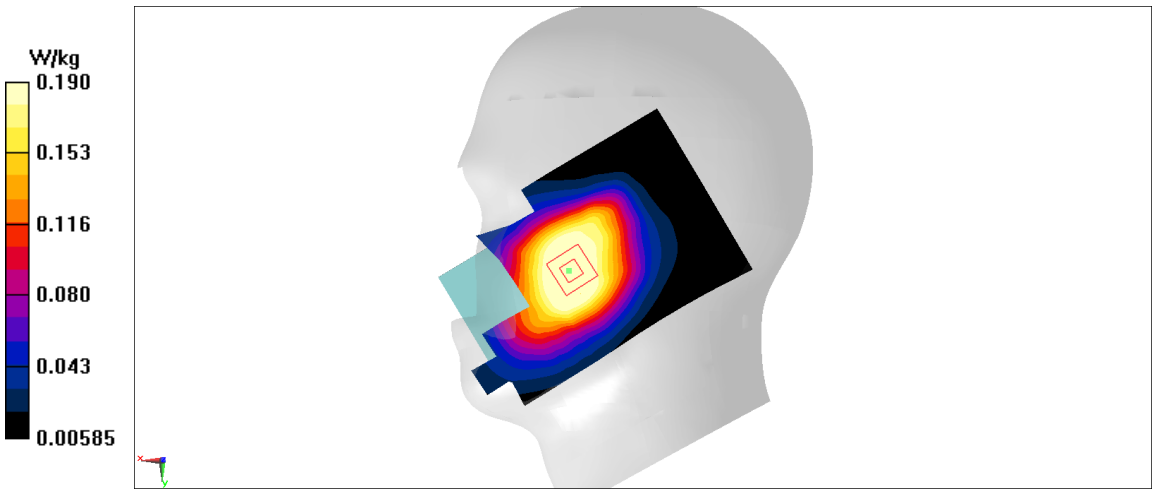


Fig A.19

LTE700-FDD12_CH23060 Rear
Date: 10/22/2020
Electronics: DAE4 Sn777
Medium: body 750 MHz
Medium parameters used: f = 704 MHz; σ = 0.907 mho/m; εr = 55.41; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE700-FDD12 704 MHz Duty Cycle: 1：1
Probe: EX3DV4 – SN3617 ConvF(10.07,10.07,10.07)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.384 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.97 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.39 W/kg
SAR(1 g) = 0.317 W/kg; SAR(10 g) = 0.248 W/kg
Maximum value of SAR (measured) = 0.364 W/kg

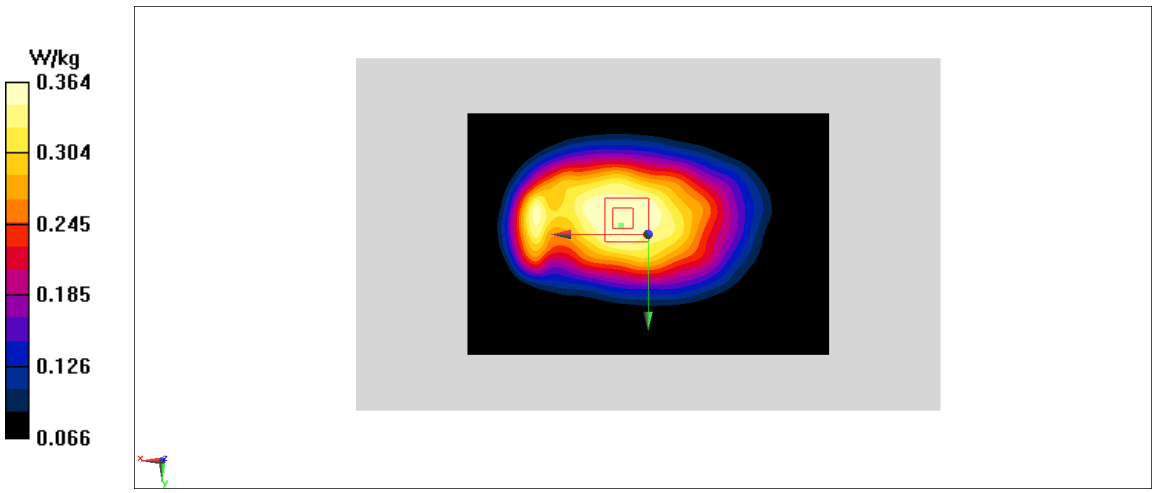


Fig A.20

LTE750-FDD13_CH23230 Left Cheek
Date: 10/22/2020
Electronics: DAE4 Sn777
Medium: head 750 MHz
Medium parameters used: f = 782 MHz; σ = 0.928 mho/m; εr = 41.66; 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 – SN3617 ConvF(10.07,10.07,10.07)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.334 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.185 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.336 W/kg
SAR(1 g) = 0.27 W/kg; SAR(10 g) = 0.208 W/kg
Maximum value of SAR (measured) = 0.278 W/kg

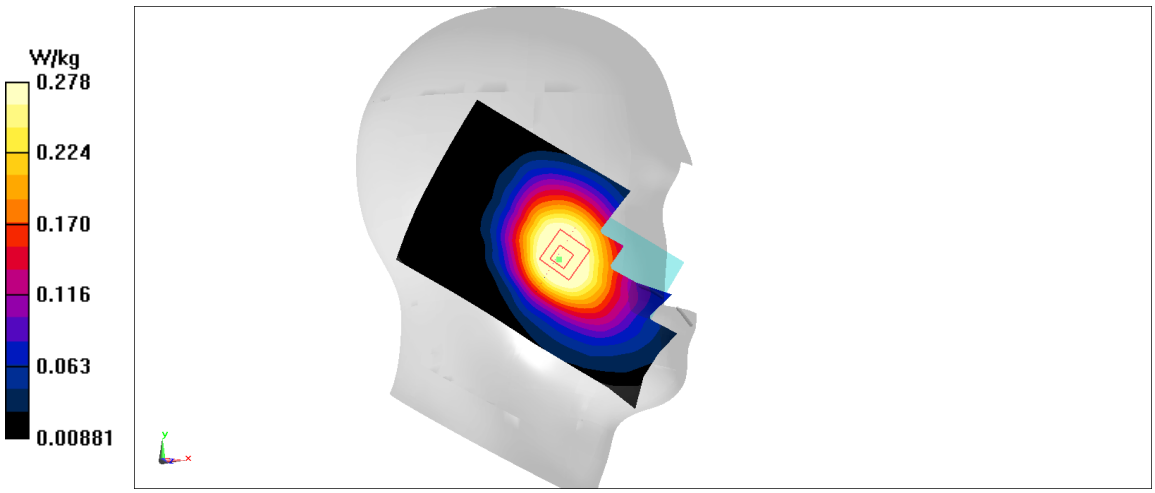


Fig A.21

LTE750-FDD13_CH23230 Rear
Date: 10/22/2020
Electronics: DAE4 Sn777
Medium: body 750 MHz
Medium parameters used: f = 782 MHz; σ = 0.981 mho/m; εr = 55.31; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE750-FDD13 782 MHz Duty Cycle: 1：1
Probe: EX3DV4 – SN3617 ConvF(10.07,10.07,10.07)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.455 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.46 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.461 W/kg
SAR(1 g) = 0.375 W/kg; SAR(10 g) = 0.294 W/kg
Maximum value of SAR (measured) = 0.434 W/kg

