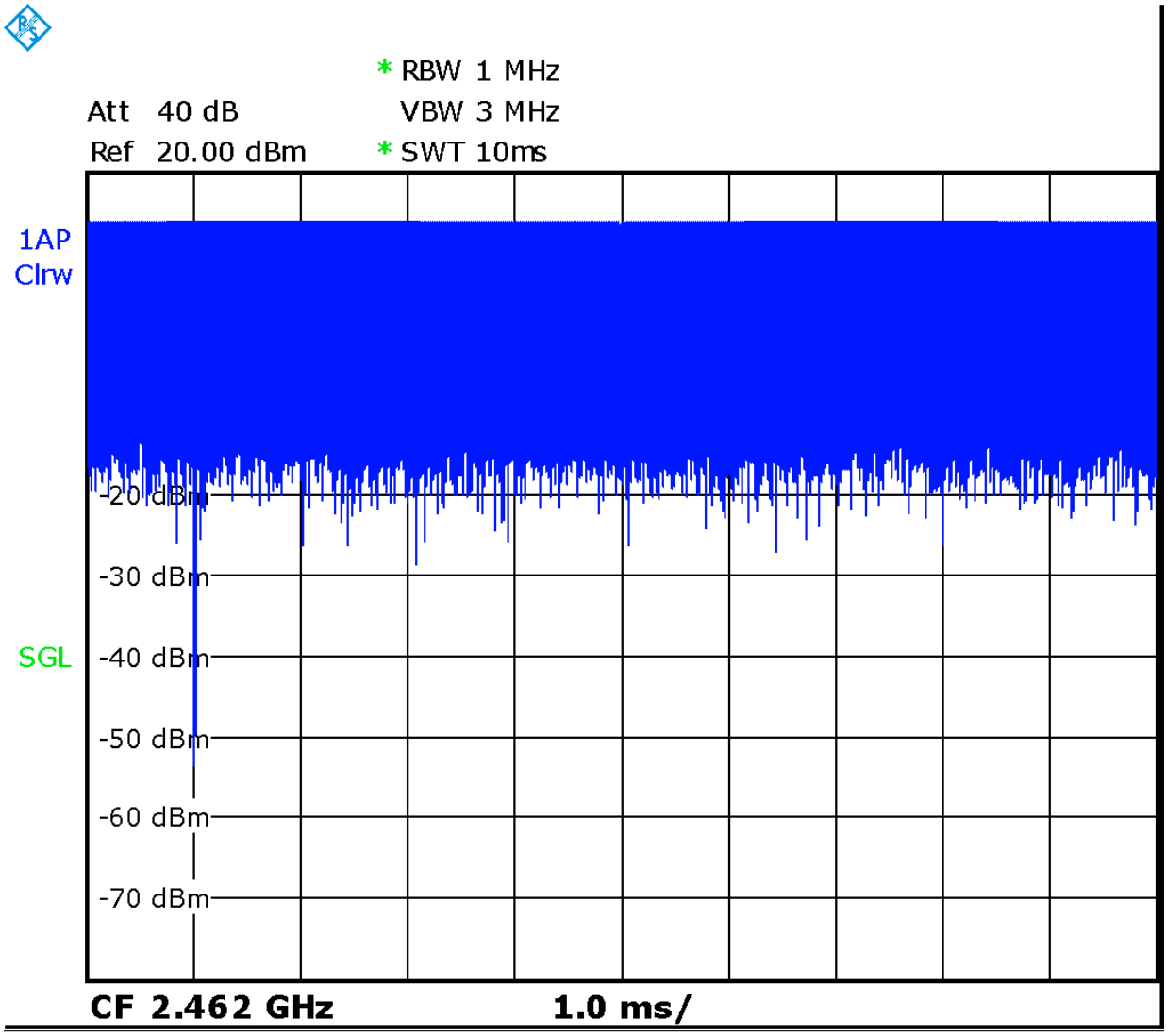

Picture 14.1 Duty factor plot

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15 SAR Measurement Variability

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

The following procedures are applied to determine if repeated measurements are required.

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps2) through 4) do not apply.

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

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

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

Table 15.1: SAR Measurement Variability for Body WCDMA1700 (1g)

Frequency		Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz						
1513	1752.6	Bottom	10	0.961	0.943	1.02	/

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16 Measurement Uncertainty

16.1 Measurement Uncertainty for Normal SAR Tests (300MHz~3GHz)

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
Measurement system										
1	Probe calibration	B	6.0	N	1	1	1	6.0	6.0	∞
2	Isotropy	B	4.7	R	√3	0.7	0.7	1.9	1.9	∞
3	Boundary effect	B	1.0	R	√3	1	1	0.6	0.6	∞
4	Linearity	B	4.7	R	√3	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	N	1	1	1	0.6	0.6	∞
6	Readout electronics	B	0.3	R	√3	1	1	0.3	0.3	∞
7	Response time	B	0.8	R	√3	1	1	0.5	0.5	∞
8	Integration time	B	2.6	R	√3	1	1	1.5	1.5	∞
9	RF ambient conditions-noise	B	0	R	√3	1	1	0	0	∞
10	RFambient conditions-reflection	B	0	R	√3	1	1	0	0	∞
11	Probe positioned mech. restrictions	B	0.4	R	√3	1	1	0.2	0.2	∞
12	Probe positioning with respect to phantom shell	B	2.9	R	√3	1	1	1.7	1.7	∞
13	Post-processing	B	1.0	R	√3	1	1	0.6	0.6	∞
Test sample related										
14	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	71
15	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
16	Drift of output power	B	5.0	R	√3	1	1	2.9	2.9	∞
Phantom and set-up										
17	Phantom uncertainty	B	4.0	R	√3	1	1	2.3	2.3	∞
18	Liquid conductivity (target)	B	5.0	R	√3	0.64	0.43	1.8	1.2	∞
19	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	0.89	43
20	Liquid permittivity (target)	B	5.0	R	√3	0.6	0.49	1.7	1.4	∞
21	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	1.0	0.8	521

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Combined standard uncertainty	$u_c' = \sqrt{\sum_{i=1}^{21} c_i^2 u_i^2}$					9.55	9.43	257
Expanded uncertainty (confidence interval of 95 %)	$u_e = 2u_c$					19.1	18.9	

16.2 Measurement Uncertainty for Normal SAR Tests (3~6GHz)

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
Measurement system										
1	Probe calibration	B	6.55	N	1	1	1	6.55	6.55	∞
2	Isotropy	B	4.7	R	√3	0.7	0.7	1.9	1.9	∞
3	Boundary effect	B	2.0	R	√3	1	1	1.2	1.2	∞
4	Linearity	B	4.7	R	√3	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	R	√3	1	1	0.6	0.6	∞
6	Readout electronics	B	0.3	R	√3	1	1	0.3	0.3	∞
7	Response time	B	0.8	R	√3	1	1	0.5	0.5	∞
8	Integration time	B	2.6	R	√3	1	1	1.5	1.5	∞
9	RF ambient conditions-noise	B	0	R	√3	1	1	0	0	∞
10	RFambient conditions-reflection	B	0	R	√3	1	1	0	0	∞
11	Probe positioned mech. restrictions	B	0.8	R	√3	1	1	0.5	0.5	∞
12	Probe positioning with respect to phantom shell	B	6.7	R	√3	1	1	3.9	3.9	∞
13	Post-processing	B	4.0	R	√3	1	1	2.3	2.3	∞
Test sample related										
14	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	71
15	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
16	Drift of output power	B	5.0	R	√3	1	1	2.9	2.9	∞
Phantom and set-up										
17	Phantom uncertainty	B	4.0	R	√3	1	1	2.3	2.3	∞
18	Liquid conductivity (target)	B	5.0	R	√3	0.64	0.43	1.8	1.2	∞
19	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	0.89	43
20	Liquid permittivity (target)	B	5.0	R	√3	0.6	0.49	1.7	1.4	∞

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21	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	1.0	0.8	521
Combined standard uncertainty		$u_c^{'} = \sqrt{\sum_{i=1}^{21} c_i^2 u_i^2}$						10.7	10.6	257
Expanded uncertainty (confidence interval of 95 %)		$u_e = 2u_c$						21.4	21.1	

