

14.3 WLAN Evaluation for 5G

Table 14.30: SAR Values (WLAN 5G - Head)

Frequency		Test Mode	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift(dB)
MHz	Ch.								
Ambient Temperature: 22.5°C Liquid Temperature: 22.0°C									
U-NII-2A									
5260	52	802.11 a	Left Touch	Fig.27	13.50	14	0.977	1.10	0.03
5260	52	802.11 a	Left Tilt	/	13.50	14	0.935	1.05	0.02
5260	52	802.11 a	Right Touch	/	13.50	14	0.474	0.53	0.06
5260	52	802.11 a	Right Tilt	/	13.50	14	0.423	0.47	0.05
5320	64	802.11 a	Left Touch	/	13.45	14	0.946	1.07	-0.06
5320	64	802.11 a	Left Tilt	/	13.45	14	0.911	1.03	0.05
U-NII-2C									
5500	100	802.11 a	Left Touch	/	13.49	14	0.974	1.10	0.08
5500	100	802.11 a	Left Tilt	/	13.49	14	0.847	0.95	0.04
5500	100	802.11 a	Right Touch	/	13.49	14	0.529	0.59	-0.06
5500	100	802.11 a	Right Tilt	/	13.49	14	0.503	0.57	0.05
5580	116	802.11 a	Left Touch	/	13.39	14	0.836	0.96	0.07
5580	116	802.11 a	Left Tilt	/	13.39	14	0.711	0.82	0.02
U-NII-3									
5745	149	802.11 a	Left Touch	/	13.41	14	0.542	0.62	-0.10
5745	149	802.11 a	Left Tilt	/	13.41	14	0.446	0.51	0.07
5745	149	802.11 a	Right Touch	/	13.41	14	0.326	0.37	0.06
5745	149	802.11 a	Right Tilt	/	13.41	14	0.264	0.30	0.03

Note1: U-NII-1 and U-NII-2A bands have the same specified maximum output and tolerance; SAR is measured for U-NII-2A band first. Adjusted SAR of U-NII-2A band is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band.

Note2:For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.

According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. A maximum transmission duty factor of 100% is achievable for WLAN in this project and the scaled reported SAR is presented as below.

Table 14.31: SAR Values (WLAN 5G - Head) – (Scaled Reported SAR)

Frequency		Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g)(W/kg)	Scaled reported SAR (1g)(W/kg)
MHz	Ch.					
5260	52	Left Touch	100%	100%	1.10	1.10

Table 14.32: SAR Values (WLAN 5G - Body)

Frequency		Test Mode	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift(dB)
MHz	Ch.								
Ambient Temperature: 22.5°C Liquid Temperature: 22.0°C									
U-NII-2A									
5260	52	802.11 a	Front	Fig.28	13.5	14	0.076	0.09	0.03
5260	52	802.11 a	Rear	/	13.5	14	0.036	0.04	-0.09
5260	52	802.11 a	Right	/	13.5	14	0.010	0.01	0.11
5260	52	802.11 a	Top	/	13.5	14	0.022	0.02	-0.10
U-NII-2C									
5500	100	802.11 a	Front	/	13.49	14	0.042	0.05	0.09
5500	100	802.11 a	Rear	/	13.49	14	0.023	0.03	0.01
5500	100	802.11 a	Right	/	13.49	14	0.007	0.01	-0.12
5500	100	802.11 a	Top	/	13.49	14	0.021	0.02	0.04
U-NII-3									
5745	149	802.11 a	Front	/	13.41	14	0.026	0.03	0.01
5745	149	802.11 a	Rear	/	13.41	14	0.004	< 0.01	0.09
5745	149	802.11 a	Right	/	13.41	14	0.002	< 0.01	-0.11
5745	149	802.11 a	Top	/	13.41	14	0.003	< 0.01	-0.05

Note1: The WLAN5GHz Body-Worn mode have no SAR value, because it is too small to be probed

Note2: U-NII-1 and U-NII-2A bands have the same specified maximum output and tolerance; SAR is measured for U-NII-2A band first. Adjusted SAR of U-NII-2A band is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band.

Note3:For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.

According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. A maximum transmission duty factor of 100% is achievable for WLAN in this project and the scaled reported SAR is presented as below.

Table 14.33: SAR Values (WLAN 5G - Body) – (Scaled Reported SAR)

Frequency		Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g)(W/kg)	Scaled reported SAR (1g)(W/kg)
MHz	Ch.					
5260	52	Front	100%	100%	0.09	0.09

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; steps 2) 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 ≥ 1.45 W/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 – GSM 1900

Frequency		Test Position	Original	1 st Repeated	Ratio	2 nd Repeated
MHz	Ch.		SAR (W/kg)	SAR (W/kg)		SAR (W/kg)
1850.2	512	Bottom	1.20	1.18	1.02	/

Table 15.2: SAR Measurement Variability for Body –WCDMA1700

Frequency		Test Position	Original	1 st Repeated	Ratio	2 nd Repeated
MHz	Ch.		SAR (W/kg)	SAR (W/kg)		SAR (W/kg)
1752.6	1513	Bottom	0.837	0.829	1.01	/

Table 15.3: SAR Measurement Variability for Body –LTE Band 2

Frequency		Test Position	Original	1 st Repeated	Ratio	2 nd Repeated
MHz	Ch.		SAR (W/kg)	SAR (W/kg)		SAR (W/kg)
1900	19100	Bottom	0.885	0.878	1.01	/

Table 15.4: SAR Measurement Variability for Body –LTE Band 4

Frequency		Test Position	Original	1 st Repeated	Ratio	2 nd Repeated
MHz	Ch.		SAR (W/kg)	SAR (W/kg)		SAR (W/kg)
1745	20300	Bottom	1.00	0.987	1.01	/

Table 15.5: SAR Measurement Variability for Head –WLAN 5G

Frequency		Test Position	Original	1 st Repeated	Ratio	2 nd Repeated
MHz	Ch.		SAR (W/kg)	SAR (W/kg)		SAR (W/kg)
5260	52	Left Touch	0.977	0.972	1.01	/

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	12	N	2	1	1	6.0	6.0	∞
2	Isotropy	B	7.4	R	$\sqrt{3}$	1	1	4.3	4.3	∞
3	Boundary effect	B	1.1	R	$\sqrt{3}$	1	1	0.6	0.6	∞
4	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
6	Readout electronics	B	1.0	N	1	1	1	1.0	1.0	∞
7	Response time	B	0.0	R	$\sqrt{3}$	1	1	0.0	0.0	∞
8	Integration time	B	1.7	R	$\sqrt{3}$	1	1	1.0	1.0	∞
9	RF ambient conditions-noise	B	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	∞
10	RF ambient conditions-reflection	B	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	∞
11	Probe positioned mech. restrictions	B	0.35	R	$\sqrt{3}$	1	1	0.2	0.2	∞
12	Probe positioning with respect to phantom shell	B	2.9	R	$\sqrt{3}$	1	1	1.7	1.7	∞
13	Post-processing	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
Test sample related										
14	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	5
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	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and set-up										
17	Phantom uncertainty	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
18	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
19	Liquid conductivity (meas.)	A	1.3	N	1	0.64	0.43	0.83	0.56	9
20	Liquid permittivity (target)	B	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	∞
21	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	0.96	0.78	9
Combined standard uncertainty		$u_c = \sqrt{\sum_{i=1}^{21} c_i^2 u_i^2}$						10.4	10.3	95.5
Expanded uncertainty (Confidence interval of 95 %)		$u_e = 2u_c$						20.8	20.6	

16.2 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	12	N	2	1	1	6.0	6.0	∞
2	Isotropy	B	7.4	R	$\sqrt{3}$	1	1	4.3	4.3	∞
3	Boundary effect	B	1.1	R	$\sqrt{3}$	1	1	0.6	0.6	∞
4	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
6	Readout electronics	B	1.0	N	1	1	1	1.0	1.0	∞
7	Response time	B	0.0	R	$\sqrt{3}$	1	1	0.0	0.0	∞
8	Integration time	B	1.7	R	$\sqrt{3}$	1	1	1.0	1.0	∞
9	RF ambient conditions-noise	B	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	∞
10	RF ambient conditions-reflection	B	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	∞
11	Probe positioned mech. Restrictions	B	0.35	R	$\sqrt{3}$	1	1	0.2	0.2	∞
12	Probe positioning with respect to phantom shell	B	2.9	R	$\sqrt{3}$	1	1	1.7	1.7	∞
13	Post-processing	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
14	Fast SAR z-Approximation	B	7.0	R	$\sqrt{3}$	1	1	4.0	4.0	∞
Test sample related										
15	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	5
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	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and set-up										
18	Phantom uncertainty	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
19	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
20	Liquid conductivity (meas.)	A	1.3	N	1	0.64	0.43	0.83	0.56	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	0.96	0.78	521
Combined standard uncertainty		$u_c = \sqrt{\sum_{i=1}^{22} c_i^2 u_i^2}$						11.1	11.0	257
Expanded uncertainty (Confidence interval of 95 %)		$u_e = 2u_c$						22.2	22.0	

16.3 Measurement Uncertainty for Normal SAR Tests (3GHz~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	13	N	2	1	1	6.5	6.5	∞
2	Isotropy	B	7.4	R	$\sqrt{3}$	1	1	4.3	4.3	∞
3	Boundary effect	B	2.3	R	$\sqrt{3}$	1	1	1.3	1.3	∞
4	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
6	Readout electronics	B	1.0	N	1	1	1	1.0	1.0	∞
7	Response time	B	0.0	R	$\sqrt{3}$	1	1	0.0	0.0	∞
8	Integration time	B	1.7	R	$\sqrt{3}$	1	1	1.0	1.0	∞
9	RF ambient conditions-noise	B	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	∞
10	RF ambient conditions-reflection	B	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	∞
11	Probe positioned mech. restrictions	B	0.71	R	$\sqrt{3}$	1	1	0.4	0.4	∞
12	Probe positioning with respect to phantom shell	B	5.7	R	$\sqrt{3}$	1	1	3.3	3.3	∞
13	Post-processing	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
Test sample related										
14	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	5
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	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and set-up										
17	Phantom uncertainty	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
18	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
19	Liquid conductivity (meas.)	A	1.3	N	1	0.64	0.43	0.83	0.56	9
20	Liquid permittivity (target)	B	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	∞
21	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	0.96	0.78	9
Combined standard uncertainty		$u_c = \sqrt{\sum_{i=1}^{21} c_i^2 u_i^2}$						11.3	11.2	95.5
Expanded uncertainty (Confidence interval of 95 %)		$u_e = 2u_c$						22.6	22.4	

16.4 Measurement Uncertainty for Fast SAR Tests (3GHz~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	13	N	2	1	1	6.5	6.5	∞
2	Isotropy	B	7.4	R	$\sqrt{3}$	1	1	4.3	4.3	∞
3	Boundary effect	B	2.3	R	$\sqrt{3}$	1	1	1.3	1.3	∞
4	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
6	Readout electronics	B	1.0	N	1	1	1	1.0	1.0	∞
7	Response time	B	0.0	R	$\sqrt{3}$	1	1	0.0	0.0	∞
8	Integration time	B	1.7	R	$\sqrt{3}$	1	1	1.0	1.0	∞
9	RF ambient conditions-noise	B	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	∞
10	RF ambient conditions-reflection	B	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	∞
11	Probe positioned mech. Restrictions	B	0.71	R	$\sqrt{3}$	1	1	0.4	0.4	∞
12	Probe positioning with respect to phantom shell	B	5.7	R	$\sqrt{3}$	1	1	3.3	3.3	∞
13	Post-processing	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
14	Fast SAR z-Approximation	B	14.0	R	$\sqrt{3}$	1	1	8.1	8.1	∞
Test sample related										
15	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	5
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	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and set-up										
18	Phantom uncertainty	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
19	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
20	Liquid conductivity (meas.)	A	1.3	N	1	0.64	0.43	0.83	0.56	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	0.96	0.78	521
Combined standard uncertainty		$u_c = \sqrt{\sum_{i=1}^{22} c_i^2 u_i^2}$						13.9	13.9	257
Expanded uncertainty (Confidence interval of 95 %)		$u_e = 2u_c$						27.8	27.7	

17 MAIN TEST INSTRUMENTS

Table 17.1: List of Main Instruments

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Network analyzer	Agilent E5071C	MY46103759	2017-11-17	One year
02	Dielectric probe	85070E	MY44300317	/	/
03	Power meter	NRP	102603	2018-01-04	One year
04	Power sensor	NRP-Z51	102211		
05	Power meter	NRP	101460	2018-02-05	One year
06	Power sensor	NRP-Z91	100553		
07	Signal Generator	E8257D	MY47461211	2017-06-06	One year
08	Amplifier	VTL5400	0404	/	/
09	E-field Probe	SPEAG EX3DV4	3633	2018-02-01	One year
10	DAE	SPEAG DAE4	786	2017-11-22	One year
11	Dipole Validation Kit	SPEAG D750V3	1163	2016-09-19	Three year
12	Dipole Validation Kit	SPEAG D835V2	4d057	2015-10-22	Three year
13	Dipole Validation Kit	SPEAG D1800V2	2d147	2015-11-03	Three year
14	Dipole Validation Kit	SPEAG D1900V2	5d088	2015-11-04	Three year
15	Dipole Validation Kit	SPEAG D2450V2	873	2015-10-30	Three year
16	Dipole Validation Kit	SPEAG D2550V2	1010	2015-07-24	Three year
17	Dipole Validation Kit	SPEAG D5GHzV2	1238	2016-09-21	Three year
18	BTS	E5515C	GB46110722	2018-02-19	One year
19	Radio Communication Analyzer	Anristu MT8820C	6201341853	2018-03-08	One year