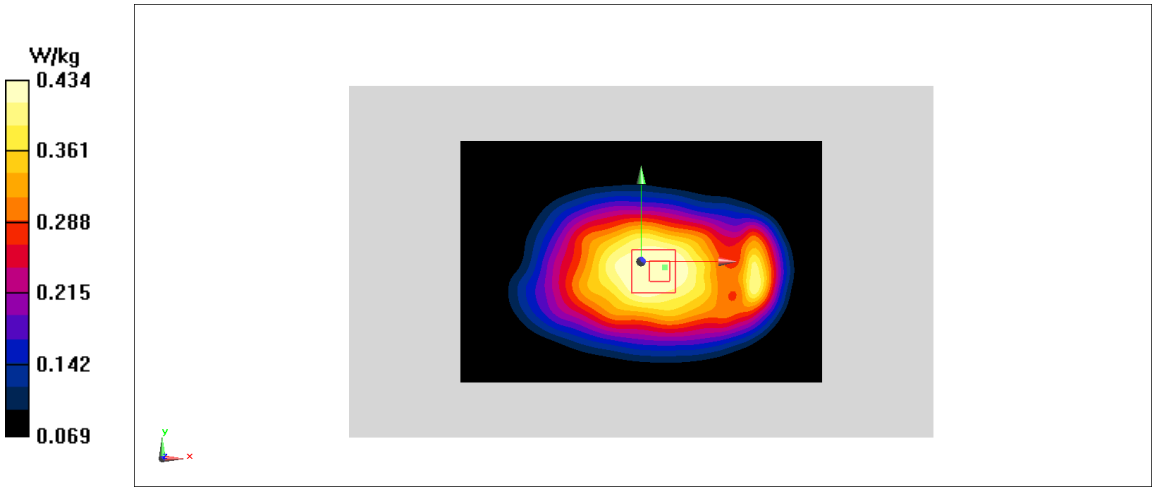


Fig A.22

WLAN2450_CH6 Right Cheek
Date: 10/23/2020
Electronics: DAE4 Sn777
Medium: head 2450 MHz
Medium parameters used: f = 2437 MHz; σ = 1.772 mho/m; εr = 39.07; 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 – SN3617 ConvF(7.65,7.65,7.65)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.27 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.51 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.51 W/kg
SAR(1 g) = 0.719 W/kg; SAR(10 g) = 0.359 W/kg
Maximum value of SAR (measured) = 1.06 W/kg

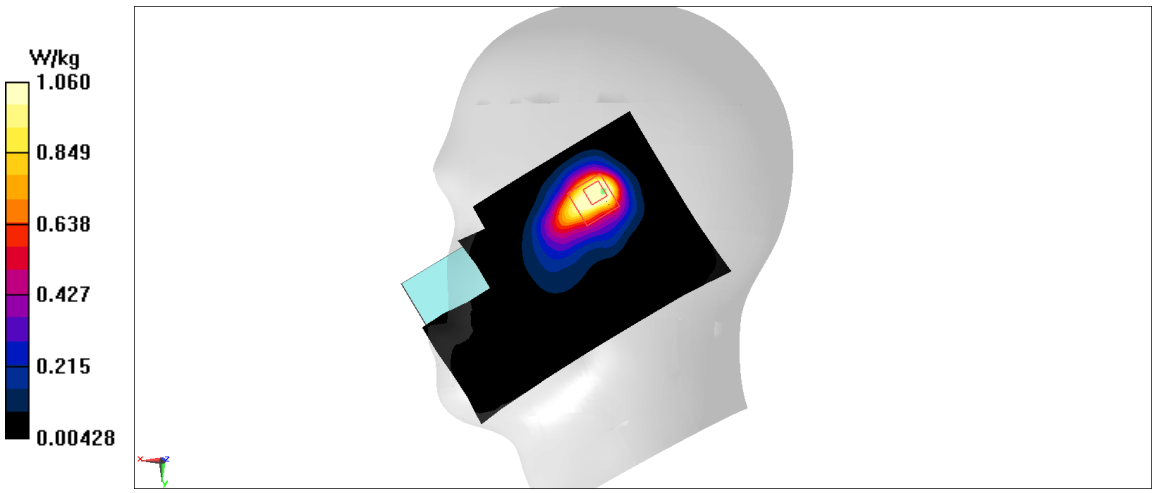


Fig A.23

WLAN2450_CH6 Rear
Date: 10/23/2020
Electronics: DAE4 Sn777
Medium: body 2450 MHz
Medium parameters used: f = 2437 MHz; σ = 1.954 mho/m; εr = 53.38; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: WLAN2450 2437 MHz Duty Cycle: 1：1
Probe: EX3DV4 – SN3617 ConvF(7.65,7.65,7.65)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.293 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.459 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.366 W/kg
SAR(1 g) = 0.174 W/kg; SAR(10 g) = 0.0882 W/kg
Maximum value of SAR (measured) = 0.277 W/kg