16.3 Measurement Uncertainty for Fast SAR Tests (300MHz~3GHz)

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
Measurement system										
1	Probe calibration	B	6.0	N	1	1	1	6.0	6.0	∞
2	Isotropy	B	4.7	R	√3	0.7	0.7	1.9	1.9	∞
3	Boundary effect	B	1.0	R	√3	1	1	0.6	0.6	∞
4	Linearity	B	4.7	R	√3	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	R	√3	1	1	0.6	0.6	∞
6	Readout electronics	B	0.3	R	√3	1	1	0.3	0.3	∞
7	Response time	B	0.8	R	√3	1	1	0.5	0.5	∞
8	Integration time	B	2.6	R	√3	1	1	1.5	1.5	∞
9	RF ambient conditions-noise	B	0	R	√3	1	1	0	0	∞
10	RFambient conditions-reflection	B	0	R	√3	1	1	0	0	∞
11	Probe positioned mech. Restrictions	B	0.4	R	√3	1	1	0.2	0.2	∞
12	Probe positioning with respect to phantom shell	B	2.9	R	√3	1	1	1.7	1.7	∞
13	Post-processing	B	1.0	R	√3	1	1	0.6	0.6	∞
14	Fast SAR z-Approximation	B	7.0	R	√3	1	1	4.0	4.0	∞
Test sample related										
15	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	71
16	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
17	Drift of output power	B	5.0	R	√3	1	1	2.9	2.9	∞
Phantom and set-up										
18	Phantom uncertainty	B	4.0	R	√3	1	1	2.3	2.3	∞
19	Liquid conductivity (target)	B	5.0	R	√3	0.64	0.43	1.8	1.2	∞

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20	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	0.89	43
21	Liquid permittivity (target)	B	5.0	R	√3	0.6	0.49	1.7	1.4	∞
22	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	1.0	0.8	521
Combined standard uncertainty		$u_c^{'} = \sqrt{\sum_{i=1}^{22} c_i^2 u_i^2}$						10.4	10.3	257
Expanded uncertainty (confidence interval of 95 %)		$u_e = 2u_c$						20.8	20.6	

16.4 Measurement Uncertainty for Fast SAR Tests (3~6GHz)

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
Measurement system										
1	Probe calibration	B	6.55	N	1	1	1	6.55	6.55	∞
2	Isotropy	B	4.7	R	√3	0.7	0.7	1.9	1.9	∞
3	Boundary effect	B	2.0	R	√3	1	1	1.2	1.2	∞
4	Linearity	B	4.7	R	√3	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	R	√3	1	1	0.6	0.6	∞
6	Readout electronics	B	0.3	R	√3	1	1	0.3	0.3	∞
7	Response time	B	0.8	R	√3	1	1	0.5	0.5	∞
8	Integration time	B	2.6	R	√3	1	1	1.5	1.5	∞
9	RF ambient conditions-noise	B	0	R	√3	1	1	0	0	∞
10	RFambient conditions-reflection	B	0	R	√3	1	1	0	0	∞
11	Probe positioned mech. Restrictions	B	0.8	R	√3	1	1	0.5	0.5	∞
12	Probe positioning with respect to phantom shell	B	6.7	R	√3	1	1	3.9	3.9	∞
13	Post-processing	B	1.0	R	√3	1	1	0.6	0.6	∞
14	Fast SAR z-Approximation	B	14.0	R	√3	1	1	8.1	8.1	∞
Test sample related										
15	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	71
16	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
17	Drift of output power	B	5.0	R	√3	1	1	2.9	2.9	∞

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Phantom and set-up										
18	Phantom uncertainty	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
19	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
20	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	0.89	43
21	Liquid permittivity (target)	B	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	∞
22	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	1.0	0.8	521
Combined standard uncertainty		$u_c^{'} = \sqrt{\sum_{i=1}^{22} c_i^2 u_i^2}$						13.5	13.4	257
Expanded uncertainty (confidence interval of 95 %)		$u_e = 2u_c$						27.0	26.8	

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17 MAIN TEST INSTRUMENTS

Table 17.1: List of Main Instruments

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Network analyzer	N5239A	MY55491241	June 10, 2019	One year
02	Power meter	NRP2	106277	September 4, 2019	One year
03	Power sensor	NRP8S	104291		
04	Power sensor	NRP6A	101369	April 11, 2019	One Year
05	Signal Generator	MG3700A	6201052605	June 18, 2019	One Year
06	Amplifier	60S1G4	0331848	No Calibration Requested	
07	Directional Coupler	778D	MY48220584	No Calibration Requested	
08	Directional Coupler	772D	MY46151265	No Calibration Requested	
09	BTS	CMW500	166370	June 27, 2019	One year
10	E-field Probe	SPEAG EX3DV4	7307	May 24, 2020	One year
11	DAE	SPEAG DAE4	777	January 8, 2020	One year
12	Dipole Validation Kit	SPEAG D750V3	1017	July 18, 2019	One year
13	Dipole Validation Kit	SPEAG D835V2	4d069	July 18, 2019	One year
14	Dipole Validation Kit	SPEAG D1750V2	1003	July 16, 2019	One year
15	Dipole Validation Kit	SPEAG D1900V2	5d101	July 17, 2019	One year
16	Dipole Validation Kit	SPEAG D2450V2	853	July 17, 2019	One year
17	Dipole Validation Kit	SPEAG D2600V2	1012	July 17, 2019	One year

END OF REPORT BODY

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ANNEX A Graph Results

GSM850_CH251 Right Cheek
Date: 2/10/2020
Electronics: DAE4 SN777
Medium: head 835 MHz
Medium parameters used: f = 848.8 MHz; σ = 0.897 mho/m; εr = 41.43; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: GSM850 848.8 MHz Duty Cycle: 1:2
Probe: EX3DV4 – SN7307 ConvF(10.45,10.45,10.45)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.246 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.52 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.266 W/kg
SAR(1 g) = 0.206 W/kg; SAR(10 g) = 0.16 W/kg
Maximum value of SAR (measured) = 0.245 W/kg

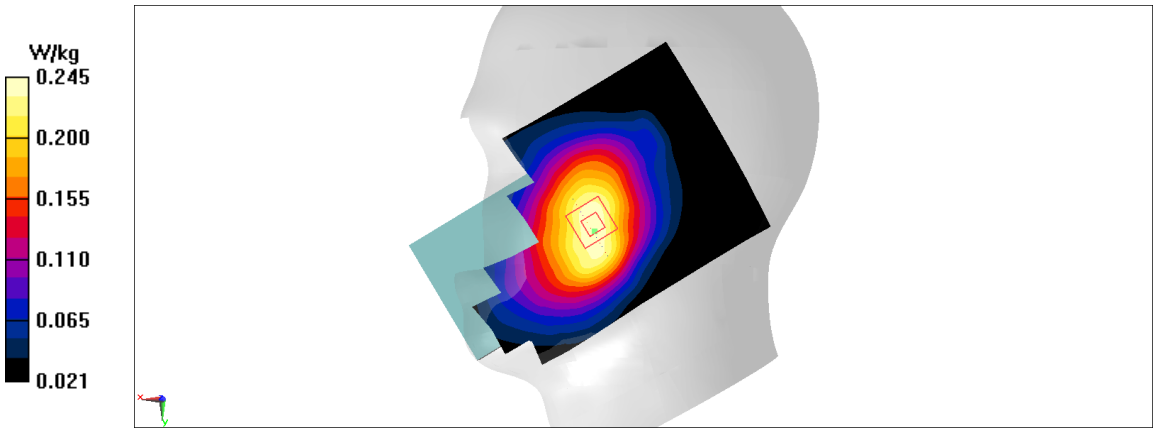

Fig A.1

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GSM850_CH251 Rear
Date: 2/10/2020
Electronics: DAE4 SN777
Medium: body 835 MHz
Medium parameters used: f = 848.8 MHz; σ = 0.916 mho/m; εr = 41.14; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: GSM850 848.8 MHz Duty Cycle: 1:2
Probe: EX3DV4 – SN7307 ConvF(10.45,10.45,10.45)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.641 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.71 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.636 W/kg
SAR(1 g) = 0.36 W/kg; SAR(10 g) = 0.217 W/kg
Maximum value of SAR (measured) = 0.512 W/kg

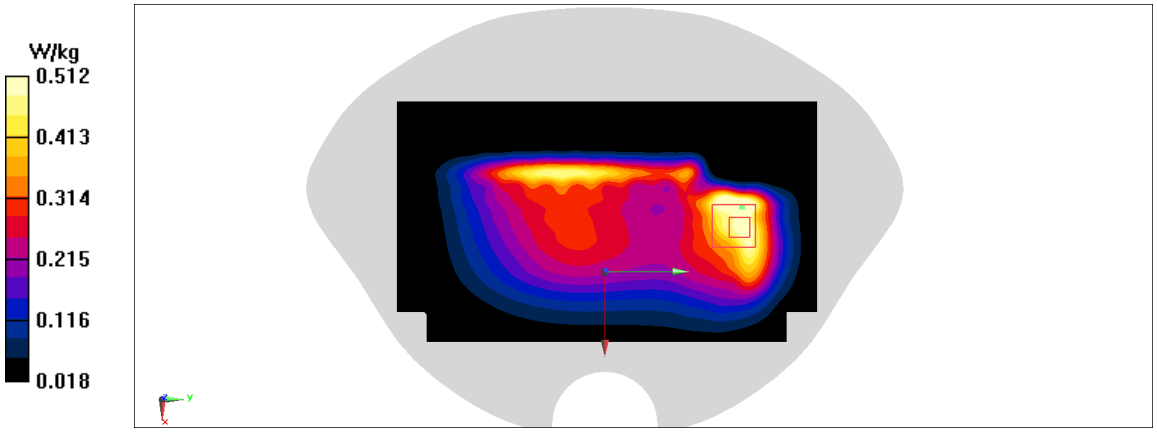

Fig A.2

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PCS1900_CH661 Left Cheek
Date: 2/12/2020
Electronics: DAE4 SN777
Medium: head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.363 mho/m; εr = 39.35; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: PCS1900 1880 MHz Duty Cycle: 1:4
Probe: EX3DV4 – SN7307 ConvF(8.56,8.56,8.56)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.133 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.919 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.15 W/kg
SAR(1 g) = 0.094 W/kg; SAR(10 g) = 0.06 W/kg
Maximum value of SAR (measured) = 0.129 W/kg