END OF REPORT BODY

ANNEX A Graph Results

GSM850 Head

Date: 2018-5-8

Electronics: DAE4 Sn786

Medium: Head 835 MHz

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.892$ S/m; $\epsilon_r = 41.709$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, GSM (0) Frequency: 836.6 MHz Duty Cycle: 1:8.30042

Probe: EX3DV4 – SN3633 ConvF (9.33, 9.33, 9.33);

Right Cheek Middle 32G/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.125 W/kg

Right Cheek Middle 32G/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.837 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.133 W/kg

SAR(1 g) = 0.092 W/kg; SAR(10 g) = 0.070 W/kg

Maximum value of SAR (measured) = 0.111 W/kg

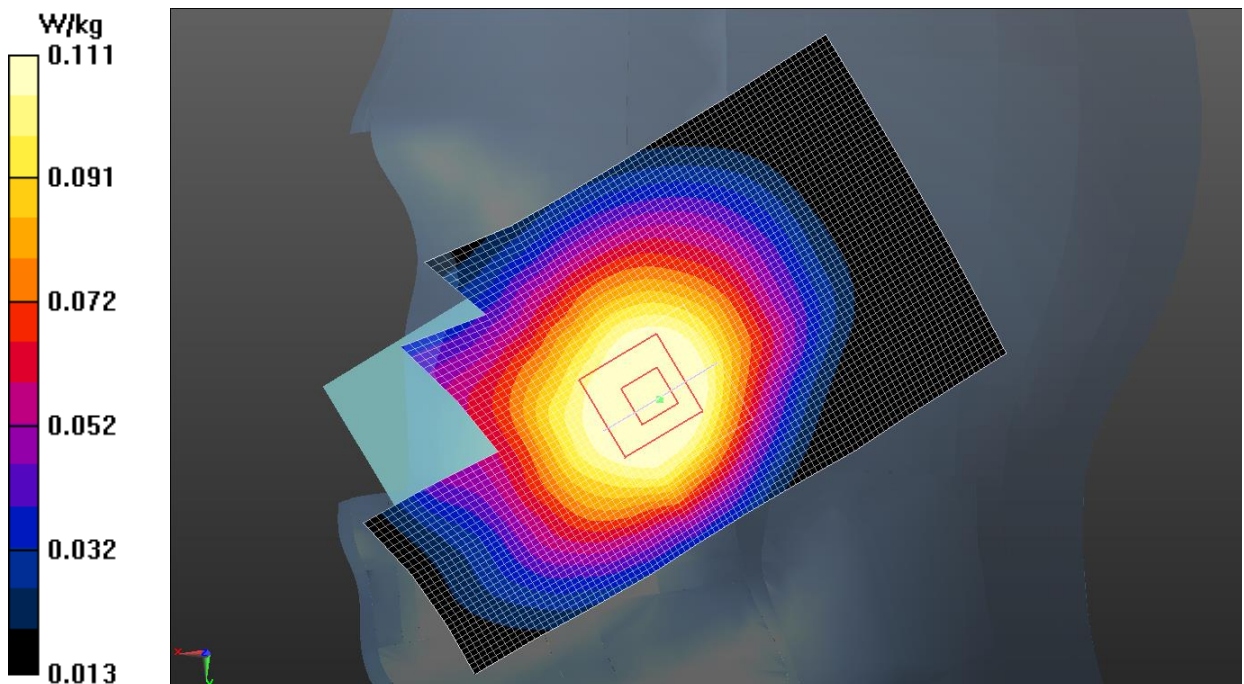


Fig.1 GSM 850MHz

GSM850 Body

Date: 2018-5-8

Electronics: DAE4 Sn786

Medium: Body 835 MHz

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.99$ S/m; $\epsilon_r = 52.671$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, GPRS 4Txslot (0) Frequency: 836.6 MHz Duty Cycle: 1:2

Probe: EX3DV4 – SN3633 ConvF (9.69, 9.69, 9.69);

Front side Mid/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.275 W/kg

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

Reference Value = 11.85 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.231 W/kg

SAR(1 g) = 0.204 W/kg; SAR(10 g) = 0.146 W/kg

Maximum value of SAR (measured) = 0.365 W/kg

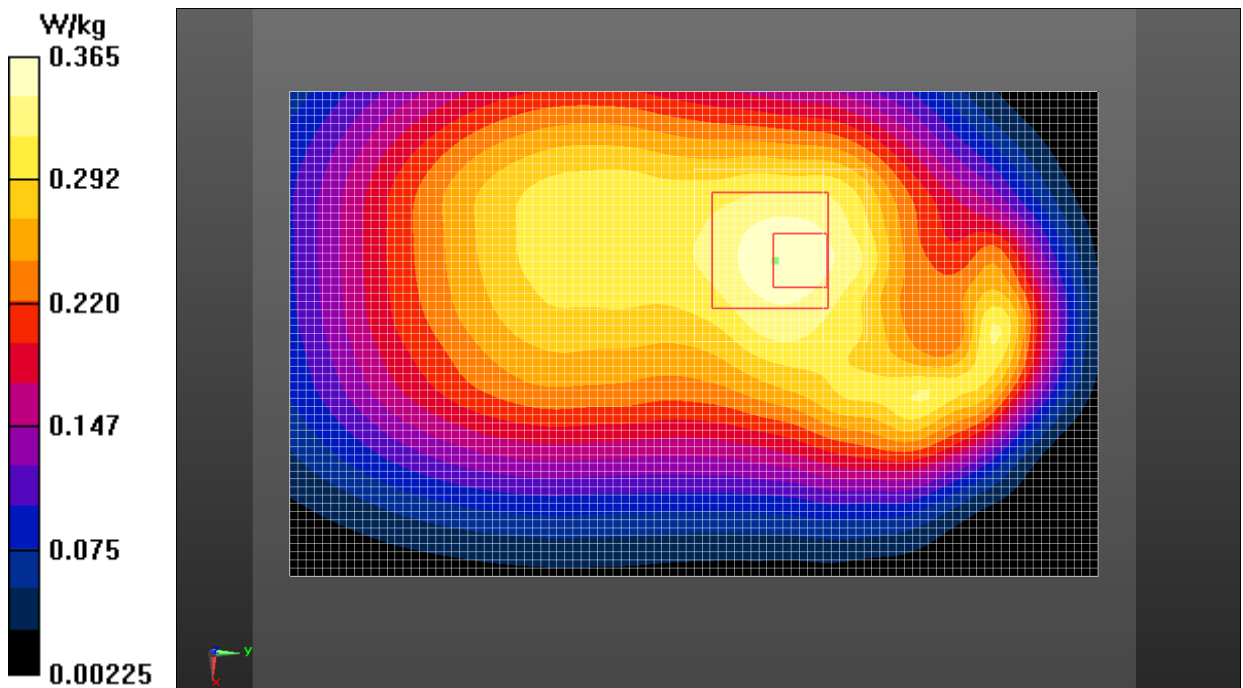


Fig.2 GSM 850 MHz

GSM1900 Head

Date: 2018-5-2

Electronics: DAE4 Sn786

Medium: Head 1900 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.399$ S/m; $\epsilon_r = 39.745$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, GSM (0) Frequency: 1880 MHz Duty Cycle: 1:8.3

Probe: EX3DV4 – SN3633 ConvF (7.81, 7.81, 7.81);

Left Cheek Mid /Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.148 W/kg

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

Reference Value = 2.600 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.204 W/kg

SAR(1 g) = 0.124 W/kg; SAR(10 g) = 0.080 W/kg

Maximum value of SAR (measured) = 0.141 W/kg

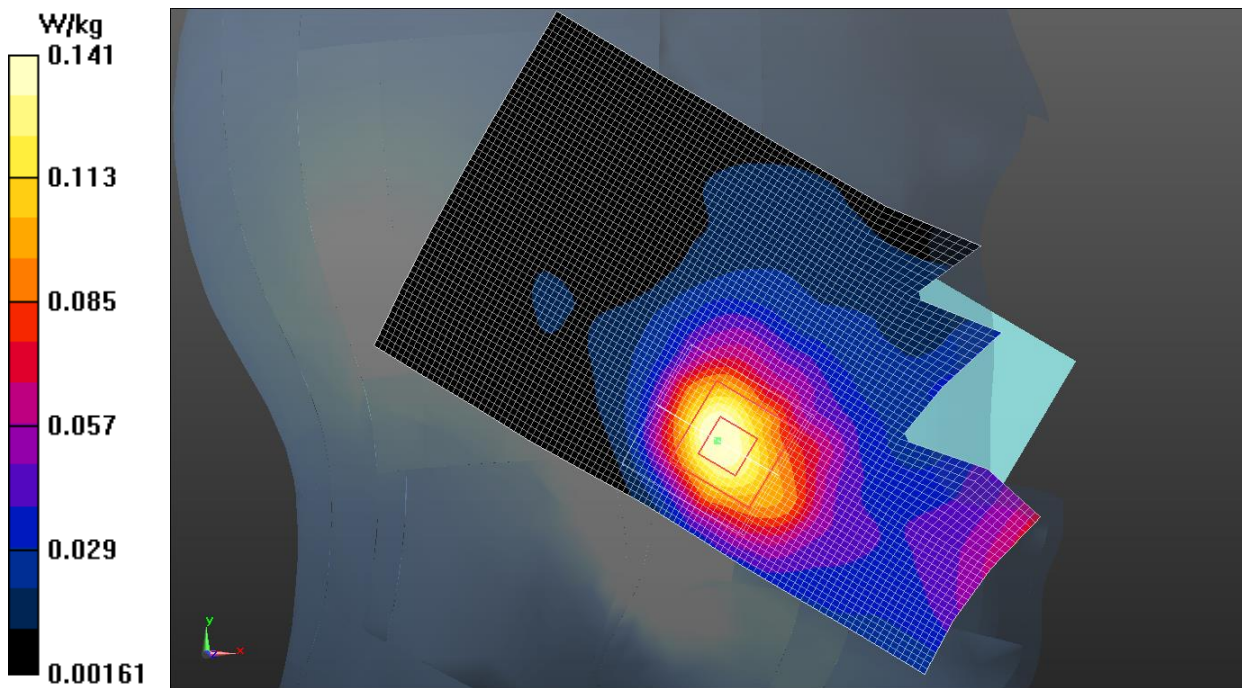


Fig.3 GSM 1900 MHz

GSM1900 Body

Date: 2018-5-14

Electronics: DAE4 Sn786

Medium: Body 1900 MHz

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.532$ S/m; $\epsilon_r = 53.064$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, GPRS 3Txslot (0) Frequency: 1850.2 MHz Duty Cycle: 1:2.67

Probe: EX3DV4 – SN3633 ConvF (7.75, 7.75, 7.75);

Bottom Side Low/Area Scan (41x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.45 W/kg

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

Reference Value = 24.69 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 2.27 W/kg

SAR(1 g) = 1.2 W/kg; SAR(10 g) = 0.595 W/kg

Maximum value of SAR (measured) = 1.37 W/kg

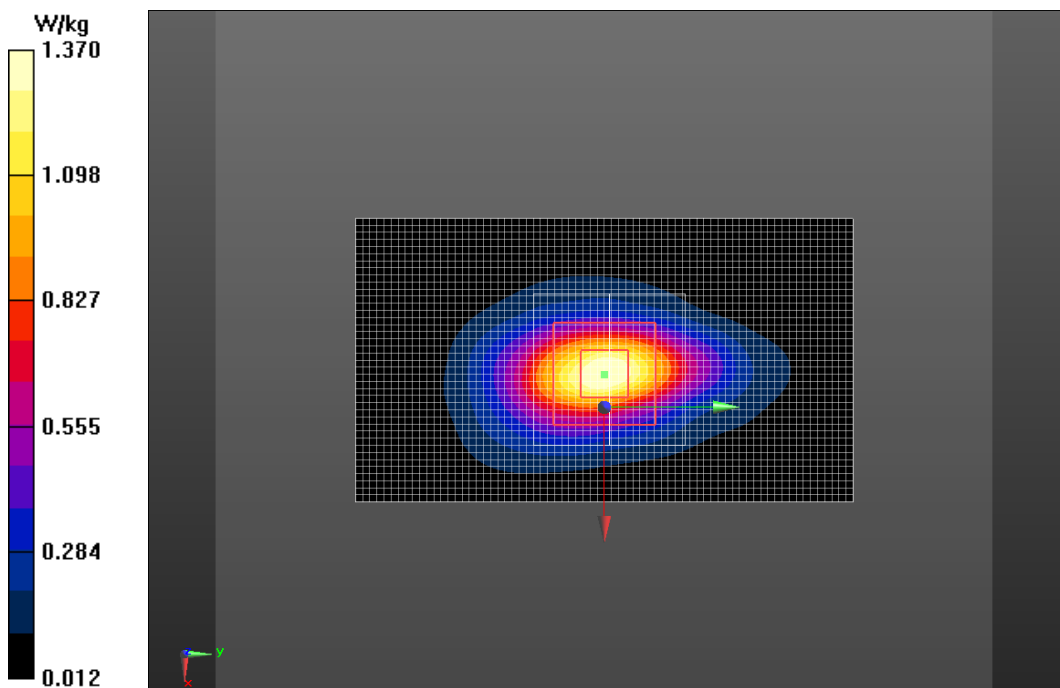


Fig.4 GSM 1900 MHz

WCDMA 850 Head

Date: 2018-5-8

Electronics: DAE4 Sn786

Medium: Head 835 MHz

Medium parameters used (interpolated): $f = 836.4$ MHz; $\sigma = 0.892$ S/m; $\epsilon_r = 41.711$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, WCDMA (0) Frequency: 836.4 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3633 ConvF (9.33, 9.33, 9.33);