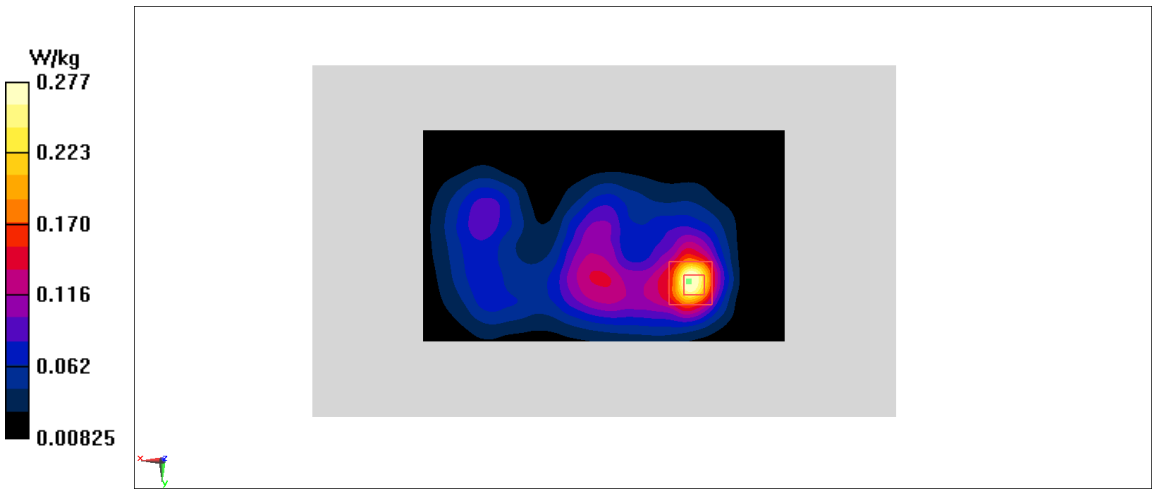


Fig A.24

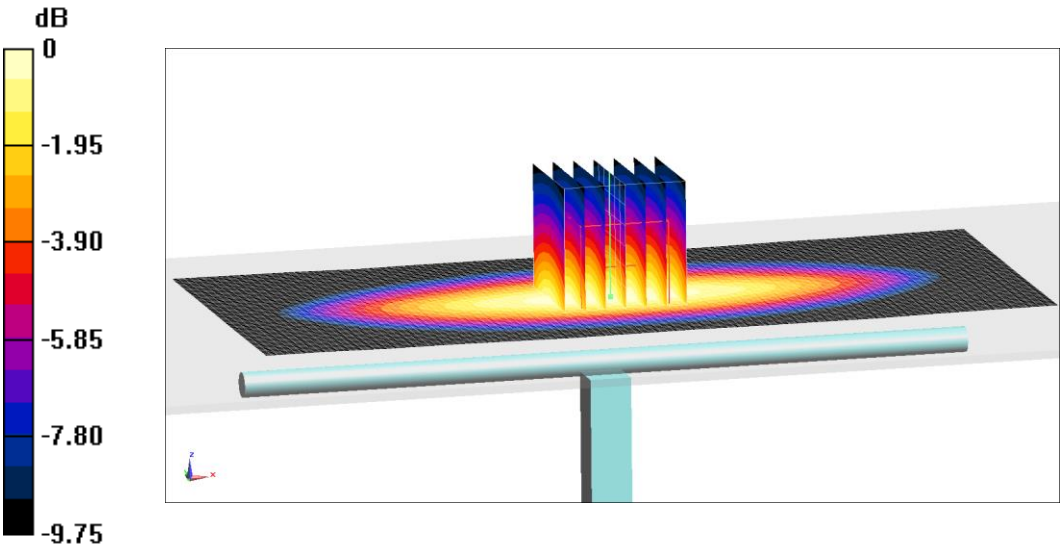
K.9 System Verification Results

750 MHz

Date: 10/22/2020
Electronics: DAE4 Sn777
Medium: Head 750 MHz
Medium parameters used: f = 750 MHz; σ =0.898 mho/m; ε_r = 41.7; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC Liquid Temperature: 22.3ºC
Communication System: CW Frequency: 750 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(10.07,10.07,10.07)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 60.52 V/m; Power Drift = 0.03
Fast SAR: SAR(1 g) = 2.08 W/kg; SAR(10 g) = 1.41 W/kg
Maximum value of SAR (interpolated) = 2.81 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =60.52 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.21 W/kg
SAR(1 g) = 2.12 W/kg; SAR(10 g) = 1.37 W/kg
Maximum value of SAR (measured) = 2.86 W/kg



0 dB = 2.86 W/kg = 4.56 dB W/kg

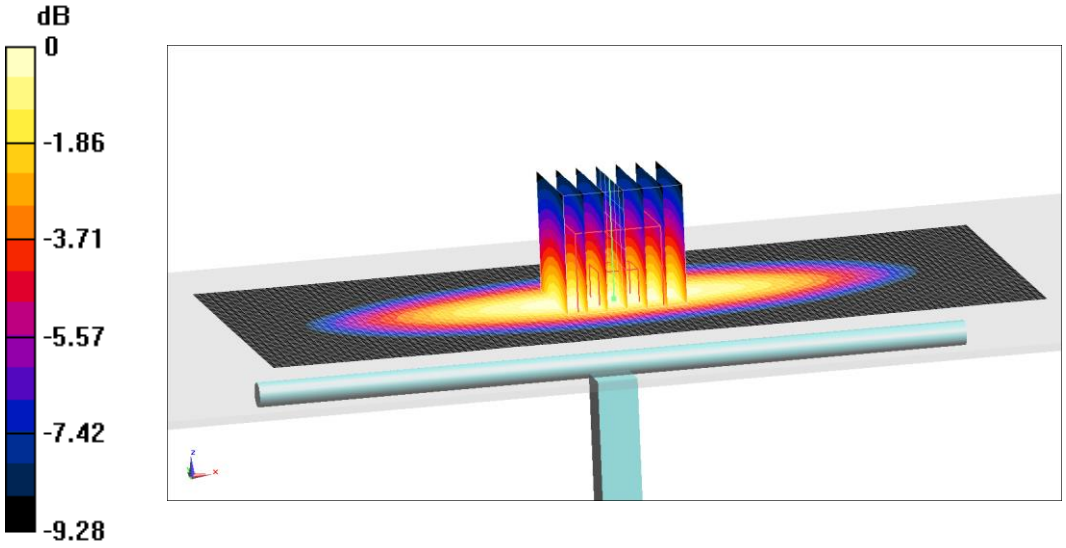
Fig.B.1 validation 750 MHz 250mW

750 MHz

Date: 10/22/2020
Electronics: DAE4 Sn777
Medium: Body 750 MHz
Medium parameters used: f = 750 MHz; σ =0.951 mho/m; ε_r = 55.35; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C Liquid Temperature: 22.3°C
Communication System: CW Frequency: 750 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(10.07,10.07,10.07)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 54.69 V/m; Power Drift = -0.03
Fast SAR: SAR(1 g) = 2.21 W/kg; SAR(10 g) = 1.46 W/kg
Maximum value of SAR (interpolated) = 2.93 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =54.69 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 3.27 W/kg
SAR(1 g) = 2.25 W/kg; SAR(10 g) = 1.45 W/kg
Maximum value of SAR (measured) = 2.92 W/kg



0 dB = 2.92 W/kg = 4.65 dB W/kg

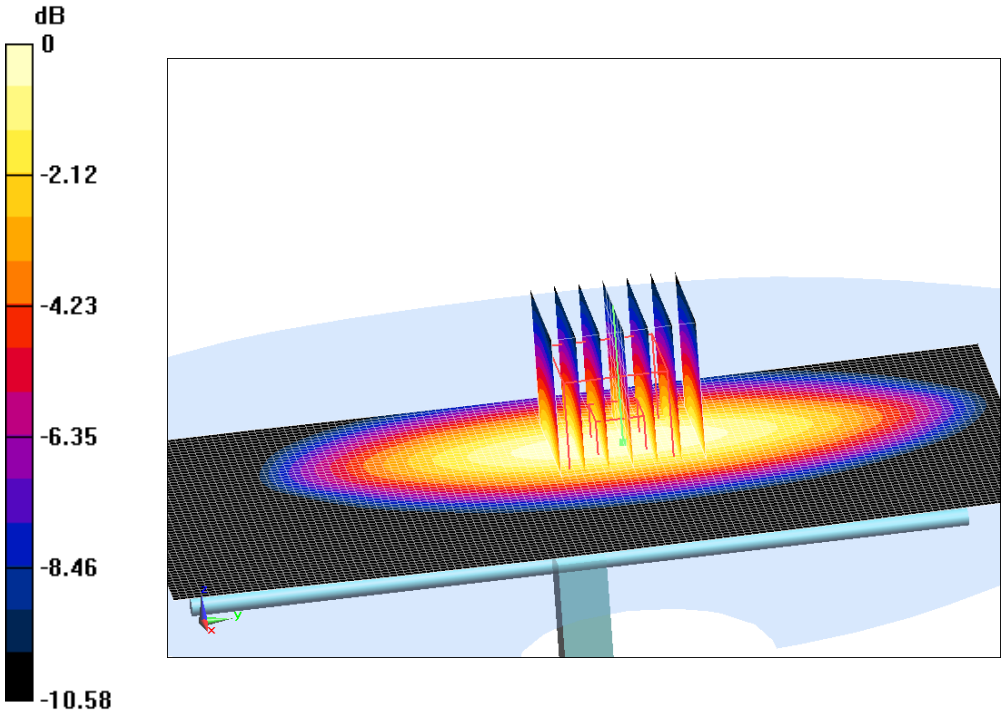
Fig.B.2 validation 750 MHz 250mW

835 MHz

Date: 10/22/2020
Electronics: DAE4 Sn777
Medium: Head 835 MHz
Medium parameters used: f = 835 MHz; σ =0.901 mho/m; ε_r = 41.6; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C Liquid Temperature: 22.3°C
Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(9.66,9.66,9.66)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 63.54 V/m; Power Drift = 0.04
Fast SAR: SAR(1 g) = 2.4 W/kg; SAR(10 g) = 1.55 W/kg
Maximum value of SAR (interpolated) = 3.24 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =63.54 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 3.69 W/kg
SAR(1 g) = 2.43 W/kg; SAR(10 g) = 1.56 W/kg
Maximum value of SAR (measured) = 3.3 W/kg