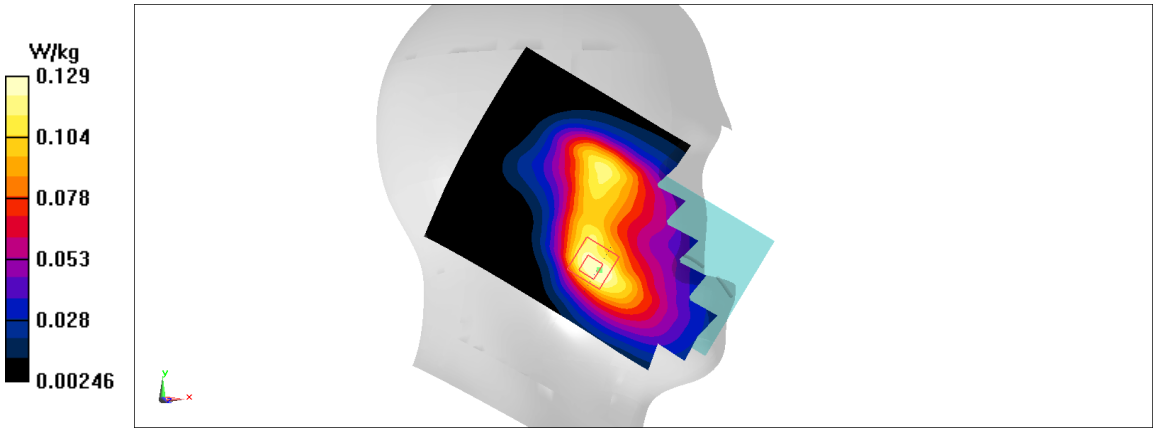

Fig A.3

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PCS1900_CH512 Bottom
Date: 2/12/2020
Electronics: DAE4 SN777
Medium: body 1900 MHz
Medium parameters used: f = 1850.2 MHz; σ = 1.358 mho/m; εr = 39.99; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: PCS1900 1850.2 MHz Duty Cycle: 1:4
Probe: EX3DV4 – SN7307 ConvF(8.56,8.56,8.56)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.796 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.915 W/kg
SAR(1 g) = 0.505 W/kg; SAR(10 g) = 0.275 W/kg
Maximum value of SAR (measured) = 0.746 W/kg

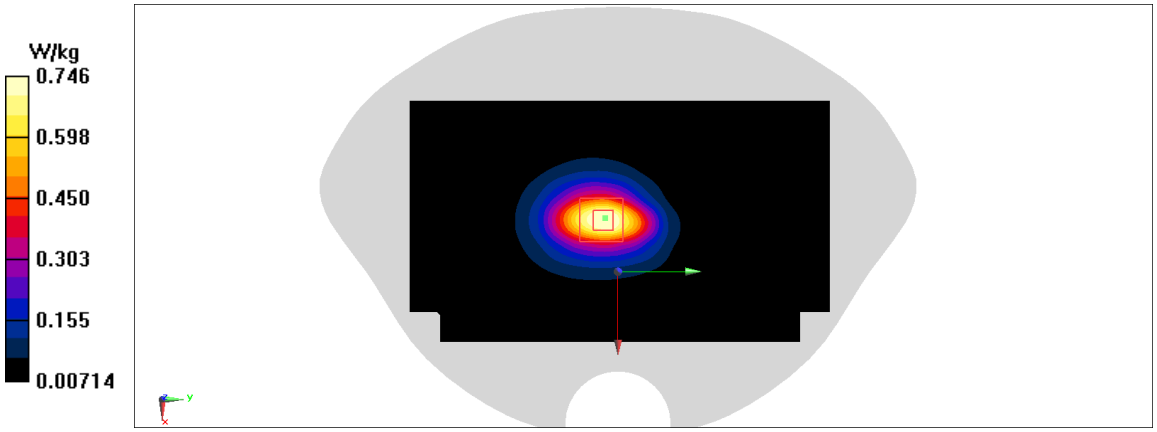

Fig A.4

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WCDMA1900-BII_CH9400 Left Cheek
Date: 2/12/2020
Electronics: DAE4 SN777
Medium: head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.363 mho/m; εr = 39.35; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: WCDMA1900-BII 1880 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7307 ConvF(8.56,8.56,8.56)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.109 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.571 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.127 W/kg
SAR(1 g) = 0.08 W/kg; SAR(10 g) = 0.05 W/kg
Maximum value of SAR (measured) = 0.108 W/kg

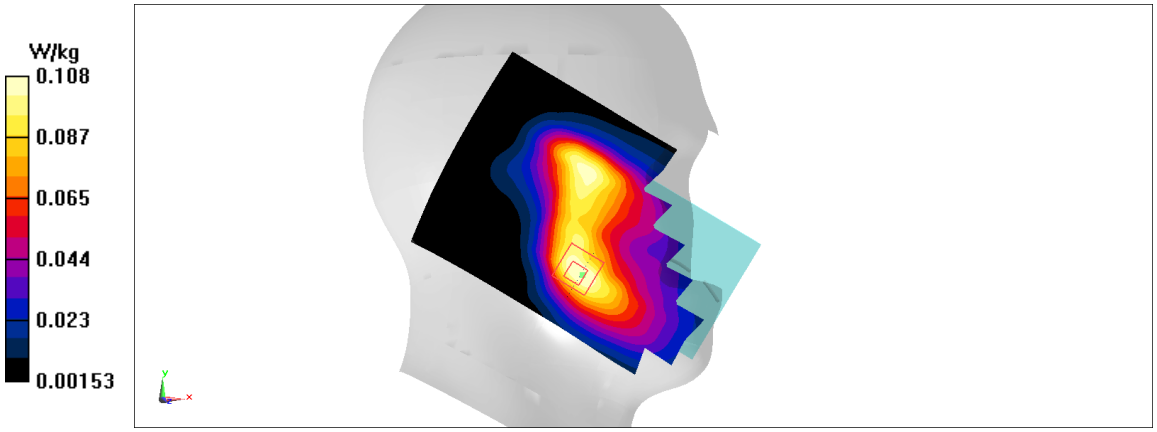

Fig A.5

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WCDMA1900-BII_CH9262 Bottom
Date: 2/12/2020
Electronics: DAE4 SN777
Medium: body 1900 MHz
Medium parameters used: f = 1852.4 MHz; σ = 1.359 mho/m; εr = 39.99; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: WCDMA1900-BII 1852.4 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7307 ConvF(8.56,8.56,8.56)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.12 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.14 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.34 W/kg
SAR(1 g) = 0.735 W/kg; SAR(10 g) = 0.399 W/kg
Maximum value of SAR (measured) = 1.11 W/kg