Right Cheek Mid/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.227 W/kg

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

Reference Value = 2.141 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.282 W/kg

SAR(1 g) = 0.220 W/kg; SAR(10 g) = 0.166 W/kg

Maximum value of SAR (measured) = 0.233 W/kg

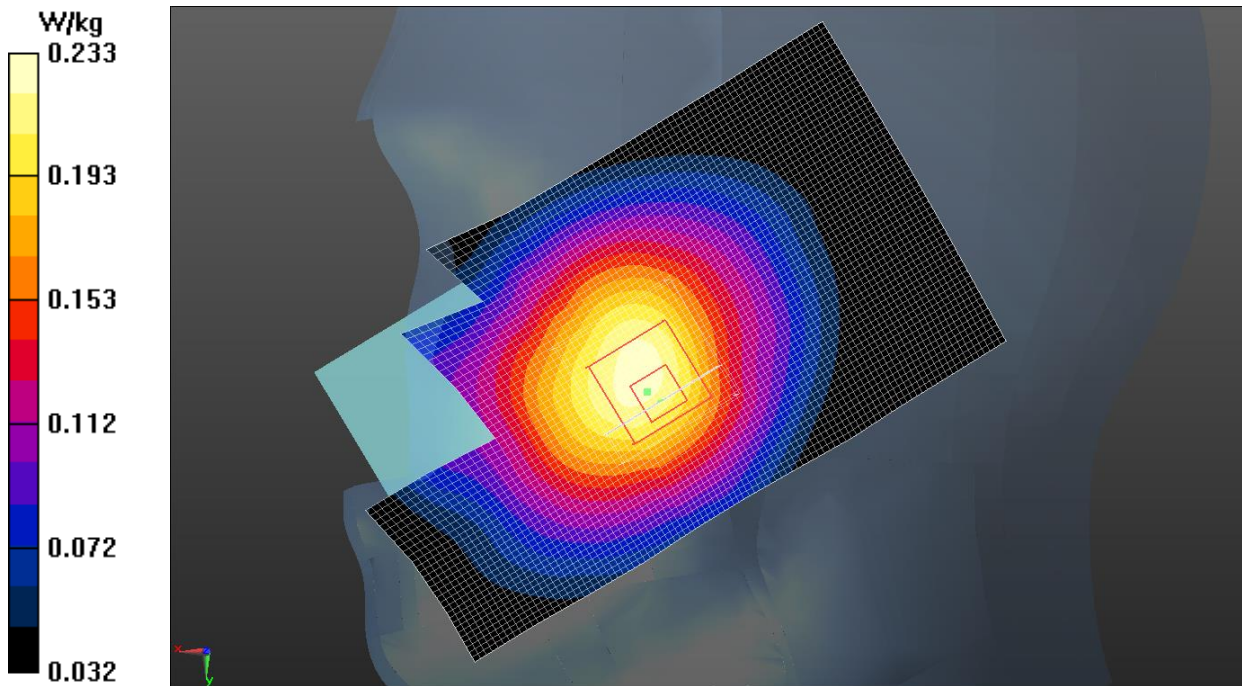


Fig.5 WCDMA 850

WCDMA 850 Body

Date: 2018-5-8

Electronics: DAE4 Sn786

Medium: Body 835 MHz

Medium parameters used (interpolated): $f = 836.4$ MHz; $\sigma = 0.99$ S/m; $\epsilon_r = 52.673$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, WCDMA (0) Frequency: 836.4 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3633 ConvF (9.69, 9.69, 9.69);

Front side Mid /Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.541 W/kg

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

Reference Value = 22.51 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.704 W/kg

SAR(1 g) = 0.512 W/kg; SAR(10 g) = 0.371 W/kg

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

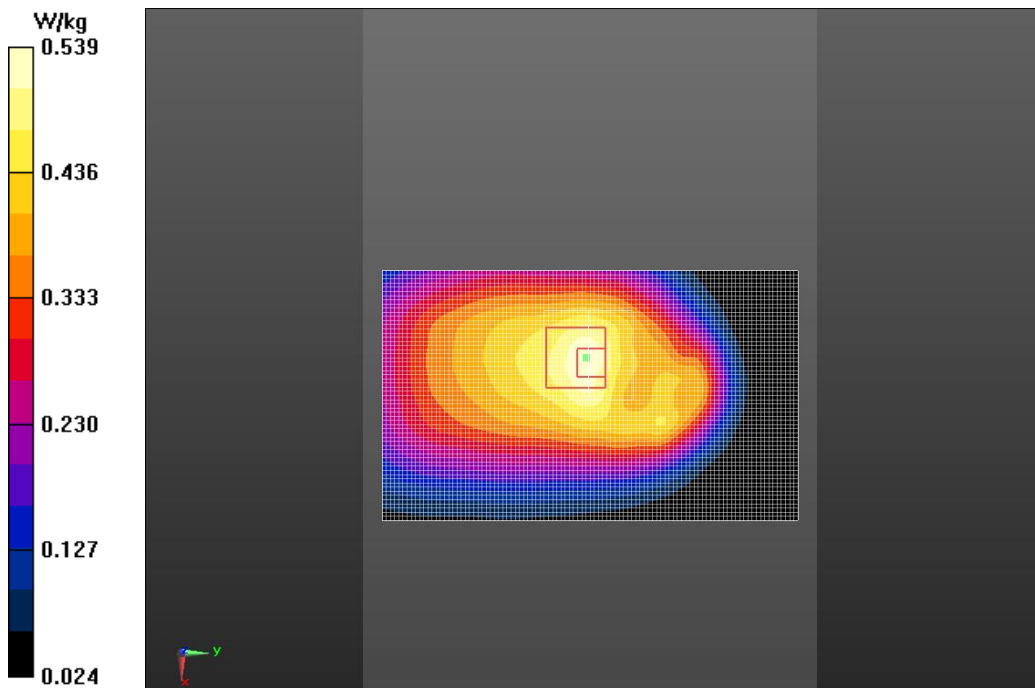


Fig.6 WCDMA 850

WCDMA 1900 Head

Date: 2018-5-2

Electronics: DAE4 Sn786

Medium: Head 1900 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.399$ S/m; $\epsilon_r = 39.745$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, WCDMA (0) Frequency: 1880 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3633 ConvF (7.81, 7.81, 7.81);

Left Cheek Mid/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.0995 W/kg

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

Reference Value = 4.025 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.140 W/kg

SAR(1 g) = 0.097 W/kg; SAR(10 g) = 0.062 W/kg

Maximum value of SAR (measured) = 0.103 W/kg

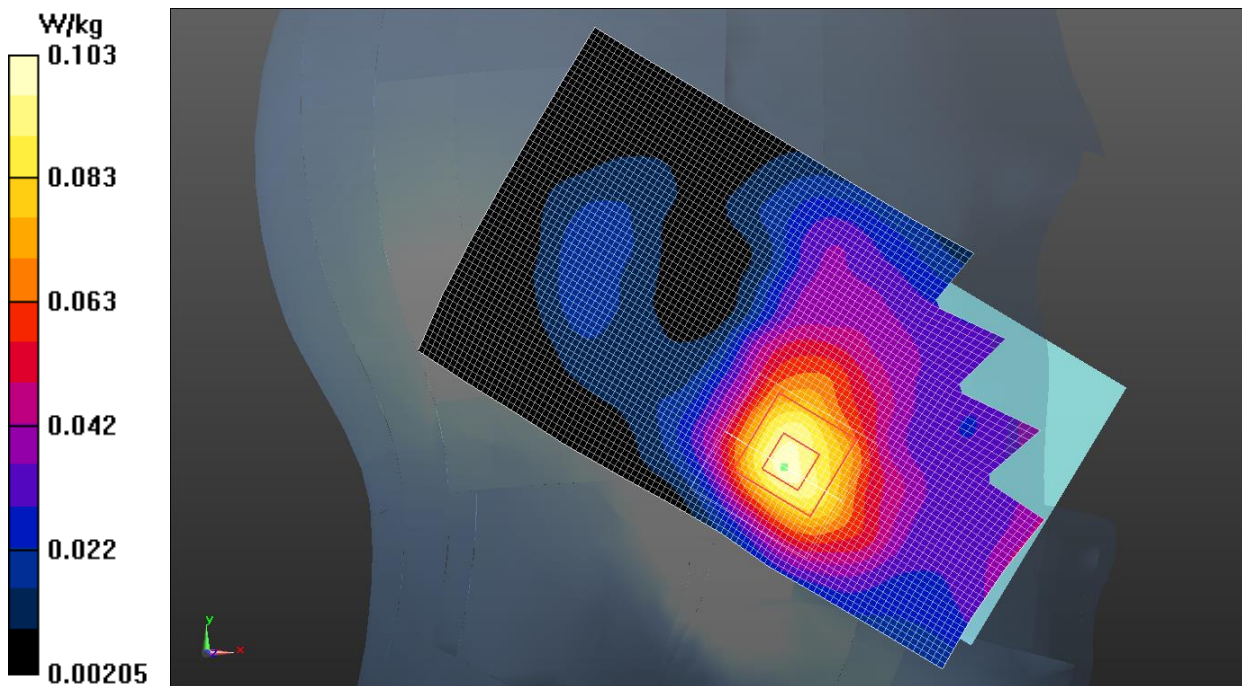


Fig.7 WCDMA 1900

WCDMA 1900 Body

Date: 2018-5-14

Electronics: DAE4 Sn786

Medium: Body 1900 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.557$ S/m; $\epsilon_r = 52.992$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, WCDMA (0) Frequency: 1880 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3633 ConvF (7.75, 7.75, 7.75);

Front Side Middle /Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.697 W/kg

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

Reference Value = 5.873 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.04 W/kg

SAR(1 g) = 0.616 W/kg; SAR(10 g) = 0.330 W/kg

Maximum value of SAR (measured) = 0.686 W/kg

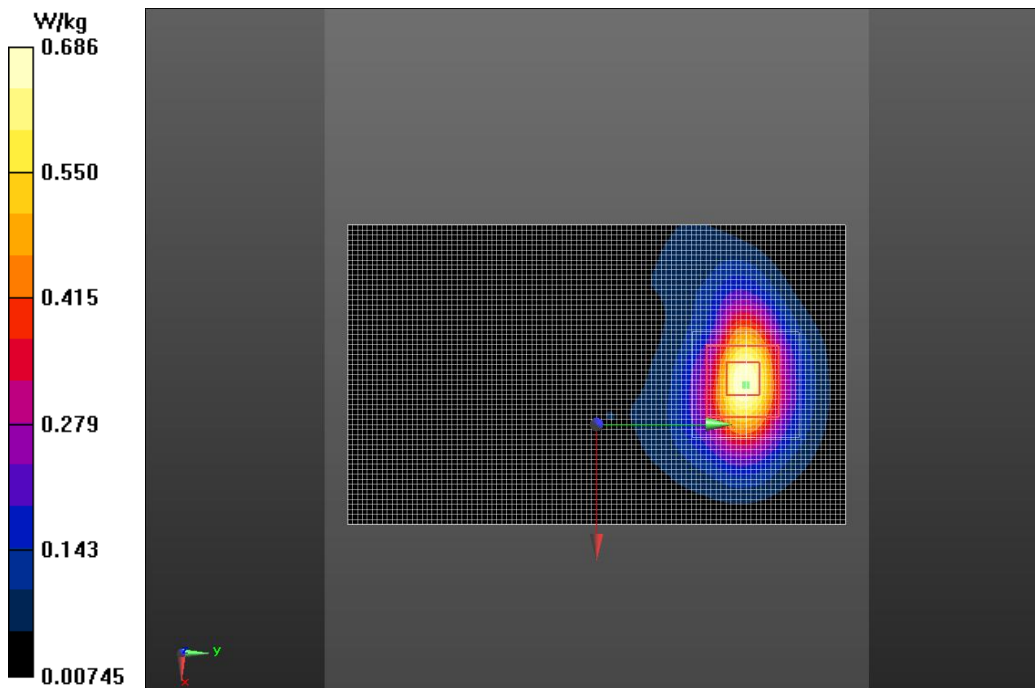


Fig.8 WCDMA 1900

WCDMA 1700 Head

Date: 2018-4-28

Electronics: DAE4 Sn786

Medium: Head 1800 MHz

Medium parameters used (interpolated): $f = 1732.6$ MHz; $\sigma = 1.357$ S/m; $\epsilon_r = 38.924$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, WCDMA (0) Frequency: 1732.6 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3633 ConvF (8.12, 8.12, 8.12);

Left Cheek Mid/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.151 W/kg

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

Reference Value = 3.936 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.198 W/kg