0 dB = 3.3 W/kg = 5.19 dB W/kg

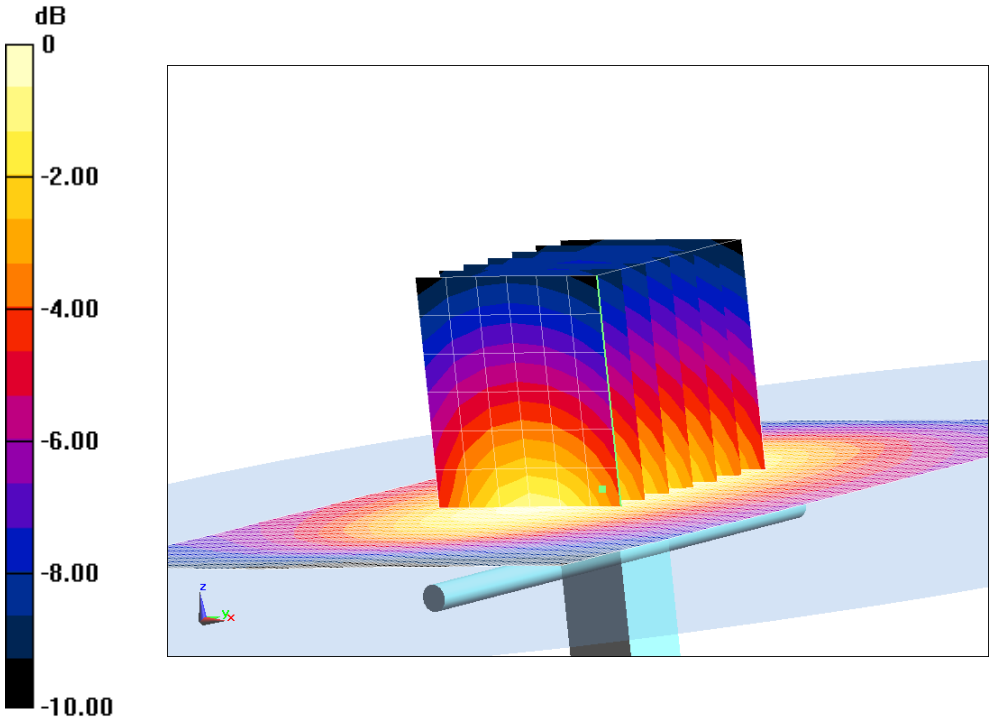
Fig.B.3 validation 835 MHz 250mW

835 MHz

Date: 10/22/2020
Electronics: DAE4 Sn777
Medium: Body 835 MHz
Medium parameters used: f = 835 MHz; σ =0.988 mho/m; ε_r = 56.1; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C Liquid Temperature: 22.3°C
Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(9.66,9.66,9.66)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 57.46 V/m; Power Drift = -0.09
Fast SAR: SAR(1 g) = 2.4 W/kg; SAR(10 g) = 1.59 W/kg
Maximum value of SAR (interpolated) = 3.37 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =57.46 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 3.71 W/kg
SAR(1 g) = 2.39 W/kg; SAR(10 g) = 1.61 W/kg
Maximum value of SAR (measured) = 3.28 W/kg



0 dB = 3.28 W/kg = 5.16 dB W/kg

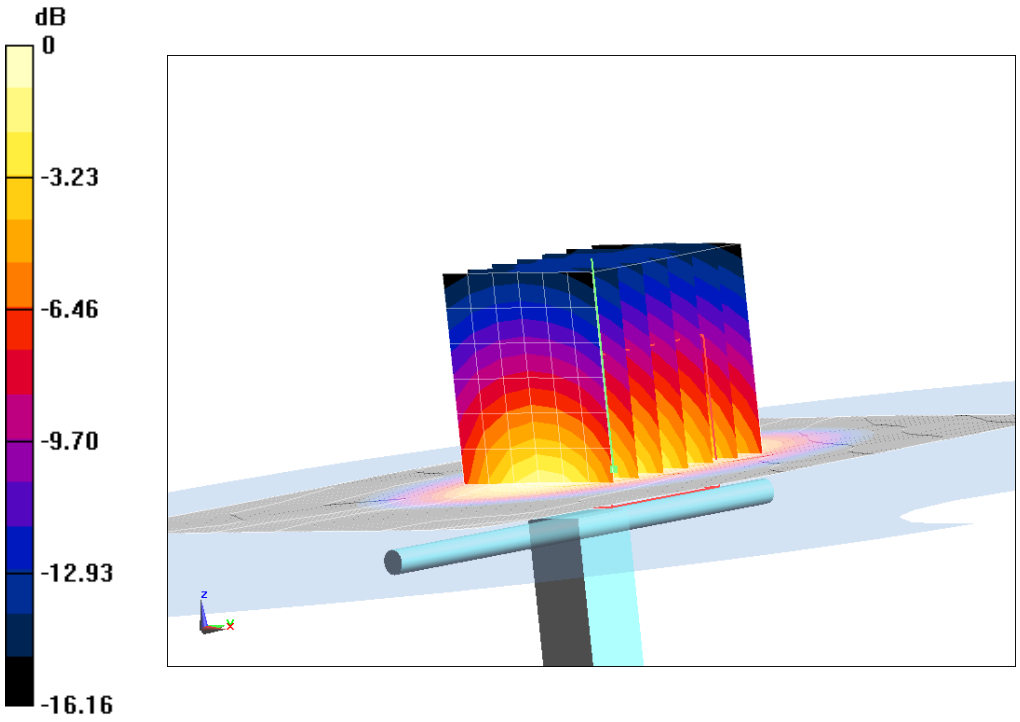
Fig.B.4 validation 835 MHz 250mW

1750 MHz

Date: 10/22/2020
Electronics: DAE4 Sn777
Medium: Head 1750 MHz
Medium parameters used: f = 1750 MHz; σ =1.38 mho/m; ε_r = 40.68; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C Liquid Temperature: 22.3°C
Communication System: CW Frequency: 1750 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(8.41,8.41,8.41)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 104.5 V/m; Power Drift = 0.06
Fast SAR: SAR(1 g) = 9 W/kg; SAR(10 g) = 4.78 W/kg
Maximum value of SAR (interpolated) = 14.27 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =104.5 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 16.73 W/kg
SAR(1 g) = 8.98 W/kg; SAR(10 g) = 4.8 W/kg
Maximum value of SAR (measured) = 14.1 W/kg