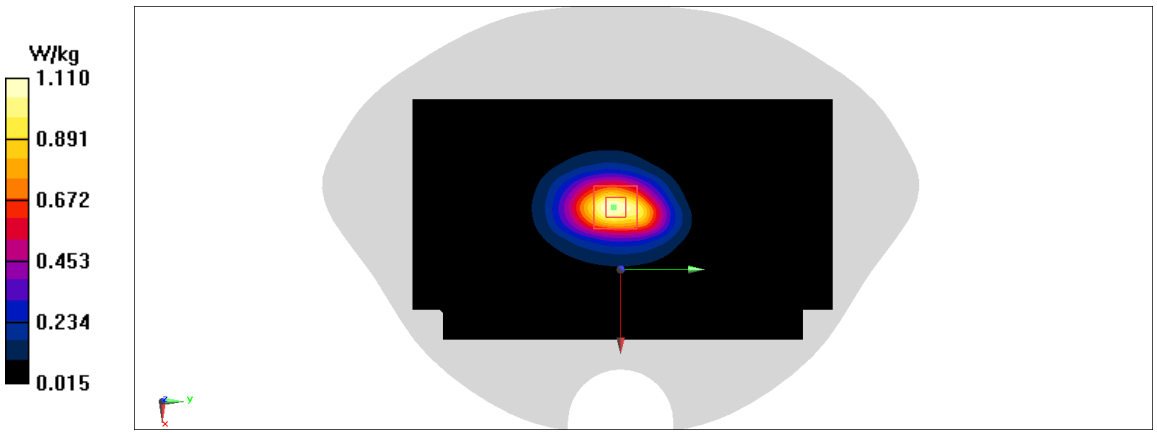

Fig A.6

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WCDMA1700-BIV_CH1513 Right Cheek
Date: 2/11/2020
Electronics: DAE4 SN777
Medium: head 1750 MHz
Medium parameters used: f = 1752.6 MHz; σ = 1.377 mho/m; εr = 39.44; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: WCDMA1700-BIV 1752.6 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7307 ConvF(8.86,8.86,8.86)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.276 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.169 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.287 W/kg
SAR(1 g) = 0.19 W/kg; SAR(10 g) = 0.121 W/kg
Maximum value of SAR (measured) = 0.252 W/kg

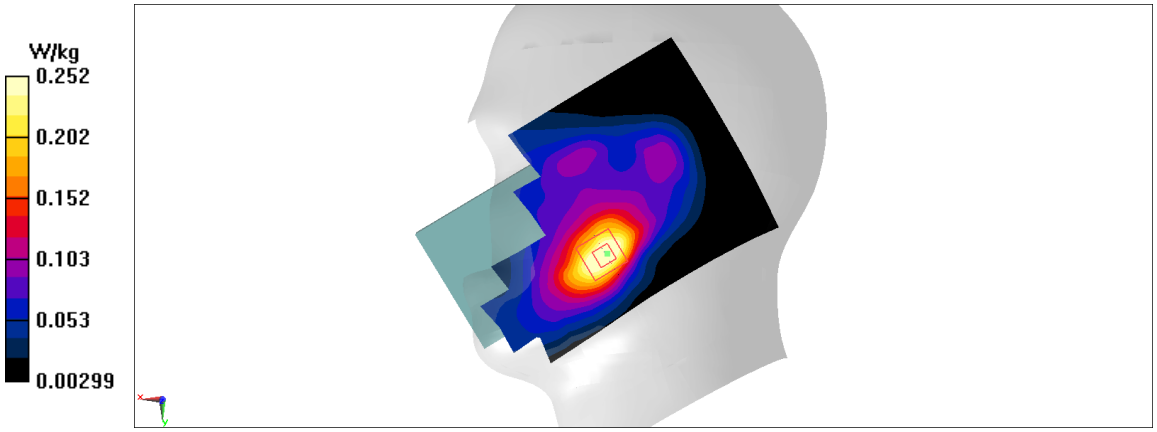

Fig A.7

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WCDMA1700-BIV_CH1513 Bottom
Date: 2/11/2020
Electronics: DAE4 SN777
Medium: body 1750 MHz
Medium parameters used: f = 1752.6 MHz; σ = 1.351 mho/m; εr = 40.56; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: WCDMA1700-BIV 1752.6 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7307 ConvF(8.86,8.86,8.86)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.5 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.72 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 1.74 W/kg
SAR(1 g) = 0.961 W/kg; SAR(10 g) = 0.524 W/kg
Maximum value of SAR (measured) = 1.44 W/kg

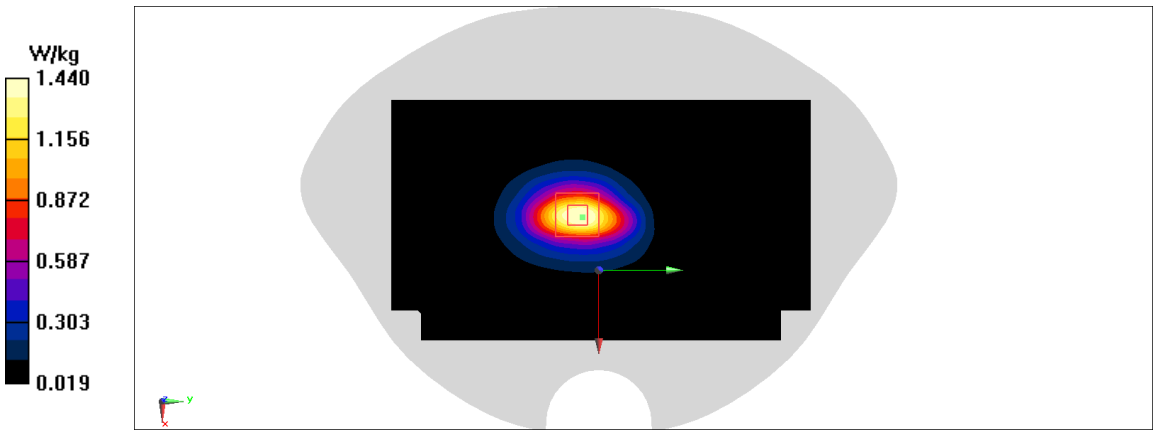

Fig A.8

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WCDMA850-BV_CH4233 Right Cheek
Date: 2/10/2020
Electronics: DAE4 SN777
Medium: head 835 MHz
Medium parameters used: f = 846.6 MHz; σ = 0.895 mho/m; εr = 41.44; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: WCDMA850-BV 846.6 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7307 ConvF(10.45,10.45,10.45)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.135 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.703 V/m; Power Drift = 0.1 dB
Peak SAR (extrapolated) = 0.145 W/kg
SAR(1 g) = 0.109 W/kg; SAR(10 g) = 0.083 W/kg
Maximum value of SAR (measured) = 0.132 W/kg

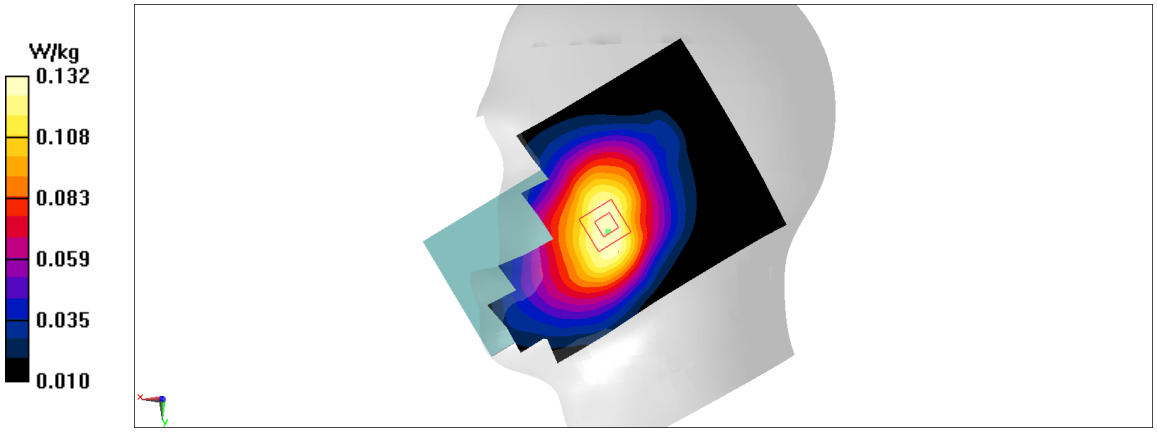

Fig A.9

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WCDMA850-BV_CH4233 Rear
Date: 2/10/2020
Electronics: DAE4 SN777
Medium: body 835 MHz
Medium parameters used: f = 846.6 MHz; σ = 0.914 mho/m; εr = 41.15; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: WCDMA850-BV 846.6 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7307 ConvF(10.45,10.45,10.45)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.223 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.96 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.262 W/kg
SAR(1 g) = 0.149 W/kg; SAR(10 g) = 0.09 W/kg
Maximum value of SAR (measured) = 0.213 W/kg

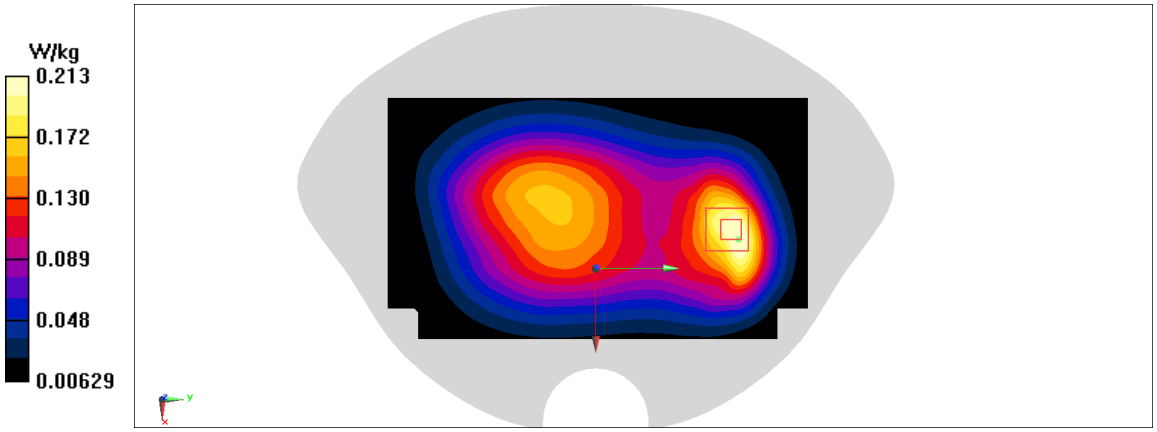

Fig A.10

©Copyright. All rights reserved by CTTL.