SAR(1 g) = 0.128 W/kg; SAR(10 g) = 0.081 W/kg

Maximum value of SAR (measured) = 0.146 W/kg

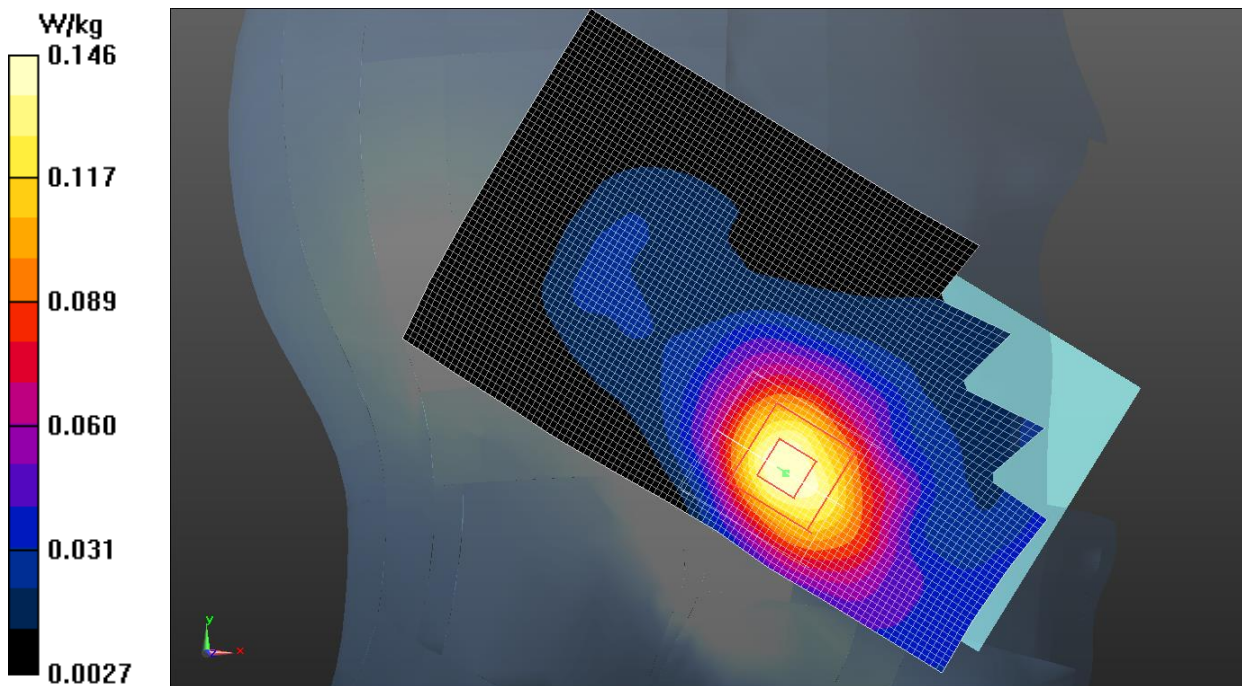


Fig.9 WCDMA 1700

WCDMA 1700 Body

Date: 2018-4-28

Electronics: DAE4 Sn786

Medium: Body 1800 MHz

Medium parameters used (interpolated): $f = 1752.6$ MHz; $\sigma = 1.44$ S/m; $\epsilon_r = 55.382$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, WCDMA (0) Frequency: 1752.6 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3633 ConvF (8.05, 8.05, 8.05);

Bottom Side High/Area Scan (51x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

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

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

Reference Value = 24.72 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.48 W/kg

SAR(1 g) = 0.837 W/kg; SAR(10 g) = 0.423 W/kg

Maximum value of SAR (measured) = 0.949 W/kg

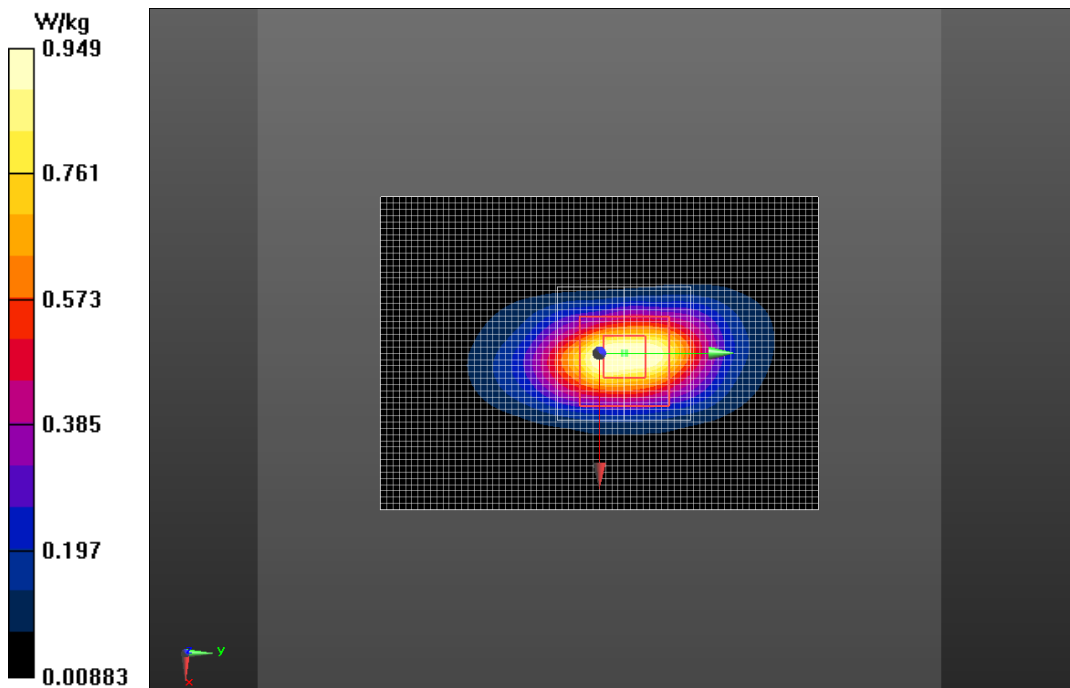


Fig.10 WCDMA 1700

LTE Band 2 Head

Date: 2018-5-2

Electronics: DAE4 Sn786

Medium: Head 1900 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.399$ S/m; $\epsilon_r = 39.745$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, LTE_FDD (0) Frequency: 1880 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3633 ConvF (7.81, 7.81, 7.81);

Left Cheek Middle 1RB_Low/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.161 W/kg

Left Cheek Middle 1RB_Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.096 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.211 W/kg

SAR(1 g) = 0.146 W/kg; SAR(10 g) = 0.093 W/kg

Maximum value of SAR (measured) = 0.155 W/kg

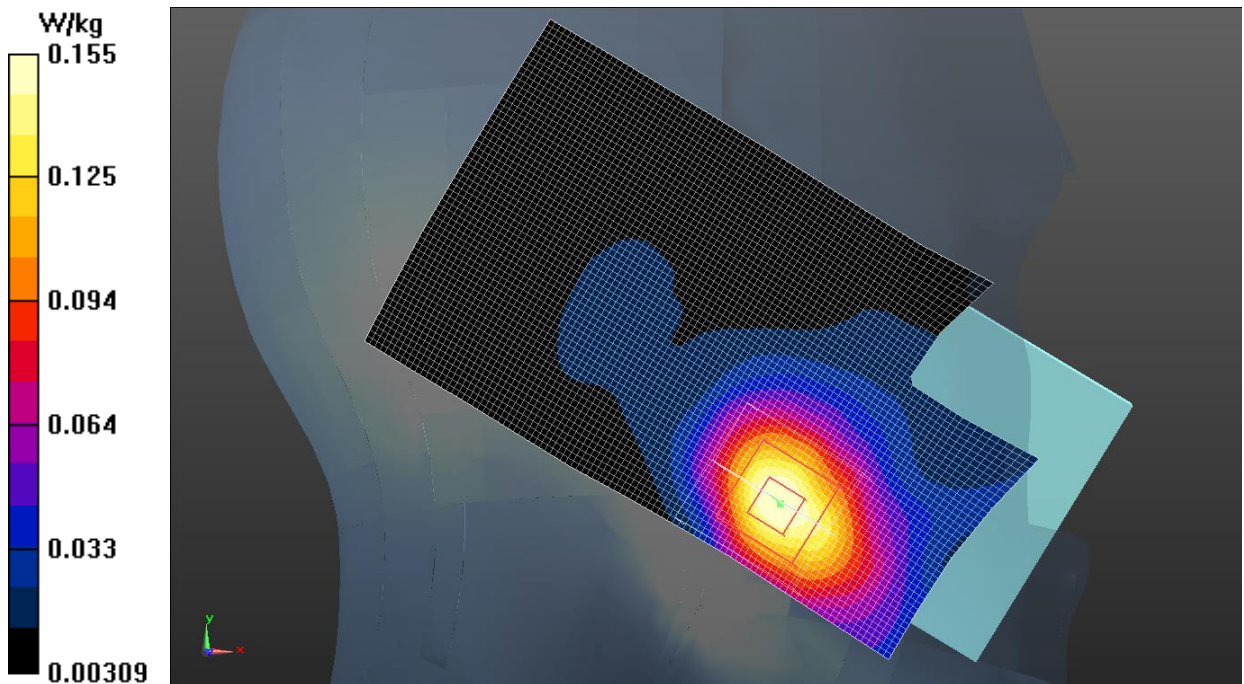


Fig.11 LTE Band 2

LTE Band 2 Body

Date: 2018-5-14

Electronics: DAE4 Sn786

Medium: Body 1900 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.557$ S/m; $\epsilon_r = 52.992$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, LTE_FDD (0) Frequency: 1880 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3633 ConvF (7.75, 7.75, 7.75);

Bottom side Middle 1RB_Low/Area Scan (41x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

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

Bottom side Middle 1RB_Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 18.43 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 1.39 W/kg

SAR(1 g) = 0.885 W/kg; SAR(10 g) = 0.442 W/kg

Maximum value of SAR (measured) = 1.22 W/kg

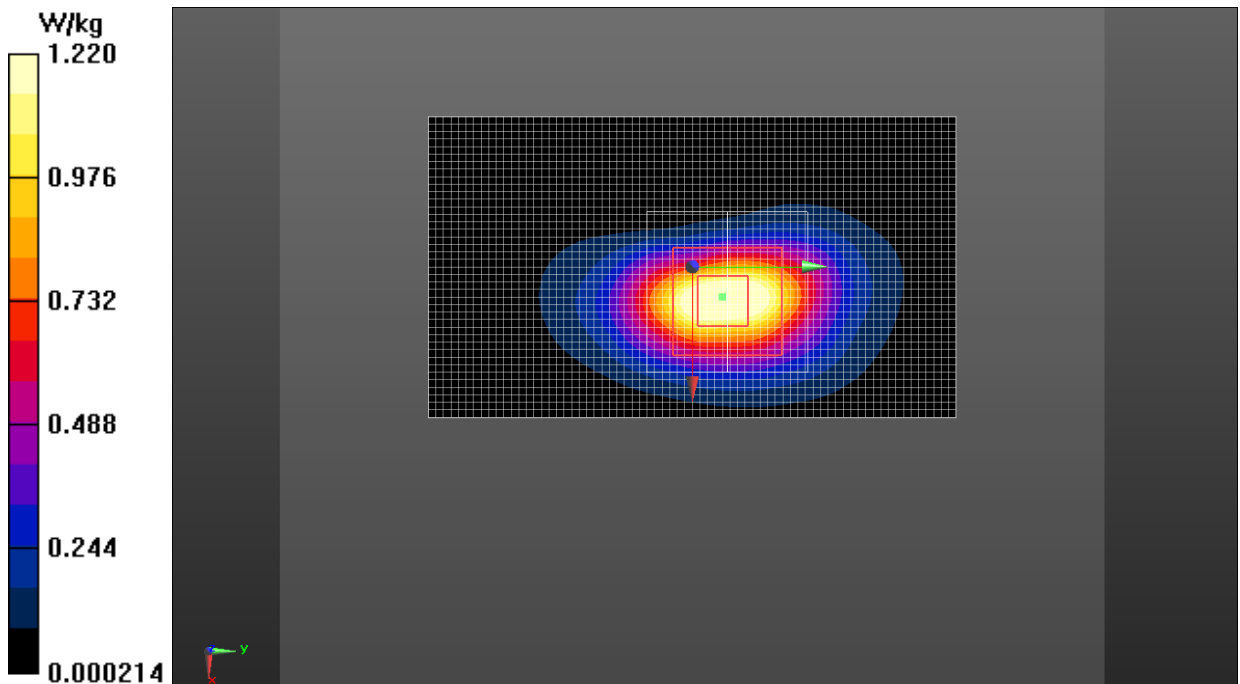


Fig.12 LTE Band 2

LTE Band 4 Head

Date: 2018-4-28

Electronics: DAE4 Sn786

Medium: Head 1800 MHz

Medium parameters used (interpolated): $f = 1732.5$ MHz; $\sigma = 1.357$ S/m; $\epsilon_r = 38.925$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, LTE_FDD (0) Frequency: 1732.5 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3633 ConvF (8.12, 8.12, 8.12);

Left Cheek Middle 1RB_Low/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.150 W/kg

Left Cheek Middle 1RB_Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 2.989 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.196 W/kg