0 dB = 14.1 W/kg = 11.49 dB W/kg

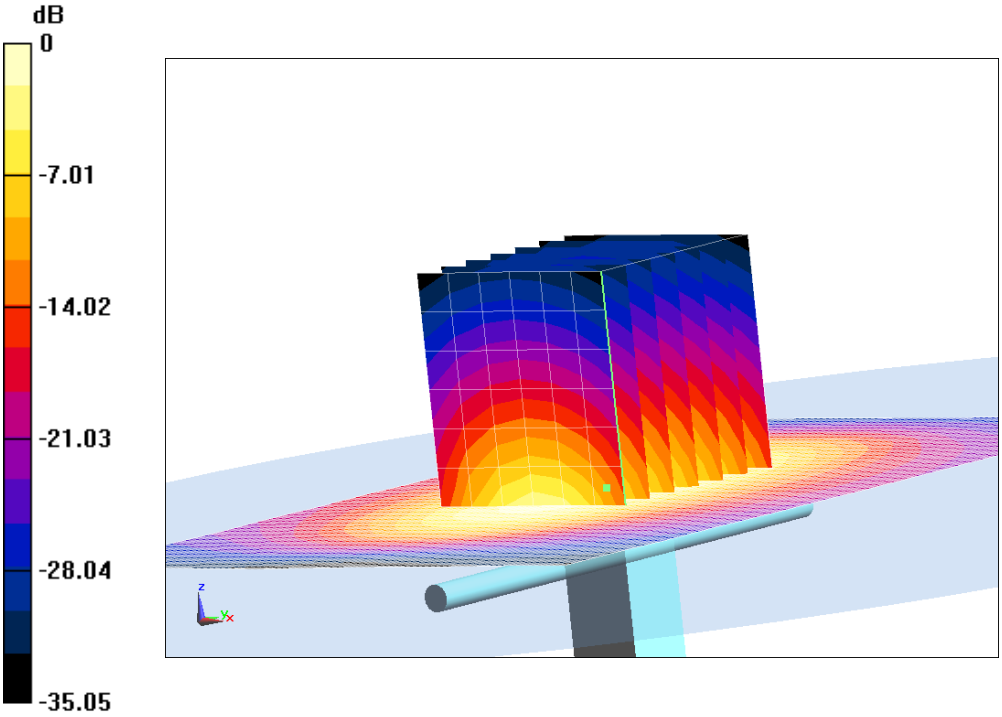
Fig.B.5 validation 1750 MHz 250mW

1750 MHz

Date: 10/22/2020
Electronics: DAE4 Sn777
Medium: Body 1750 MHz
Medium parameters used: f = 1750 MHz; σ =1.514 mho/m; ε_r = 53.22; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C Liquid Temperature: 22.3°C
Communication System: CW Frequency: 1750 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(8.41,8.41,8.41)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 104.46 V/m; Power Drift = 0.04
Fast SAR: SAR(1 g) = 9.27 W/kg; SAR(10 g) = 4.96 W/kg
Maximum value of SAR (interpolated) = 13.83 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =104.46 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 16.38 W/kg
SAR(1 g) = 9.32 W/kg; SAR(10 g) = 5.04 W/kg
Maximum value of SAR (measured) = 13.92 W/kg



0 dB = 13.92 W/kg = 11.44 dB W/kg

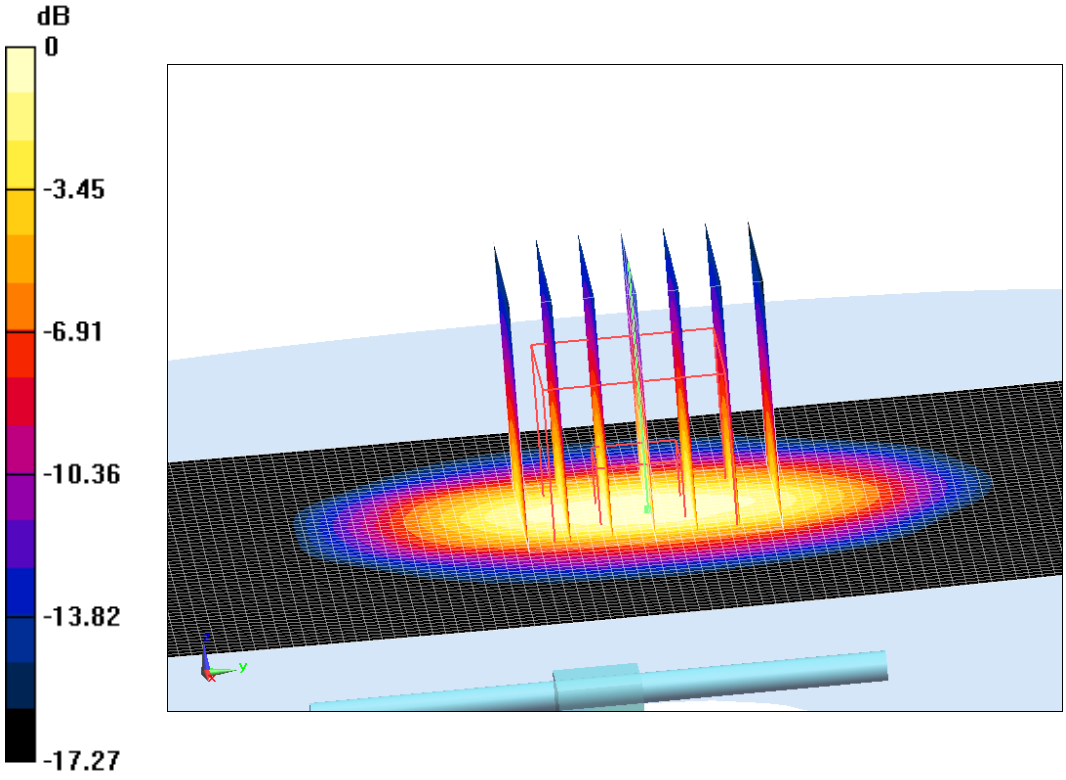
Fig.B.6 validation 1750 MHz 250mW

1900 MHz

Date: 10/23/2020
Electronics: DAE4 Sn777
Medium: Head 1900 MHz
Medium parameters used: f = 1900 MHz; σ =1.39 mho/m; ε_r = 39.55; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C Liquid Temperature: 22.3°C
Communication System: CW Frequency: 1900 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(8.14,8.14,8.14)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 107.75 V/m; Power Drift = 0.02
Fast SAR: SAR(1 g) = 9.93 W/kg; SAR(10 g) = 5.15 W/kg
Maximum value of SAR (interpolated) = 15.31 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =107.75 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 18.12 W/kg
SAR(1 g) = 10.05 W/kg; SAR(10 g) = 5.1 W/kg
Maximum value of SAR (measured) = 15.11 W/kg