LTE1900-FDD2_CH18900 Left Cheek
Date: 2/12/2020
Electronics: DAE4 SN777
Medium: head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.363 mho/m; εr = 39.35; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: LTE1900-FDD2 1880 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7307 ConvF(8.56,8.56,8.56)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.115 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.309 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.124 W/kg
SAR(1 g) = 0.078 W/kg; SAR(10 g) = 0.05 W/kg
Maximum value of SAR (measured) = 0.107 W/kg

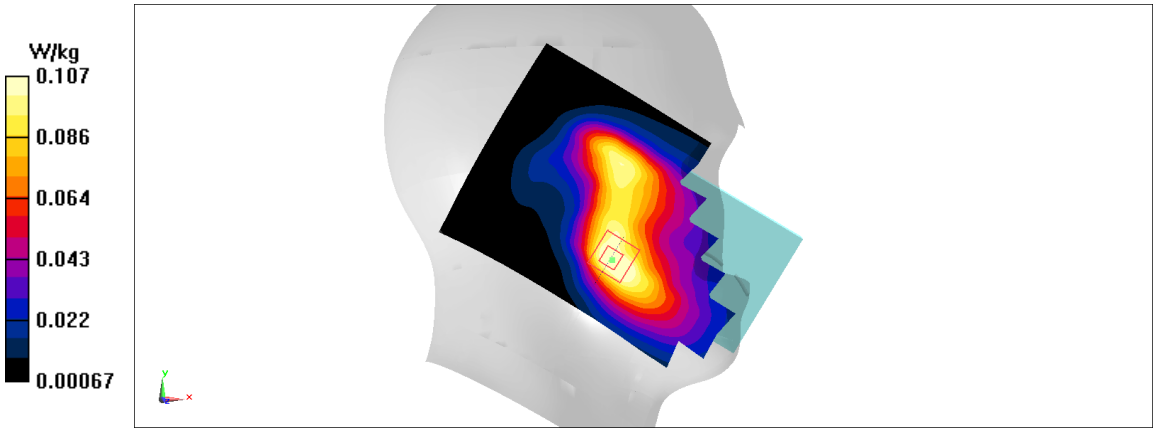

Fig A.11

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LTE1900-FDD2_CH18900 Bottom
Date: 2/12/2020
Electronics: DAE4 SN777
Medium: body 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.386 mho/m; εr = 39.95; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: LTE1900-FDD2 1880 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7307 ConvF(8.56,8.56,8.56)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.941 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.77 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.13 W/kg
SAR(1 g) = 0.604 W/kg; SAR(10 g) = 0.326 W/kg
Maximum value of SAR (measured) = 0.925 W/kg

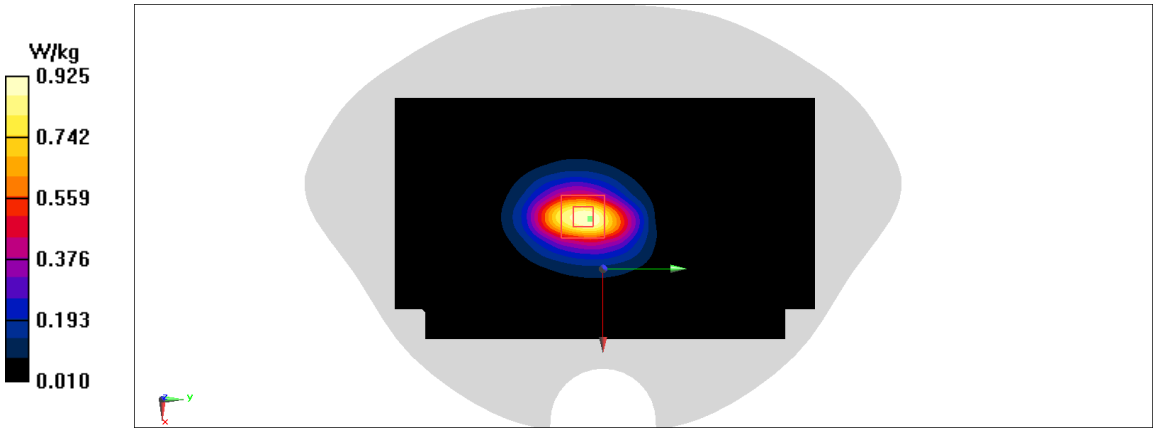

Fig A.12

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LTE1700-FDD4_CH20300 Right Cheek
Date: 2/11/2020
Electronics: DAE4 SN777
Medium: head 1750 MHz
Medium parameters used: f = 1745 MHz; σ = 1.369 mho/m; εr = 39.45; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: LTE1700-FDD4 1745 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7307 ConvF(8.86,8.86,8.86)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.128 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.005 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.134 W/kg
SAR(1 g) = 0.089 W/kg; SAR(10 g) = 0.057 W/kg
Maximum value of SAR (measured) = 0.118 W/kg

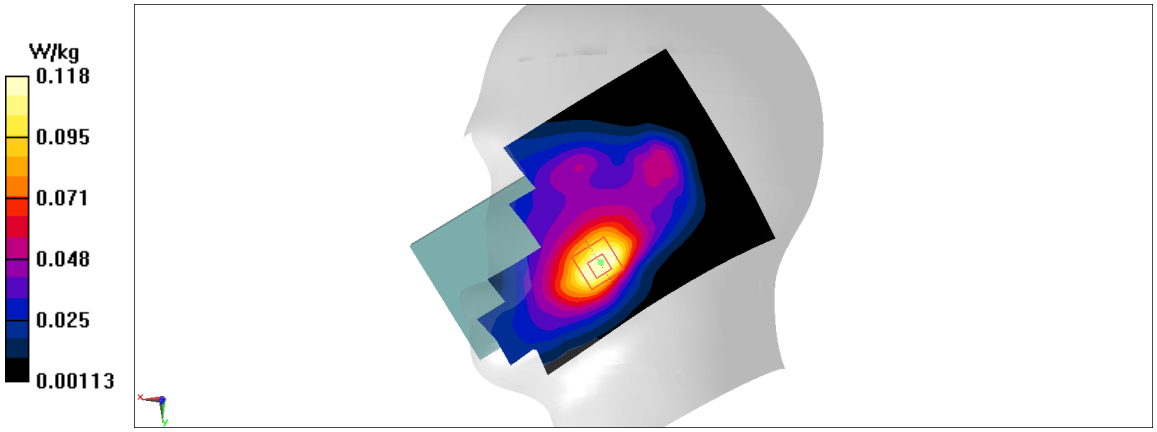

Fig A.13

©Copyright. All rights reserved by CTTL.