SAR(1 g) = 0.128 W/kg; SAR(10 g) = 0.081 W/kg

Maximum value of SAR (measured) = 0.145 W/kg

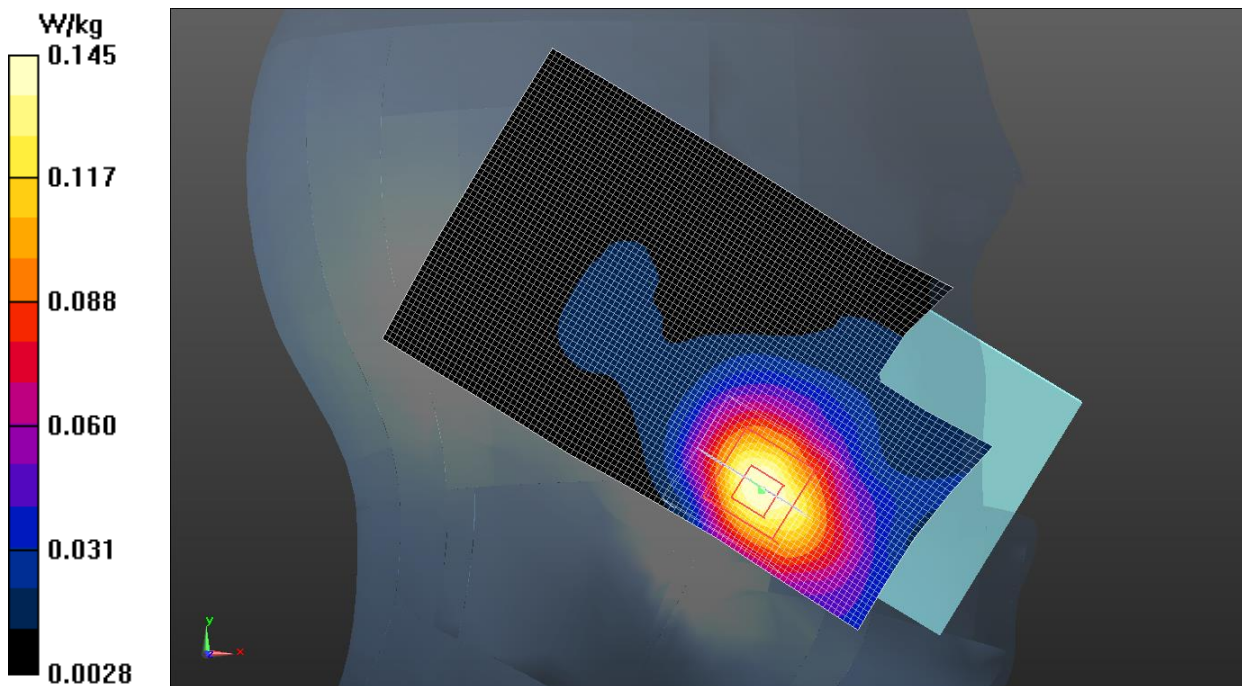


Fig.13 LTE Band 4

LTE Band 4 Body

Date: 2018-4-28

Electronics: DAE4 Sn786

Medium: Body 1800 MHz

Medium parameters used (interpolated): $f = 1745$ MHz; $\sigma = 1.433$ S/m; $\epsilon_r = 55.402$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, LTE_FDD (0) Frequency: 1745 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3633 ConvF (8.05, 8.05, 8.05);

Bottom side High 1RB_Low/Area Scan (41x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.35 W/kg

Bottom side High 1RB_Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 18.14 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.81 W/kg

SAR(1 g) = 1.00 W/kg; SAR(10 g) = 0.509 W/kg

Maximum value of SAR (measured) = 1.11 W/kg

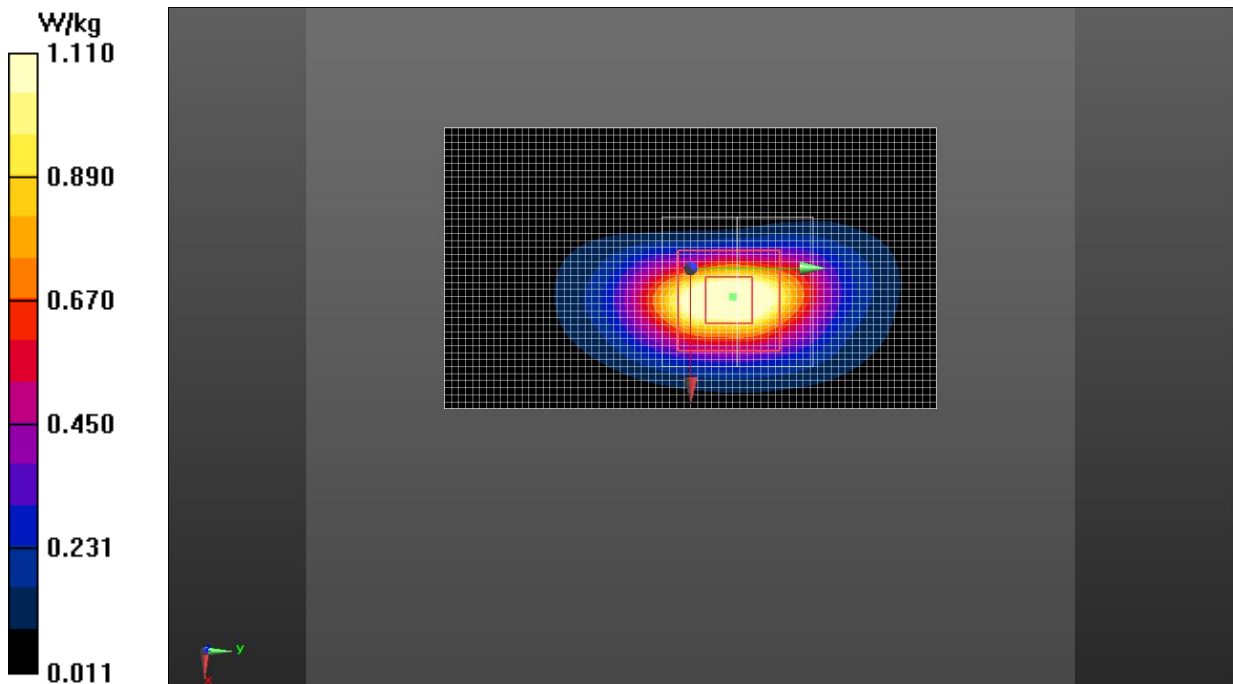


Fig.14 LTE Band 4

LTE Band 5 Head

Date: 2018-5-8

Electronics: DAE4 Sn786

Medium: Head 835 MHz

Medium parameters used (extrapolated): $f = 836.5$ MHz; $\sigma = 0.892$ S/m; $\epsilon_r = 41.710$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, LTE_FDD (0) Frequency: 836.5 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3633 ConvF (9.33, 9.33, 9.33);

Right Cheek Middle 1RB_Low/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.306 W/kg

Right Cheek Middle 1RB_Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.203 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.368 W/kg

SAR(1 g) = 0.290 W/kg; SAR(10 g) = 0.221 W/kg

Maximum value of SAR (measured) = 0.304 W/kg

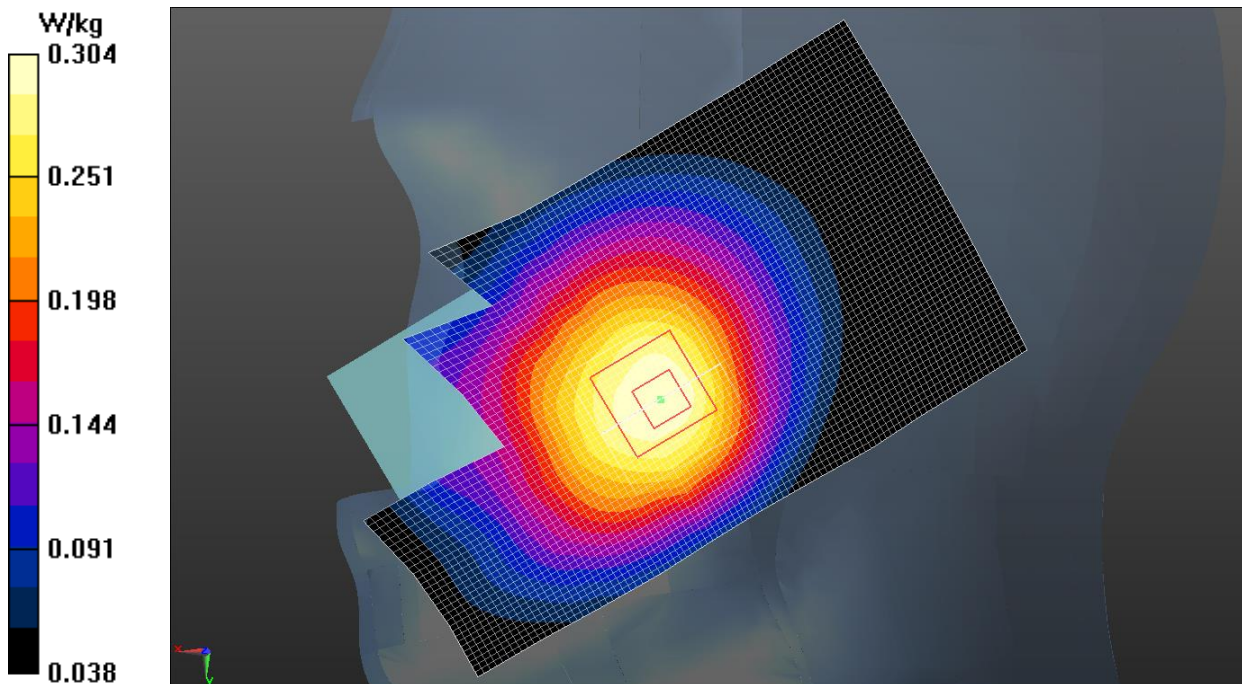


Fig.15 LTE Band 5

LTE Band 5 Body

Date: 2018-5-8

Electronics: DAE4 Sn786

Medium: Body 835 MHz

Medium parameters used (interpolated): $f = 836.5$ MHz; $\sigma = 0.99$ S/m; $\epsilon_r = 52.672$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, LTE_FDD (0) Frequency: 836.5 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3633 ConvF (9.69, 9.69, 9.69);

Front side Middle 1B_Low/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.462 W/kg

Front side Middle 1B_Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 19.91 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.627 W/kg

SAR(1 g) = 0.452 W/kg; SAR(10 g) = 0.326 W/kg

Maximum value of SAR (measured) = 0.473 W/kg

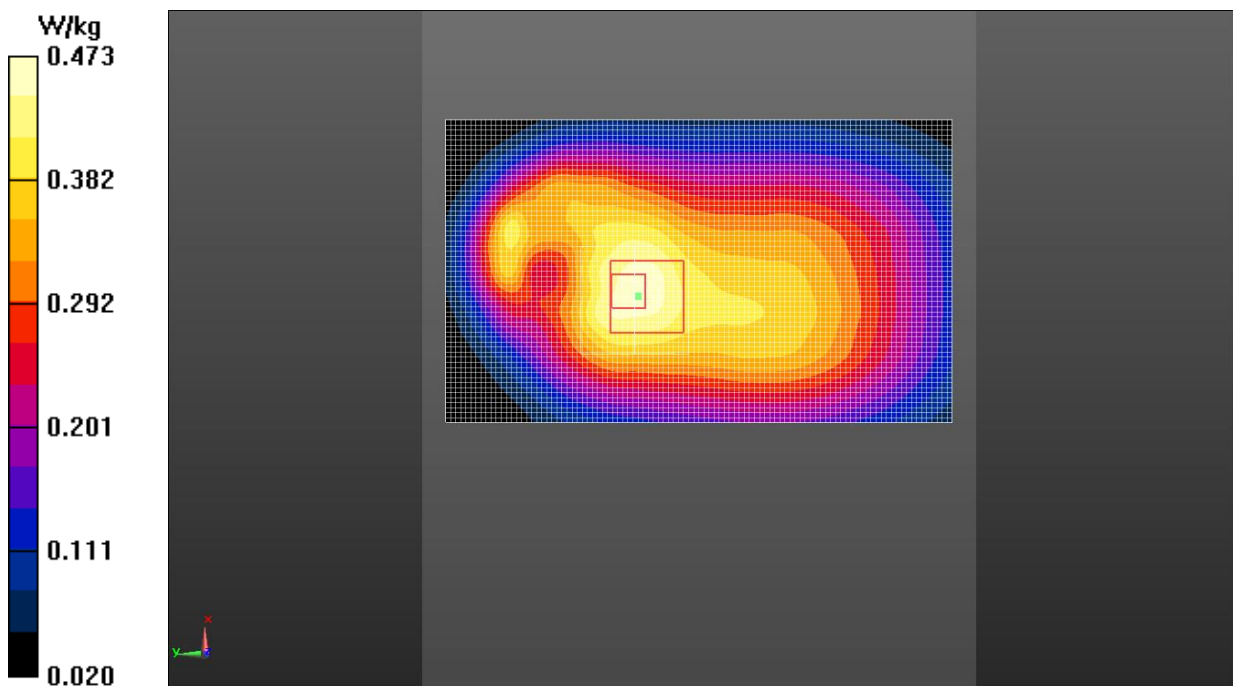


Fig.16 LTE Band 5

LTE Band 7 Head

Date: 2018-5-5

Electronics: DAE4 Sn786

Medium: Head 2550 MHz

Medium parameters used (interpolated): $f = 2535$ MHz; $\sigma = 1.953$ S/m; $\epsilon_r = 38.417$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, LTE_FDD (0) Frequency: 2535 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3633 ConvF (7.28, 7.28, 7.28);