0 dB = 15.11 W/kg = 11.79 dB W/kg

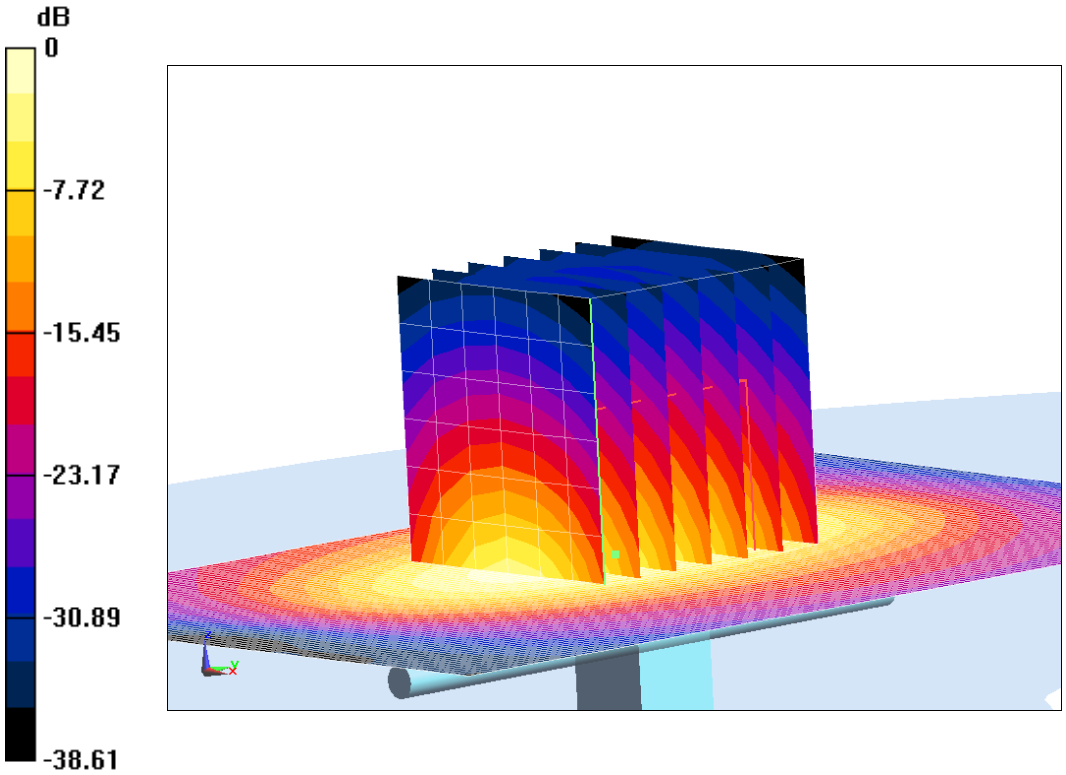
Fig.B.7 validation 1900 MHz 250mW

1900 MHz

Date: 10/23/2020
Electronics: DAE4 Sn777
Medium: Body 1900 MHz
Medium parameters used: f = 1900 MHz; σ =1.536 mho/m; ε_r = 53.19; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C Liquid Temperature: 22.3°C
Communication System: CW Frequency: 1900 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(8.14,8.14,8.14)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 104.97 V/m; Power Drift = -0.03
Fast SAR: SAR(1 g) = 10.05 W/kg; SAR(10 g) = 5.16 W/kg
Maximum value of SAR (interpolated) = 14.19 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =104.97 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 17.04 W/kg
SAR(1 g) = 9.78 W/kg; SAR(10 g) = 5.13 W/kg
Maximum value of SAR (measured) = 13.92 W/kg



0 dB = 13.92 W/kg = 11.44 dB W/kg

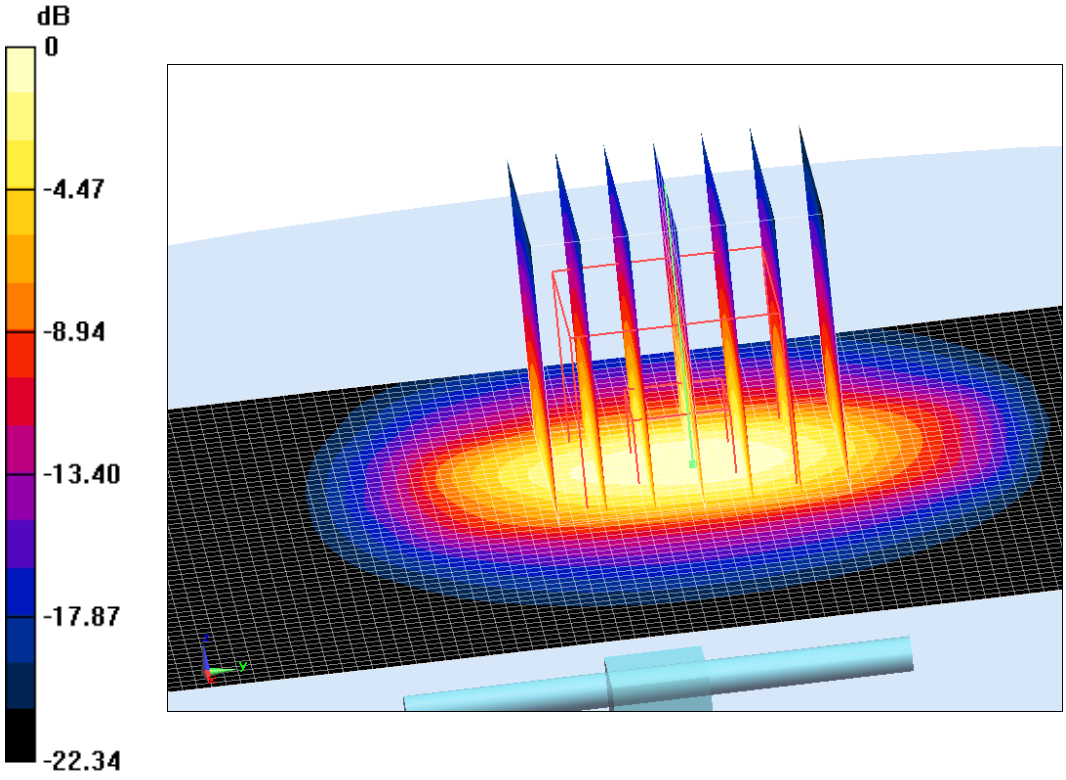
Fig.B.8 validation 1900 MHz 250mW

2450 MHz

Date: 10/23/2020
Electronics: DAE4 Sn777
Medium: Head 2450 MHz
Medium parameters used: f = 2450 MHz; σ =1.784 mho/m; ε_r = 39.05; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C Liquid Temperature: 22.3°C
Communication System: CW Frequency: 2450 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(7.65,7.65,7.65)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 119.34 V/m; Power Drift = -0.08
Fast SAR: SAR(1 g) = 13.03 W/kg; SAR(10 g) = 6.04 W/kg
Maximum value of SAR (interpolated) = 21.8 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =119.34 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 26.03 W/kg
SAR(1 g) = 13.36 W/kg; SAR(10 g) = 6.23 W/kg
Maximum value of SAR (measured) = 22.22 W/kg