LTE1700-FDD4_CH20300 Bottom
Date: 2/11/2020
Electronics: DAE4 SN777
Medium: body 1750 MHz
Medium parameters used: f = 1745 MHz; σ = 1.343 mho/m; εr = 40.57; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: LTE1700-FDD4 1745 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7307 ConvF(8.86,8.86,8.86)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.1 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.95 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 1.32 W/kg
SAR(1 g) = 0.728 W/kg; SAR(10 g) = 0.393 W/kg
Maximum value of SAR (measured) = 1.1 W/kg

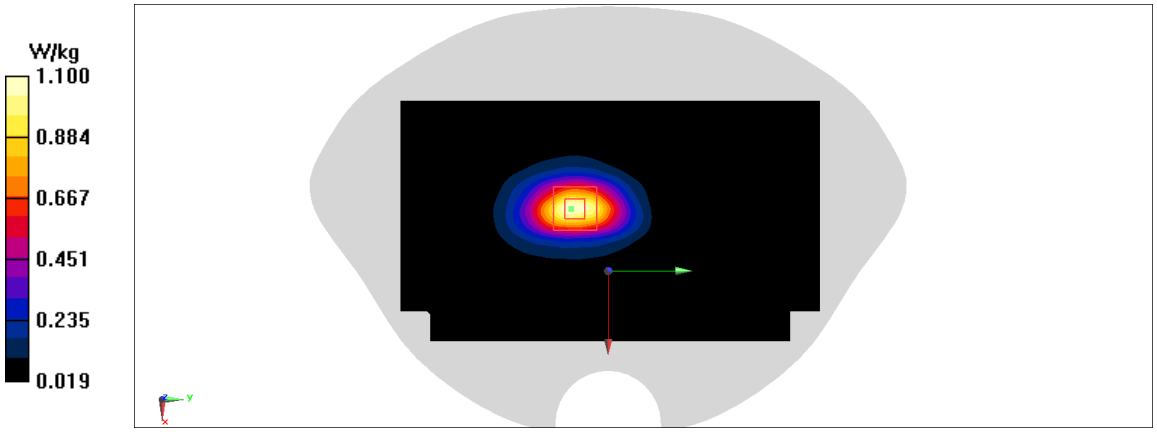

Fig A.14

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LTE850-FDD5_CH20600 Right Cheek
Date: 2/10/2020
Electronics: DAE4 SN777
Medium: head 835 MHz
Medium parameters used: f = 844 MHz; σ = 0.893 mho/m; εr = 41.44; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: LTE850-FDD5 844 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7307 ConvF(10.45,10.45,10.45)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.144 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.992 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.156 W/kg
SAR(1 g) = 0.12 W/kg; SAR(10 g) = 0.093 W/kg
Maximum value of SAR (measured) = 0.143 W/kg

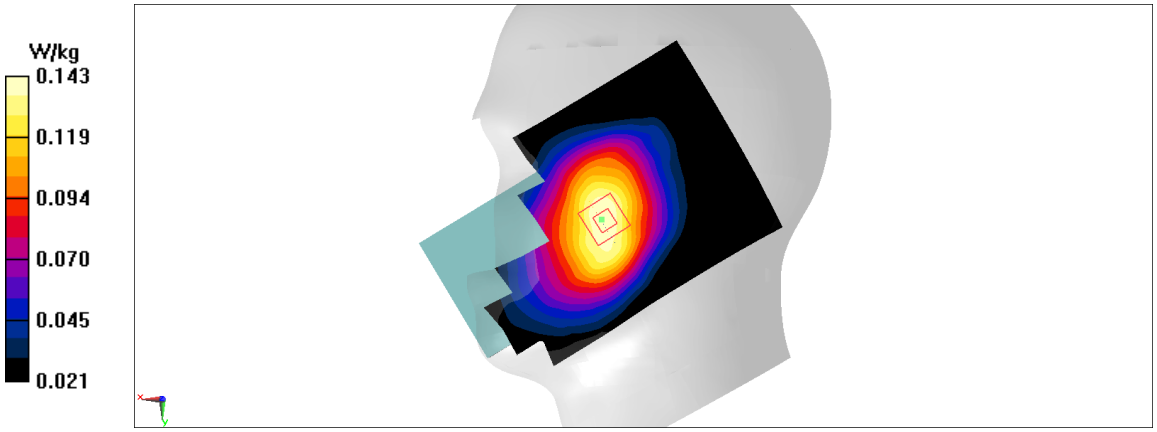

Fig A.15

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LTE850-FDD5_CH20600 Rear
Date: 2/10/2020
Electronics: DAE4 SN777
Medium: body 835 MHz
Medium parameters used: f = 844 MHz; σ = 0.912 mho/m; εr = 41.15; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: LTE850-FDD5 844 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7307 ConvF(10.45,10.45,10.45)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.196 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.01 V/m; Power Drift = 0.1 dB
Peak SAR (extrapolated) = 0.218 W/kg
SAR(1 g) = 0.159 W/kg; SAR(10 g) = 0.121 W/kg
Maximum value of SAR (measured) = 0.196 W/kg

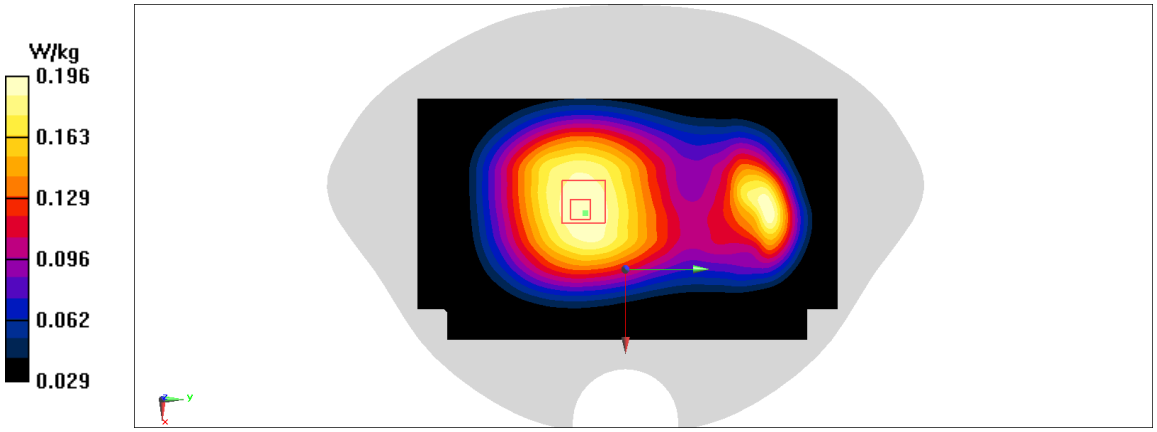

Fig A.16

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LTE2500-FDD7_CH21100 Left Cheek
Date: 2/14/2020
Electronics: DAE4 SN777
Medium: head 2600 MHz
Medium parameters used: f = 2535 MHz; σ = 1.898 mho/m; εr = 38.48; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: LTE2500-FDD7 2535 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7307 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) = 0.203 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.572 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.24 W/kg
SAR(1 g) = 0.128 W/kg; SAR(10 g) = 0.068 W/kg
Maximum value of SAR (measured) = 0.192 W/kg

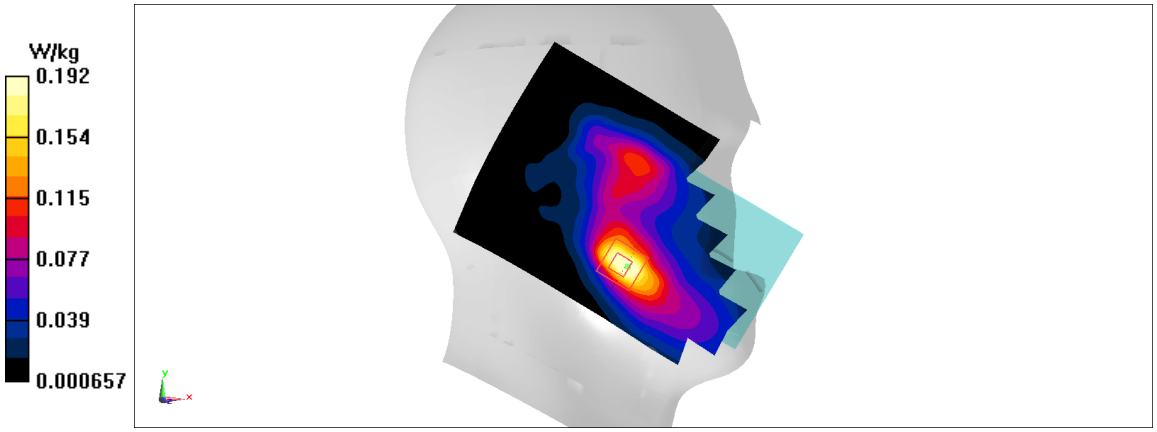

Fig A.17

©Copyright. All rights reserved by CTTL.