Left Cheek Middle 1RB_High/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.252 W/kg

Left Cheek Middle 1RB_High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 2.621 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.427 W/kg

SAR(1 g) = 0.201 W/kg; SAR(10 g) = 0.117 W/kg

Maximum value of SAR (measured) = 0.248 W/kg

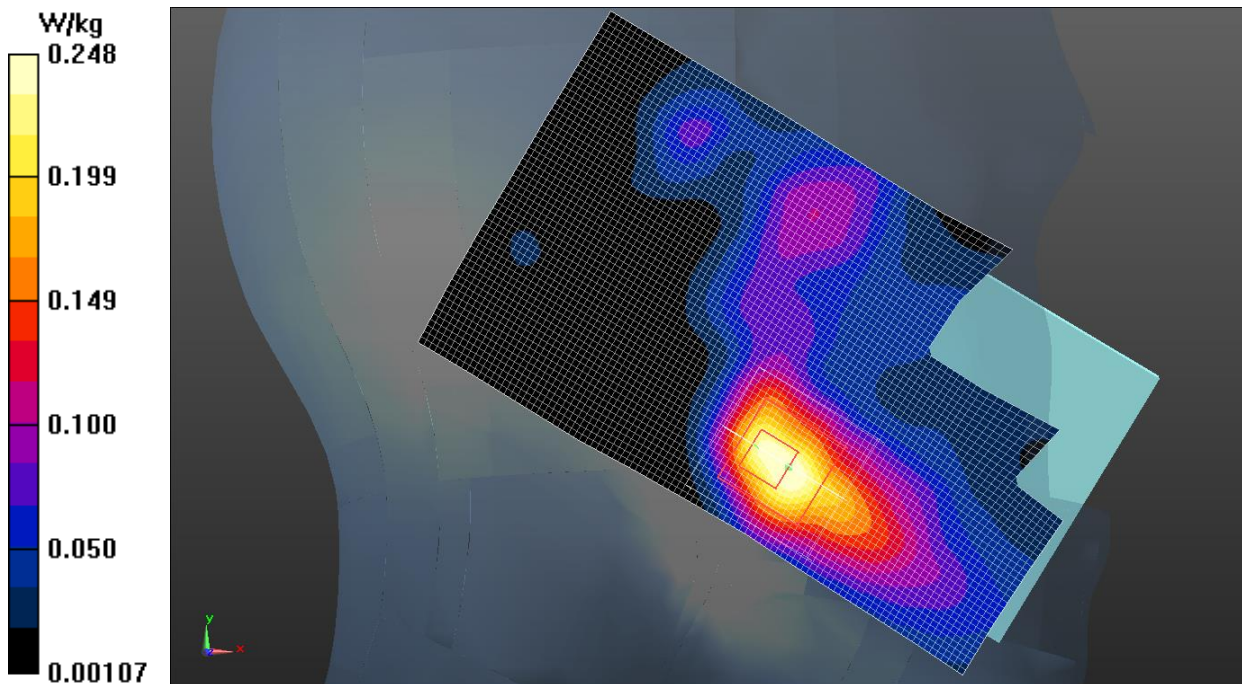


Fig.17 LTE Band 7

LTE Band 7 Body

Date: 2018-5-5

Electronics: DAE4 Sn786

Medium: Body 2550 MHz

Medium parameters used (interpolated): $f = 2535$ MHz; $\sigma = 2.034$ S/m; $\epsilon_r = 53.265$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, 4G_LTE_FDD (0) Frequency: 2535 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3633 ConvF (7.31, 7.31, 7.31);

Bottom Side Middle 1RB_High/Area Scan (41x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.569 W/kg

Bottom Side Middle 1RB_High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.89 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.802 W/kg

SAR(1 g) = 0.409 W/kg; SAR(10 g) = 0.217 W/kg

Maximum value of SAR (measured) = 0.434 W/kg

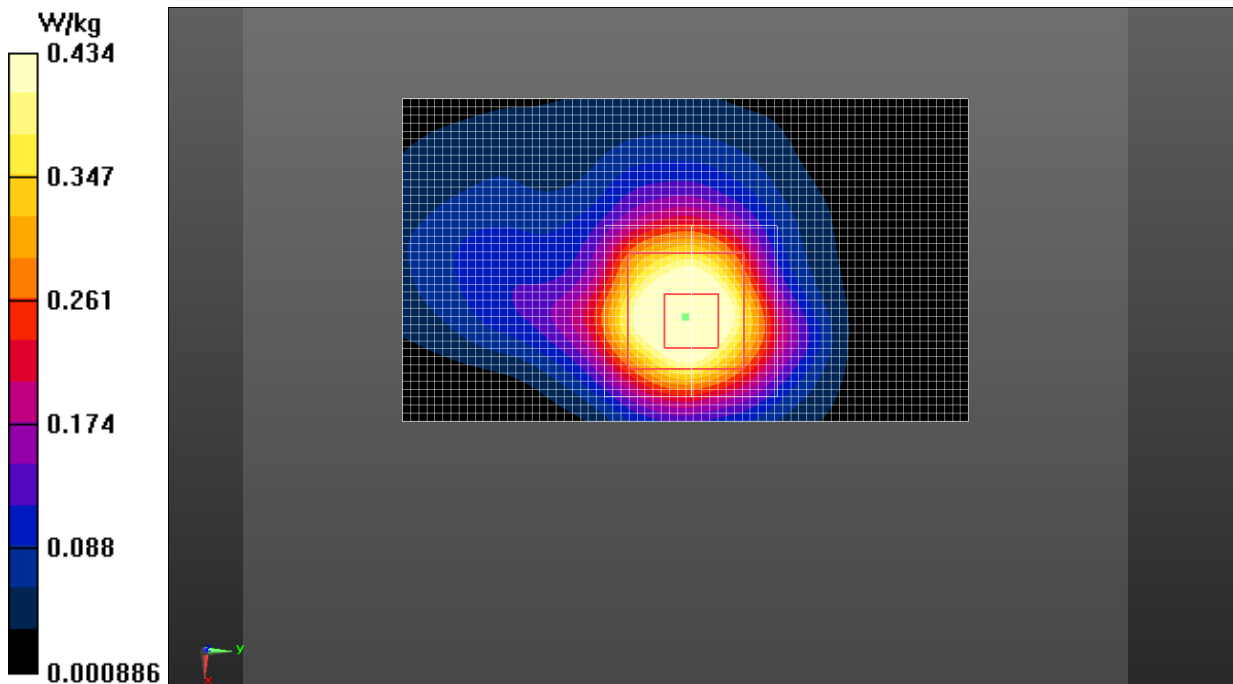


Fig.18 LTE Band 7

LTE Band 12 Head

Date: 2018-5-3

Electronics: DAE4 Sn786

Medium: Head 750 MHz

Medium parameters used (interpolated): $f = 707.5$ MHz; $\sigma = 0.858$ S/m; $\epsilon_r = 42.446$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, LTE_FDD (0) Frequency: 707.5 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3633 ConvF (9.33, 9.33, 9.33);

Left Cheek Middle 1RB_High/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.0880 W/kg

Left Cheek Middle 1RB_High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 2.674 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.111 W/kg

SAR(1 g) = 0.085 W/kg; SAR(10 g) = 0.064 W/kg

Maximum value of SAR (measured) = 0.0888 W/kg

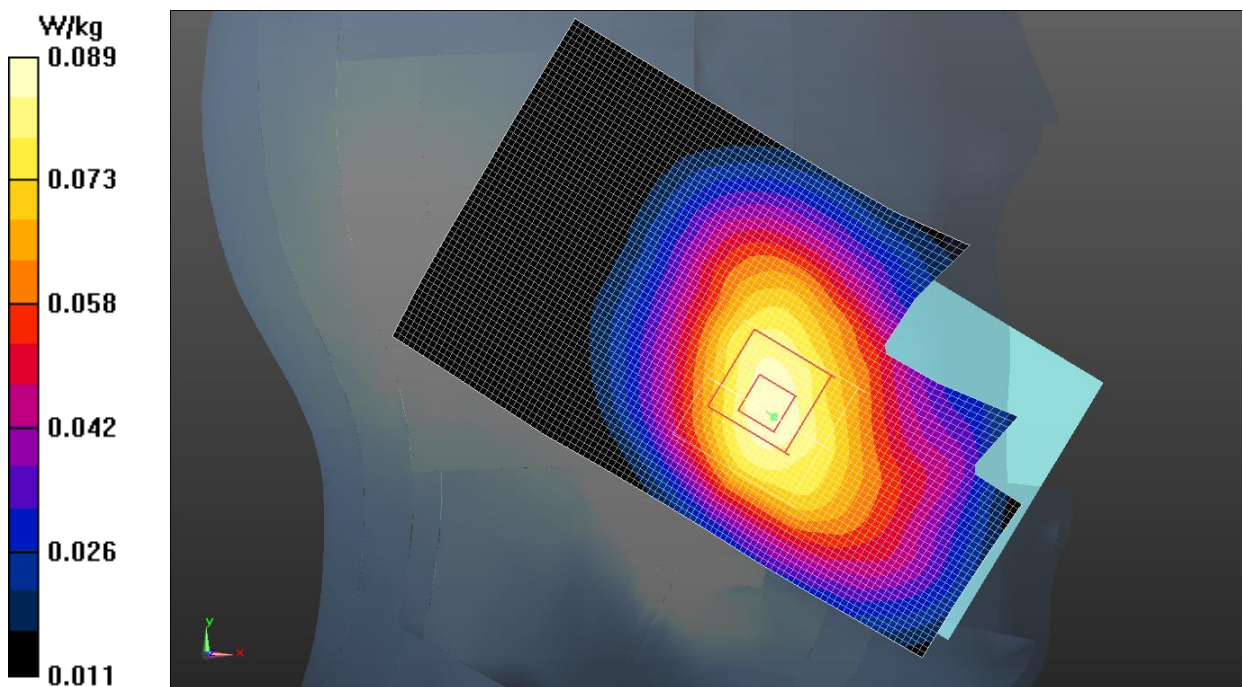


Fig.19 LTE Band 12

LTE Band 12 Body

Date: 2018-5-3

Electronics: DAE4 Sn786

Medium: Body 750 MHz

Medium parameters used (interpolated): $f = 707.5$ MHz; $\sigma = 0.941$ S/m; $\epsilon_r = 54.081$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, LTE_FDD (0) Frequency: 707.5 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3633 ConvF (9.69, 9.69, 9.69);

Front side Middle 1B_Low/Area Scan 3 2 (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

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

Front side Middle 1B_Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 14.70 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.254 W/kg

SAR(1 g) = 0.187 W/kg; SAR(10 g) = 0.143 W/kg

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

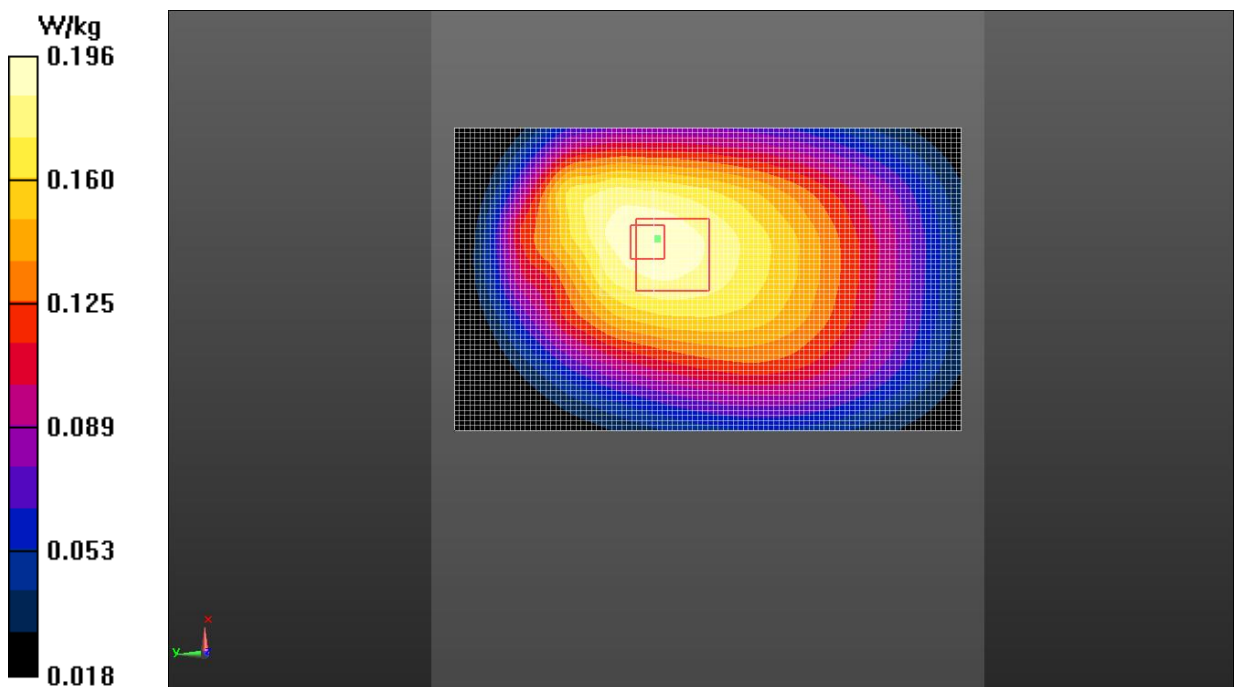


Fig.20 LTE Band 12

LTE Band 17 Head

Date: 2018-5-3

Electronics: DAE4 Sn786

Medium: Head 750 MHz

Medium parameters used: $f = 710 \text{ MHz}$; $\sigma = 0.86 \text{ S/m}$; $\epsilon_r = 42.412$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, LTE_FDD (0) Frequency: 710 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3633 ConvF (9.33, 9.33, 9.33);