0 dB = 22.22 W/kg = 13.47 dB W/kg

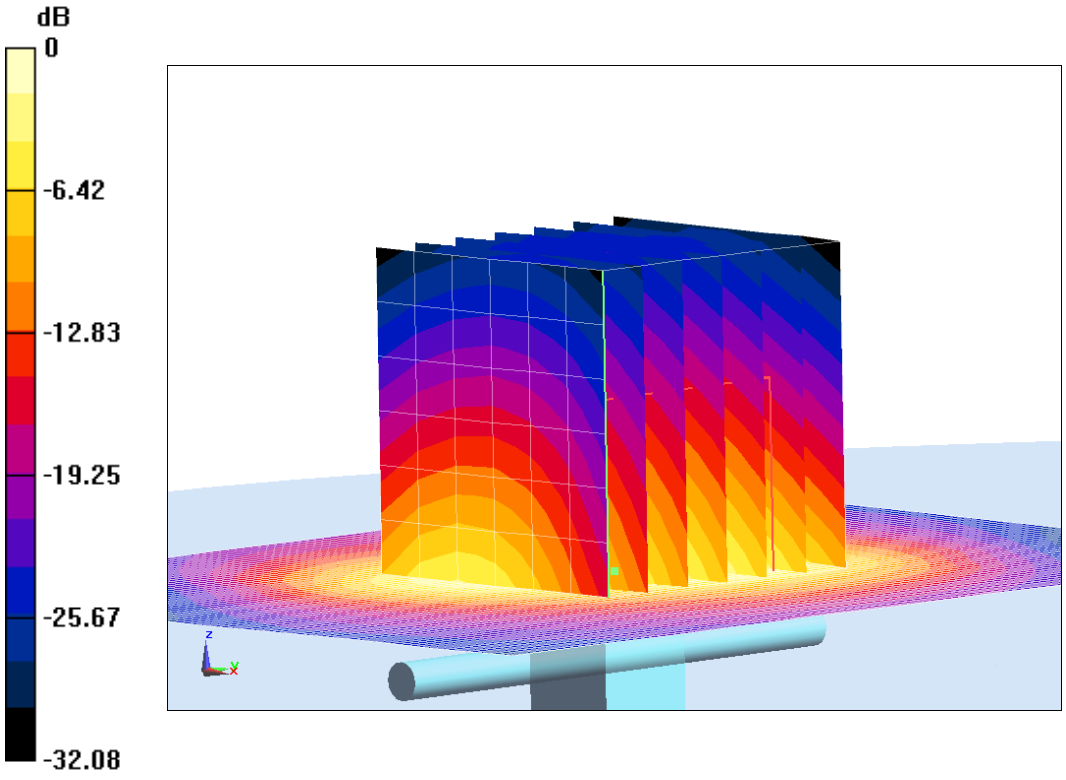
Fig.B.9 validation 2450 MHz 250mW

2450 MHz

Date: 10/23/2020
Electronics: DAE4 Sn777
Medium: Body 2450 MHz
Medium parameters used: f = 2450 MHz; σ =1.966 mho/m; ε_r = 53.36; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C Liquid Temperature: 22.3°C
Communication System: CW Frequency: 2450 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(7.65,7.65,7.65)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 110.82 V/m; Power Drift = -0.02
Fast SAR: SAR(1 g) = 13.26 W/kg; SAR(10 g) = 6.17 W/kg
Maximum value of SAR (interpolated) = 21.74 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =110.82 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 25.92 W/kg
SAR(1 g) = 12.97 W/kg; SAR(10 g) = 6.06 W/kg
Maximum value of SAR (measured) = 21.71 W/kg



0 dB = 21.71 W/kg = 13.37 dB W/kg

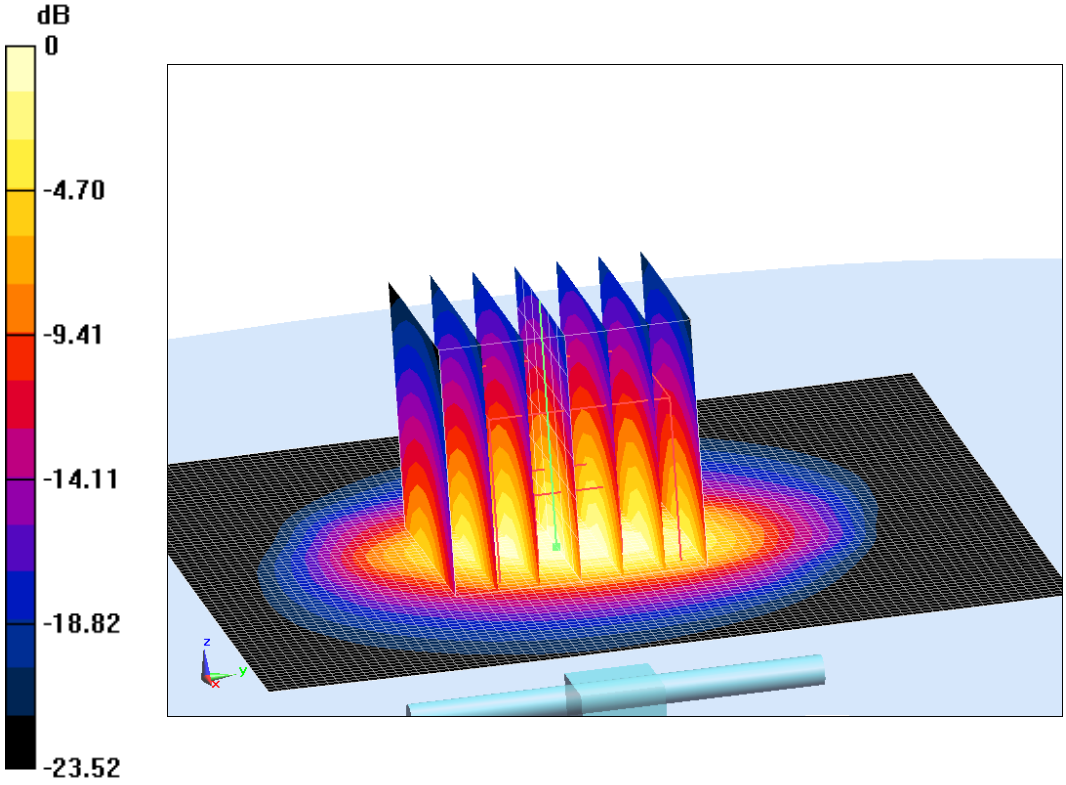
Fig.B.10 validation 2450 MHz 250mW

2600 MHz

Date: 10/23/2020
Electronics: DAE4 Sn777
Medium: Head 2600 MHz
Medium parameters used: f = 2600 MHz; σ =1.966 mho/m; ε_r = 39.57; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C Liquid Temperature: 22.3°C
Communication System: CW Frequency: 2600 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(7.52,7.52,7.52)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 120.9 V/m; Power Drift = -0.05
Fast SAR: SAR(1 g) = 14.12 W/kg; SAR(10 g) = 6.25 W/kg
Maximum value of SAR (interpolated) = 24.65 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =120.9 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 29.18 W/kg
SAR(1 g) = 14.48 W/kg; SAR(10 g) = 6.36 W/kg
Maximum value of SAR (measured) = 24.14 W/kg