LTE2500-FDD7_CH21100 Bottom
Date: 2/14/2020
Electronics: DAE4 SN777
Medium: body 2600 MHz
Medium parameters used: f = 2535 MHz; σ = 1.889 mho/m; εr = 39.53; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: LTE2500-FDD7 2535 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7307 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) = 0.833 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.66 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.08 W/kg
SAR(1 g) = 0.55 W/kg; SAR(10 g) = 0.273 W/kg
Maximum value of SAR (measured) = 0.87 W/kg

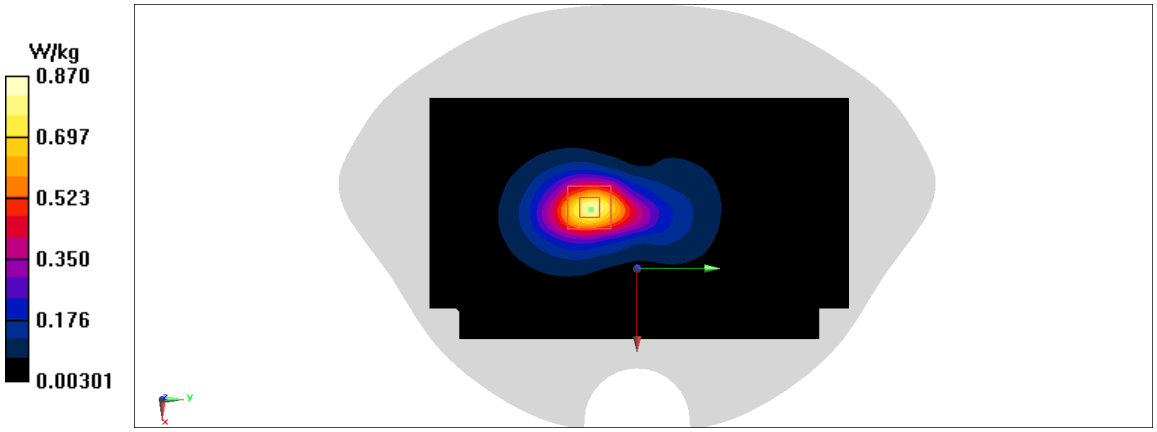

Fig A.18

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LTE700-FDD12_CH23130 Right Cheek
Date: 2/9/2020
Electronics: DAE4 SN777
Medium: head 750 MHz
Medium parameters used: f = 711 MHz; σ = 0.86 mho/m; εr = 42.12; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: LTE700-FDD12 711 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7307 ConvF(10.58,10.58,10.58)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0996 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.396 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.104 W/kg
SAR(1 g) = 0.082 W/kg; SAR(10 g) = 0.064 W/kg
Maximum value of SAR (measured) = 0.0963 W/kg

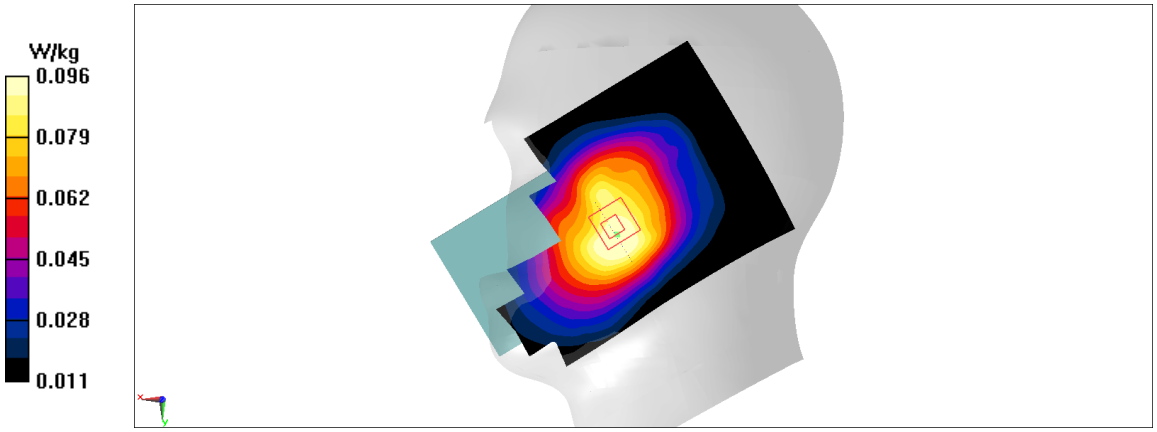

Fig A.19

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LTE700-FDD12_CH23130 Rear
Date: 2/9/2020
Electronics: DAE4 SN777
Medium: body 750 MHz
Medium parameters used: f = 711 MHz; σ = 0.854 mho/m; εr = 41.64; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: LTE700-FDD12 711 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7307 ConvF(10.58,10.58,10.58)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.138 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.99 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.152 W/kg
SAR(1 g) = 0.113 W/kg; SAR(10 g) = 0.086 W/kg
Maximum value of SAR (measured) = 0.137 W/kg

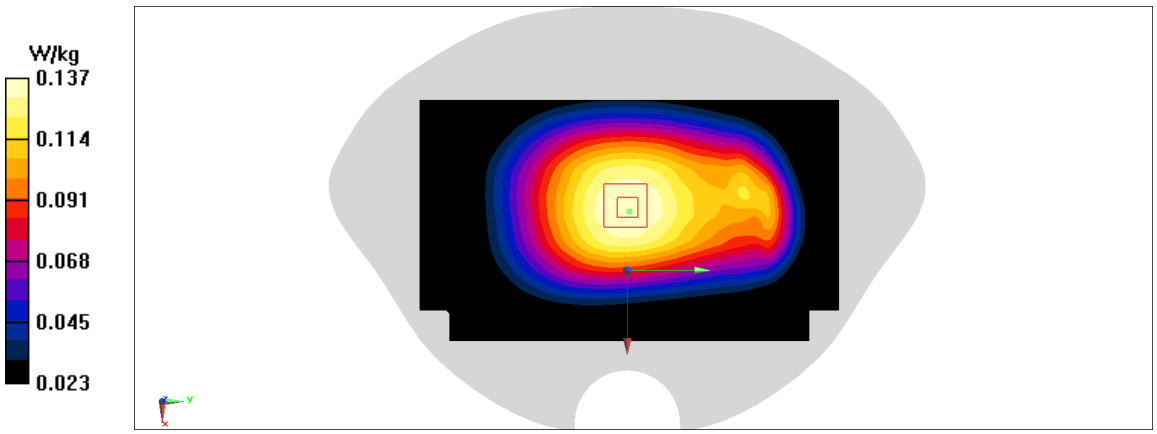

Fig A.20

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LTE700-FDD28_CH27460 Right Cheek
Date: 2/9/2020
Electronics: DAE4 SN777
Medium: head 750 MHz
Medium parameters used: f = 728 MHz; σ = mho/m; εr = ; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: LTE700-FDD28 728 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7307 ConvF(10.58,10.58,10.58)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0777 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.288 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.082 W/kg
SAR(1 g) = 0.064 W/kg; SAR(10 g) = 0.049 W/kg
Maximum value of SAR (measured) = 0.0756 W/kg

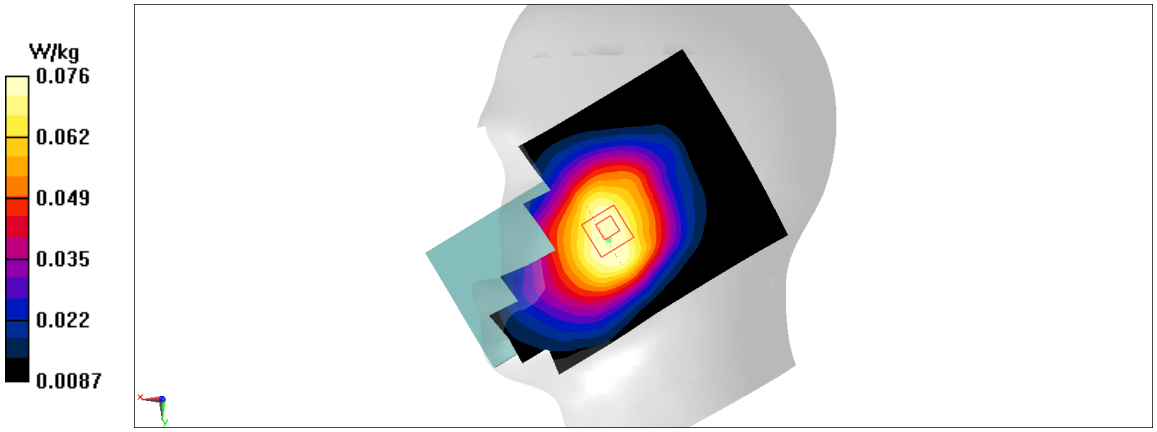

Fig A.21

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LTE700-FDD28_CH27460 Rear
Date: 2/9/2020
Electronics: DAE4 SN777
Medium: body 750 MHz
Medium parameters used: f = 728 MHz; σ = mho/m; εr = ; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: LTE700-FDD28 728 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7307 ConvF(10.58,10.58,10.58)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.136 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.84 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.15 W/kg
SAR(1 g) = 0.112 W/kg; SAR(10 g) = 0.085 W/kg
Maximum value of SAR (measured) = 0.135 W/kg