Left Cheek Middle 1RB_High/Area Scan (61x101x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.0879 W/kg

Left Cheek Middle 1RB_High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 2.734 V/m ; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.110 W/kg

SAR(1 g) = 0.084 W/kg ; SAR(10 g) = 0.063 W/kg

Maximum value of SAR (measured) = 0.0884 W/kg

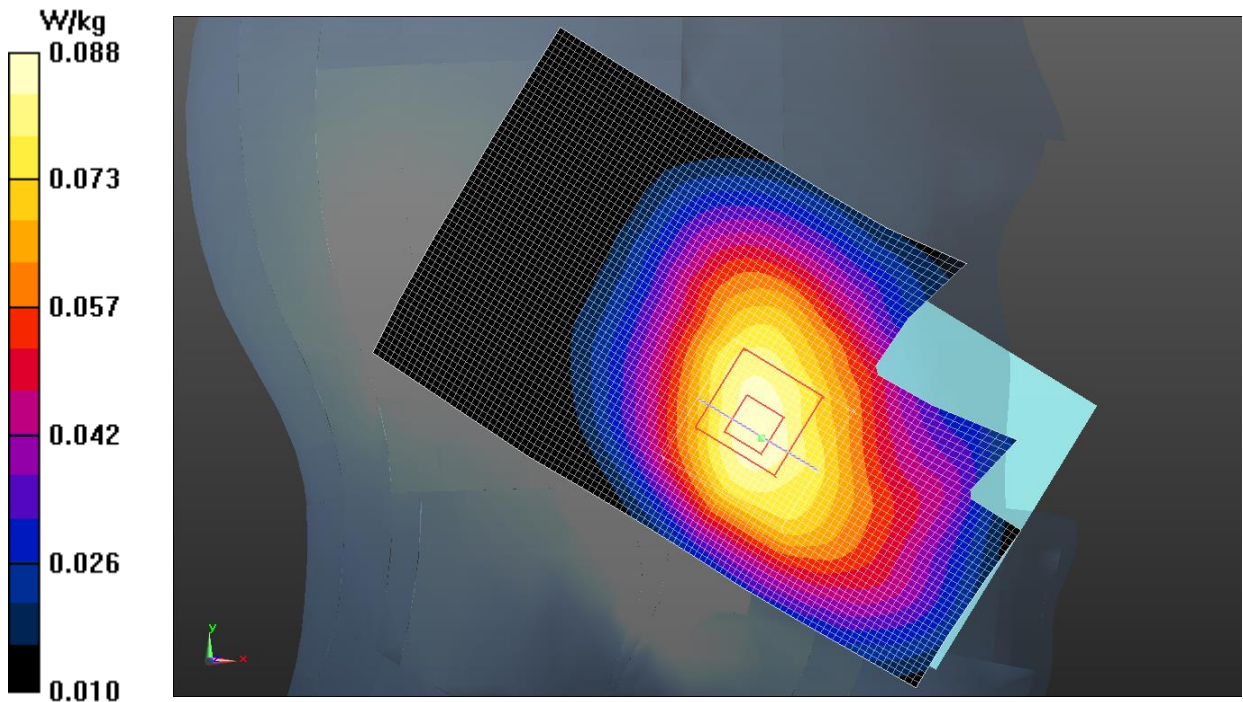


Fig.21 LTE Band 17

LTE Band 17 Body

Date: 2018-5-3

Electronics: DAE4 Sn786

Medium: Body 750 MHz

Medium parameters used: $f = 710 \text{ MHz}$; $\sigma = 0.943 \text{ S/m}$; $\epsilon_r = 54.057$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, LTE_FDD (0) Frequency: 710 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3633 ConvF (9.69, 9.69, 9.69);

Front side Middle 1B_High/Area Scan (61x101x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.200 W/kg

Front side Middle 1B_High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 12.99 V/m ; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.257 W/kg

SAR(1 g) = 0.192 W/kg ; SAR(10 g) = 0.147 W/kg

Maximum value of SAR (measured) = 0.201 W/kg

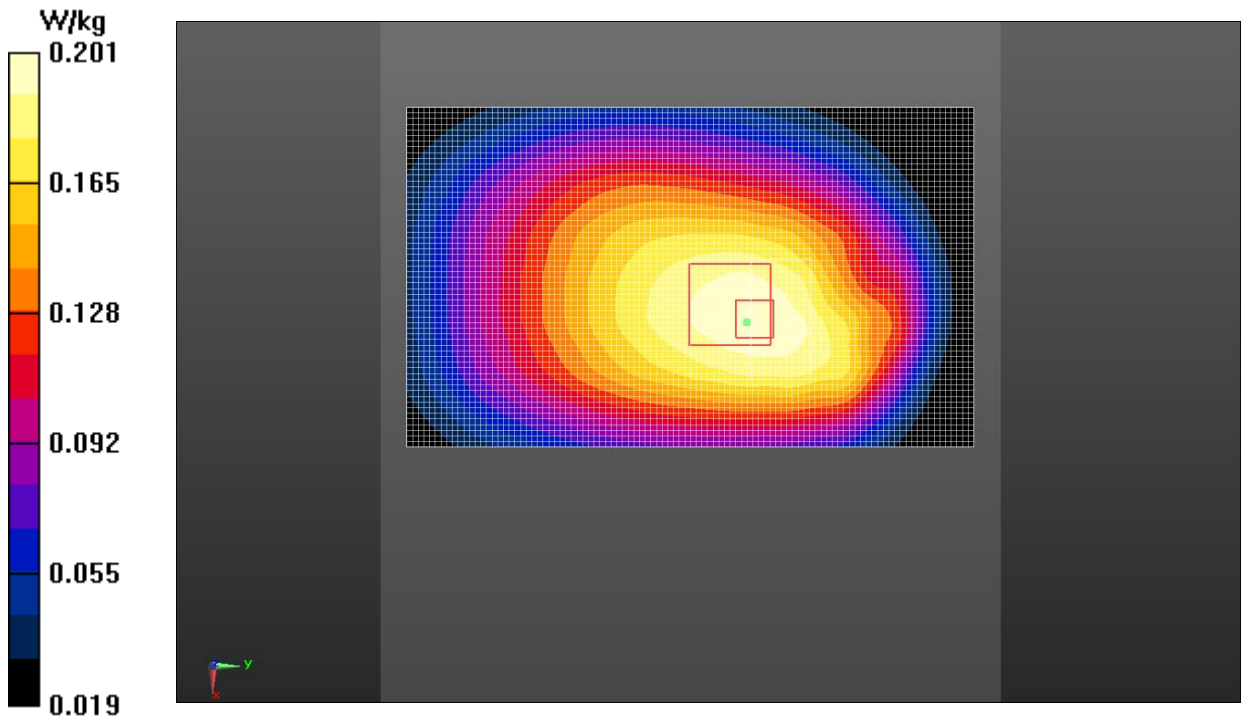


Fig.22 LTE Band 17

LTE Band 38 Head

Date: 2018-5-5

Electronics: DAE4 Sn786

Medium: Head 2550 MHz

Medium parameters used (interpolated): $f = 2595$ MHz; $\sigma = 2.023$ S/m; $\epsilon_r = 38.196$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, LTE_TDD (0) Frequency: 2595 MHz Duty Cycle: 1:1.58

Probe: EX3DV4 – SN3633 ConvF (7.28, 7.28, 7.28);

Left Cheek Middle 1RB_Low/Area Scan (61x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.128 W/kg

Left Cheek Middle 1RB_Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.985 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.212 W/kg

SAR(1 g) = 0.112 W/kg; SAR(10 g) = 0.057 W/kg

Maximum value of SAR (measured) = 0.126 W/kg

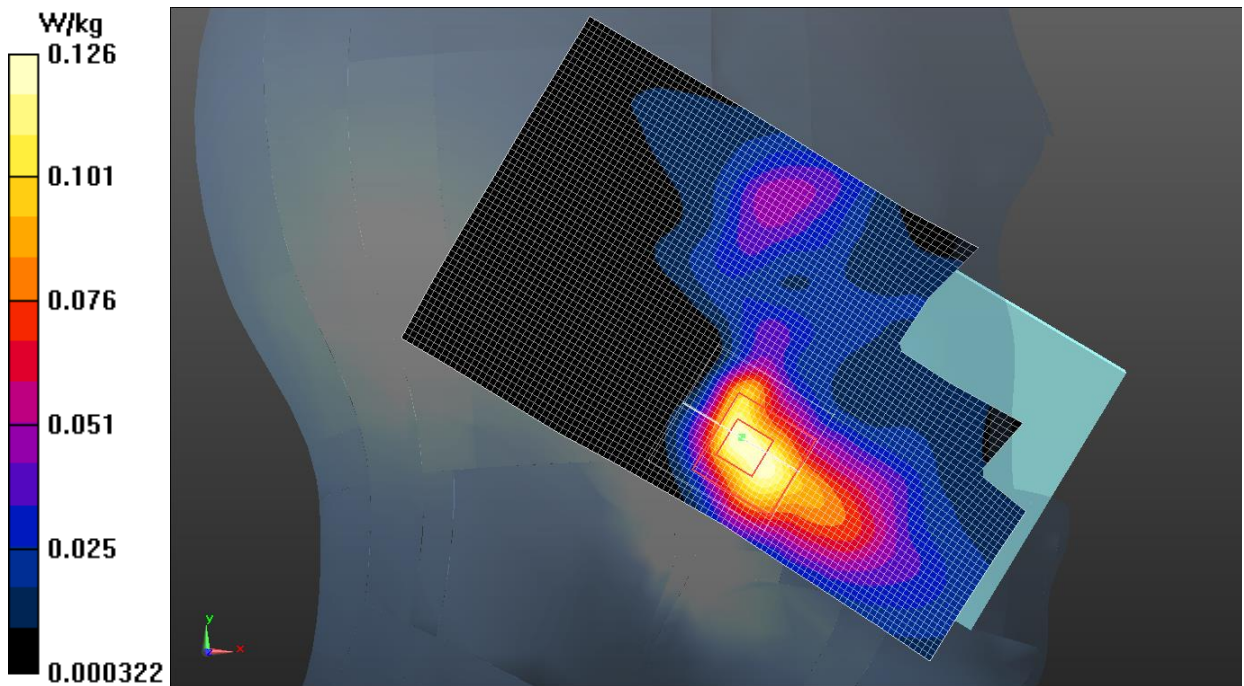


Fig.23 LTE Band 38

LTE Band 38 Body

Date: 2018-5-5

Electronics: DAE4 Sn786

Medium: Body 2550 MHz

Medium parameters used (interpolated): $f = 2595$ MHz; $\sigma = 2.105$ S/m; $\epsilon_r = 53.073$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, LTE_FDD (0) Frequency: 2595 MHz Duty Cycle: 1:1.58

Probe: EX3DV4 – SN3633 ConvF (7.31, 7.31, 7.31);

Bottom Side Middle 1RB_Low/Area Scan (41x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.368 W/kg

Bottom Side Middle 1RB_Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.24 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.550 W/kg

SAR(1 g) = 0.259 W/kg; SAR(10 g) = 0.130 W/kg

Maximum value of SAR (measured) = 0.271 W/kg

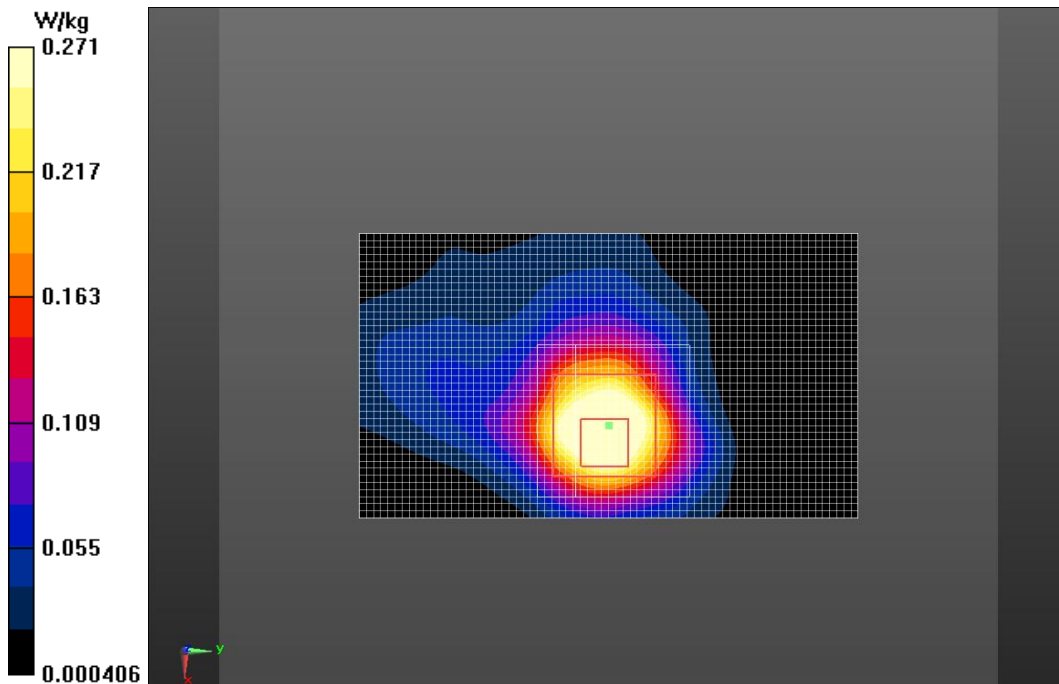


Fig.24 LTE Band 38

Wi-Fi 2.4G Head

Date: 2018-5-16

Electronics: DAE4 Sn786

Medium: Head 2450 MHz

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.856$ S/m; $\epsilon_r = 38.701$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, WiFi (0) Frequency: 2462 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3633 ConvF (7.42, 7.42, 7.42);