0 dB = 24.14 W/kg = 13.83 dB W/kg

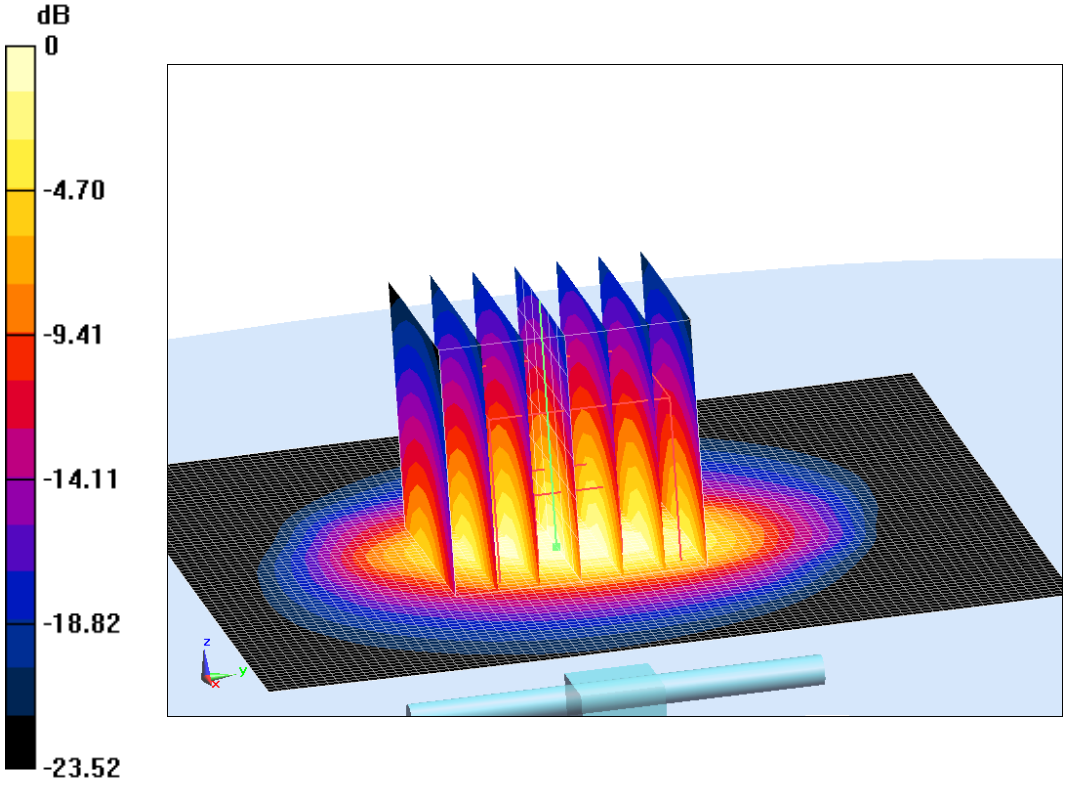
Fig.B.11 validation 2600 MHz 250mW

2600 MHz

Date: 10/23/2020
Electronics: DAE4 Sn777
Medium: Body 2600 MHz
Medium parameters used: f = 2600 MHz; σ =2.138 mho/m; ε_r = 51.61; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C Liquid Temperature: 22.3°C
Communication System: CW Frequency: 2600 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(7.52,7.52,7.52)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 111.65 V/m; Power Drift = -0.02
Fast SAR: SAR(1 g) = 13.82 W/kg; SAR(10 g) = 6.05 W/kg
Maximum value of SAR (interpolated) = 22.45 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =111.65 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 28.03 W/kg
SAR(1 g) = 13.56 W/kg; SAR(10 g) = 6.25 W/kg
Maximum value of SAR (measured) = 23.11 W/kg

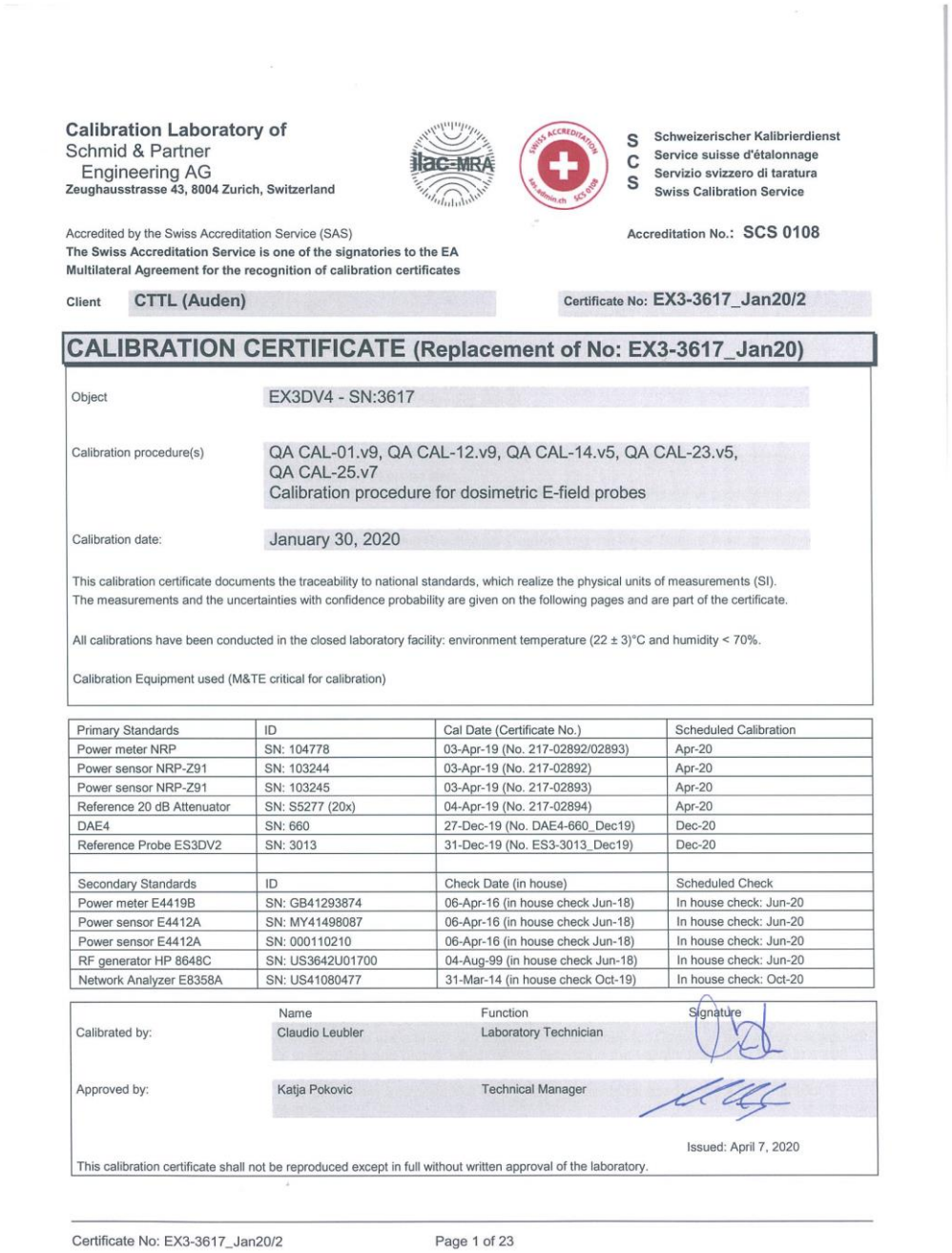


0 dB = 23.11 W/kg = 13.64 dB W/kg

Fig.B.12 validation 2600 MHz 250mW

K.10 Probe Calibration Certificate

Probe 3617 Calibration Certificate



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

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client: CTTL (Auden)

Certificate No: EX3-3617_Jan20/2

CALIBRATION CERTIFICATE (Replacement of No: EX3-3617_Jan20)

Object: EX3DV4 - SN:3617

Calibration procedure(s): QA CAL-01.v9, QA CAL-12.v9, QA CAL-14.v5, QA CAL-23.v5, QA CAL-25.v7
Calibration procedure for dosimetric E-field probes

Calibration date: January 30, 2020

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	03-Apr-19 (No. 217-02892/02893)	Apr-20
Power sensor NRP-Z91	SN: 103244	03-Apr-19 (No. 217-02892)	Apr-20
Power sensor NRP-Z91	SN: 103245	03-Apr-19 (No. 217-02893)	Apr-20
Reference 20 dB Attenuator	SN: S5277 (20x)	04-Apr-19 (No. 217-02894)	Apr-20
DAE4	SN: 660	27-Dec-19 (No. DAE4-660_Dec19)	Dec-20
Reference Probe ES3DV2	SN: 3013	31-Dec-19 (No. ES3-3013_Dec19)	Dec-20
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-18)	In house check: Jun-20
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-19)	In house check: Oct-20

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

Issued: April 7, 2020

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

Certificate No: EX3-3617_Jan20/2 Page 1 of 23