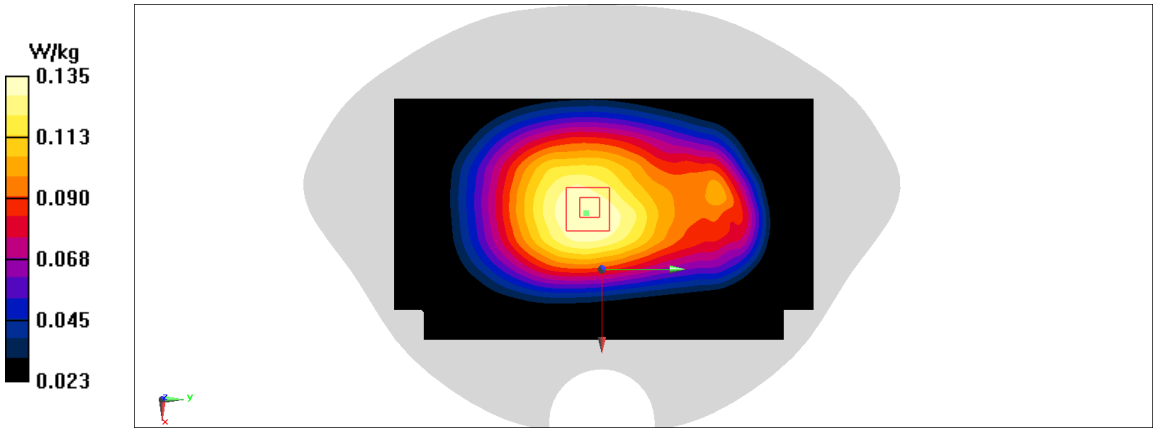

Fig A.22

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WLAN2450_CH11 Left Cheek
Date: 2/13/2020
Electronics: DAE4 SN777
Medium: head 2450 MHz
Medium parameters used: f = 2462 MHz; σ = 1.824 mho/m; εr = 39.21; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: WLAN2450 2462 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7307 ConvF(7.83,7.83,7.83)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.08 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.83 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.24 W/kg
SAR(1 g) = 0.623 W/kg; SAR(10 g) = 0.32 W/kg
Maximum value of SAR (measured) = 0.948 W/kg

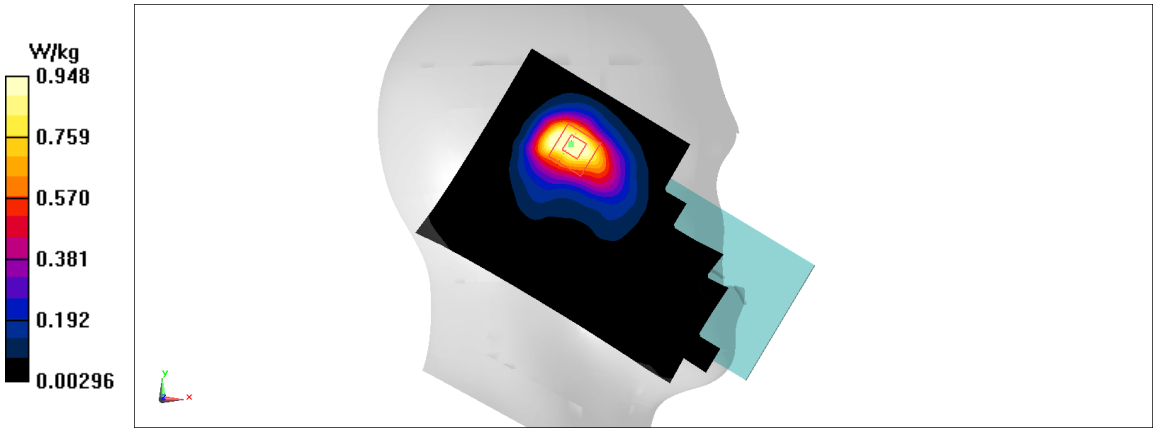

Fig A.23

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WLAN2450_CH11 Rear
Date: 2/13/2020
Electronics: DAE4 SN777
Medium: body 2450 MHz
Medium parameters used: f = 2462 MHz; σ = 1.811 mho/m; εr = 39.13; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: WLAN2450 2462 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7307 ConvF(7.83,7.83,7.83)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.268 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.455 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.316 W/kg
SAR(1 g) = 0.151 W/kg; SAR(10 g) = 0.075 W/kg
Maximum value of SAR (measured) = 0.247 W/kg

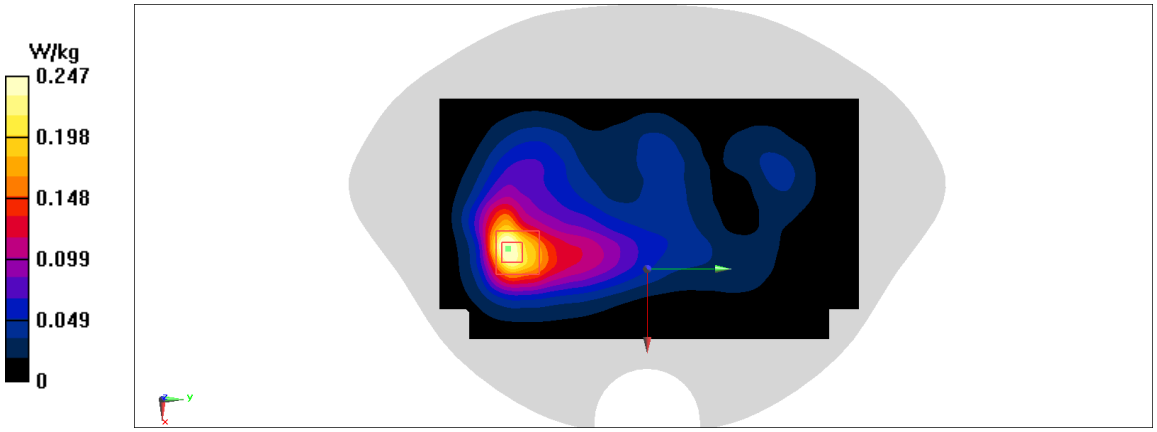

Fig A.24

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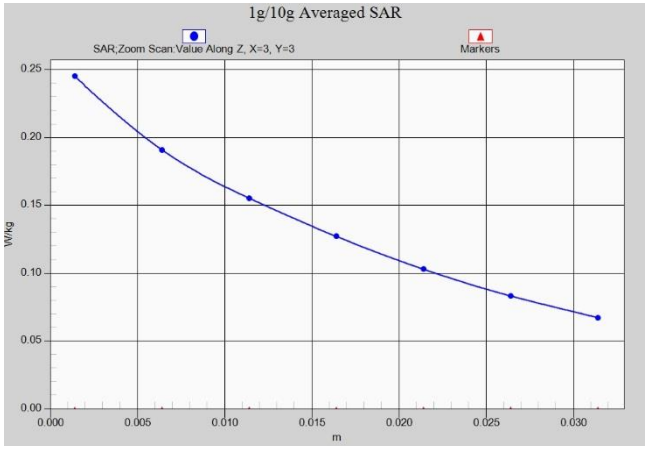

Fig. 1-1 Z-Scan at power reference point (850 MHz Head)

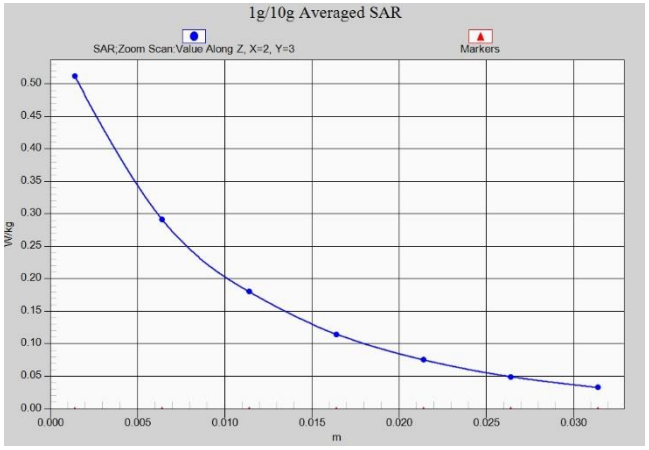

Fig. 1-2 Z-Scan at power reference point (850 MHz Body)

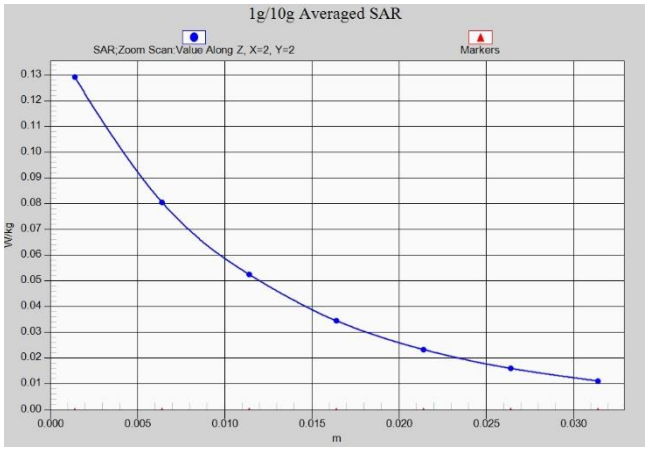

Fig. 1-3 Z-Scan at power reference point (1900 MHz Head)

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