Left Cheek High/Area Scan (71x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.12 W/kg

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

Reference Value = 10.33 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 2.13 W/kg

SAR(1 g) = 0.701 W/kg; SAR(10 g) = 0.301 W/kg

Maximum value of SAR (measured) = 0.845 W/kg

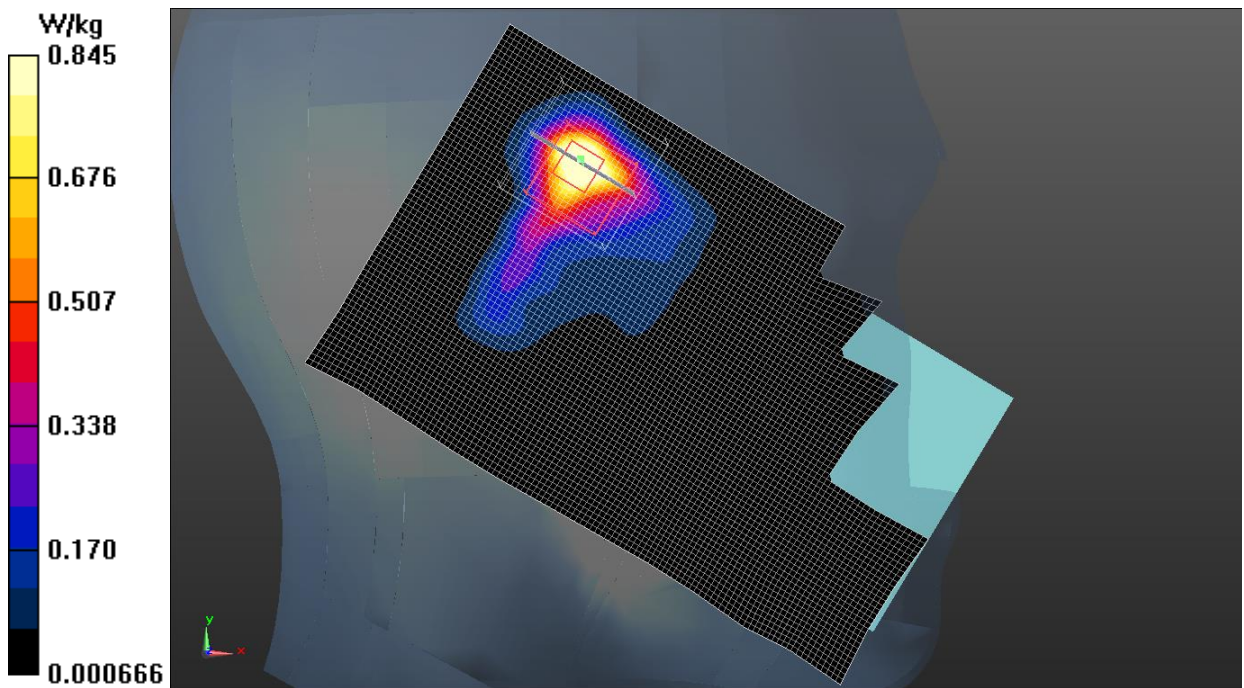


Fig.25 Wi-Fi 2.4G

Wi-Fi 2.4G Body

Date: 2018-5-16

Electronics: DAE4 Sn786

Medium: Body 2450 MHz

Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.911$ S/m; $\epsilon_r = 53.568$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, WiFi (0) Frequency: 2437 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3633 ConvF (7.47, 7.47, 7.47);

Top Side Middle/Area Scan (51x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.173 W/kg

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

Reference Value = 8.003 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.288 W/kg

SAR(1 g) = 0.162 W/kg; SAR(10 g) = 0.082 W/kg

Maximum value of SAR (measured) = 0.181 W/kg

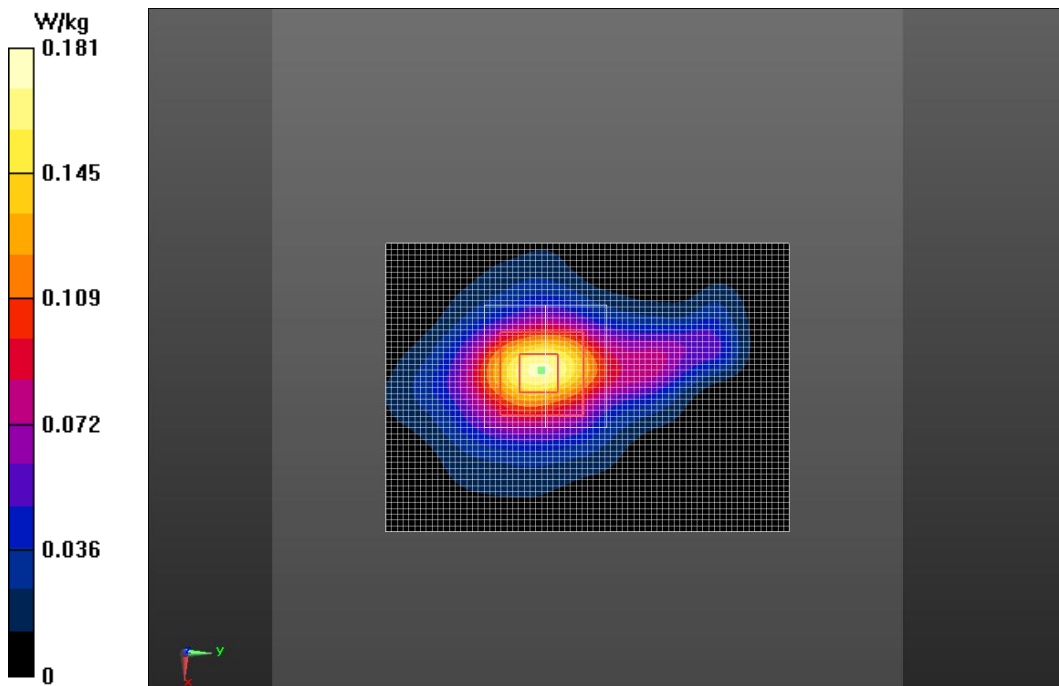


Fig.26 Wi-Fi 2.4G

Wi-Fi 5G Head

Date: 2018-5-18

Electronics: DAE4 Sn786

Medium: Head 5300 MHz

Medium parameters used: $f = 5260$ MHz; $\sigma = 4.795$ S/m; $\epsilon_r = 35.488$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, WIFI 5G (0) Frequency: 5260 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN3633 ConvF (5.61, 5.61, 5.61);

Left Cheek CH52/Area Scan (71x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.17 W/kg

Left Cheek CH52/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 5.476 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 3.22 W/kg

SAR(1 g) = 0.977 W/kg; SAR(10 g) = 0.259 W/kg

Maximum value of SAR (measured) = 1.35 W/kg

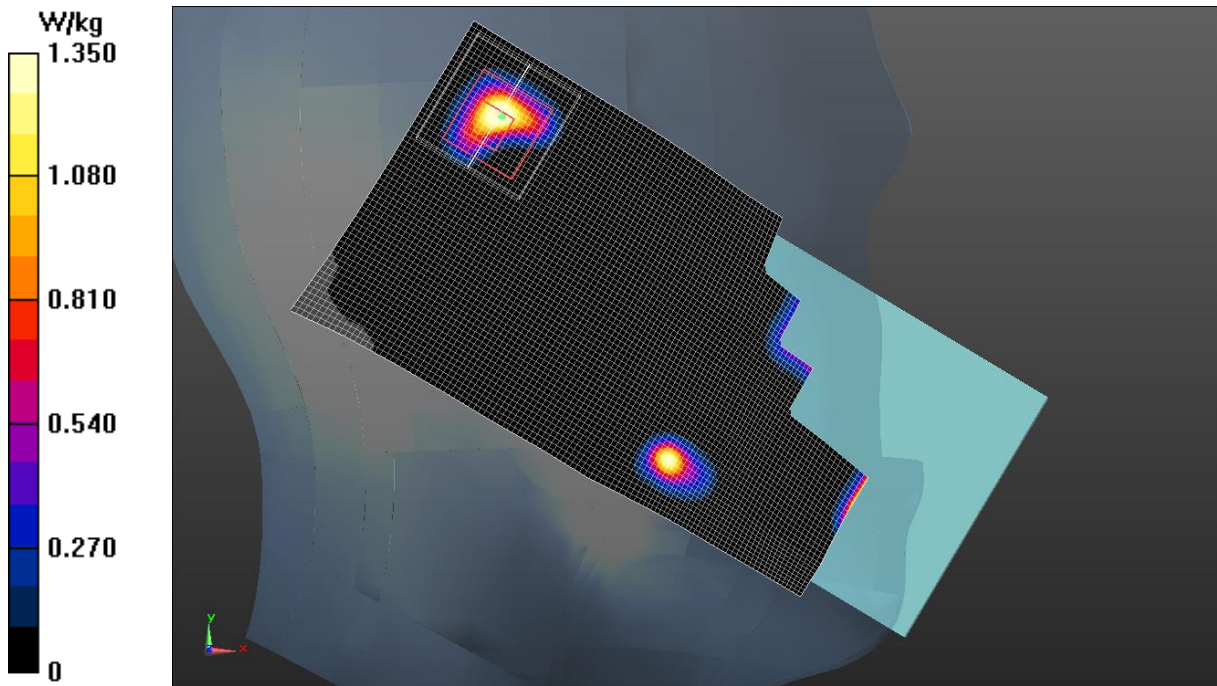


Fig.27 Wi-Fi 5G

Wi-Fi 5G Body

Date: 2018-5-18

Electronics: DAE4 Sn786

Medium: Body 5300 MHz

Medium parameters used: $f = 5260$ MHz; $\sigma = 5.226$ S/m; $\epsilon_r = 50.625$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.0°C Liquid Temperature: 21.5°C

Communication System: UID 0, WIFI 5G (0) Frequency: 5260 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN3633 ConvF (5.15, 5.15, 5.15);

Front Side CH52/Area Scan (71x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.136 W/kg

Front Side CH52/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 3.230 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.215 W/kg

SAR(1 g) = 0.076 W/kg; SAR(10 g) = 0.002 W/kg

Maximum value of SAR (measured) = 0.119 W/kg

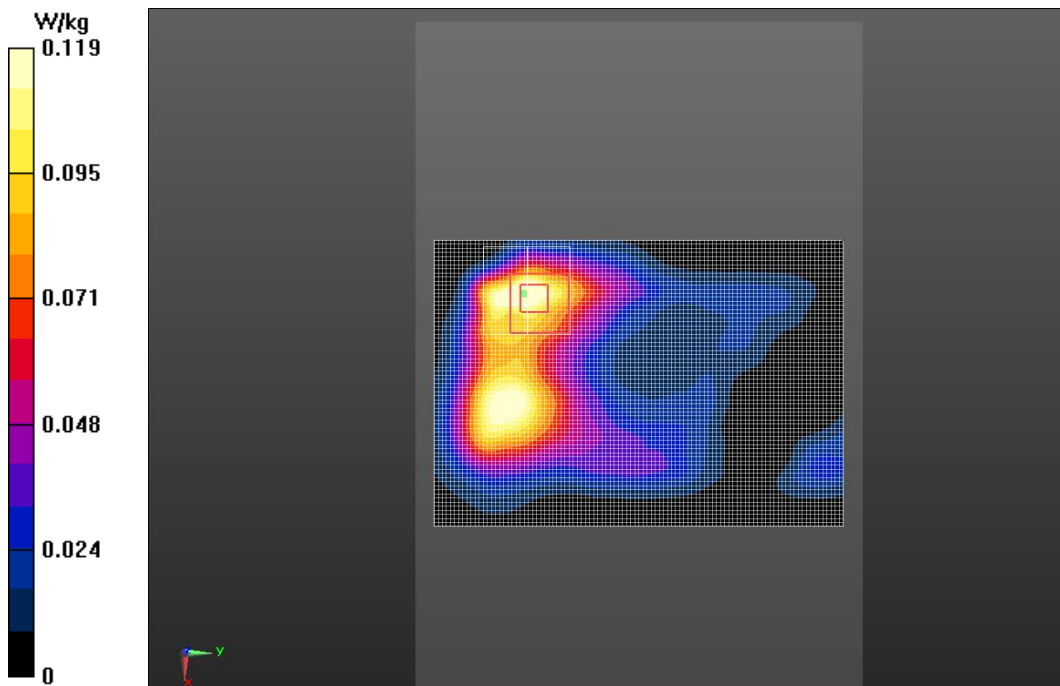


Fig.28 Wi-Fi 5G