Table 13.107: SAR Values (WLAN 5G- Body) – Ant.8

Ambient Temperature: 22.6°C Liquid Temperature: 22.1°C									
Frequency		Test Mode	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Power Drift(dB)
Ch.	MHz								
U-NII-2A Test Data (0mm)									
56	5280.0	802.11a	Front	/	17.52	19.0	0.184	**0.26**	-0.03
56	5280.0	802.11a	Rear	/	17.52	19.0	0.099	**0.14**	0.04
56	5280.0	802.11a	Left	/	17.52	19.0	0.018	**0.03**	-0.12
56	5280.0	802.11a	Right	/	17.52	19.0	0.171	**0.24**	-0.07
56	5280.0	802.11a	Top	**70**	17.52	19.0	**0.339**	**0.48**	0.03
56	5280.0	802.11a	Top	B2	17.52	19.0	0.325	**0.46**	0.05
U-NII-2C Test Data (0mm)									
140	5700.0	802.11a	Front	/	17.67	19.0	0.172	**0.23**	0.00
140	5700.0	802.11a	Rear	/	17.67	19.0	0.105	**0.14**	0.09
140	5700.0	802.11a	Left	/	17.67	19.0	0.015	**0.02**	0.09
140	5700.0	802.11a	Right	/	17.67	19.0	0.110	**0.15**	0.09
140	5700.0	802.11a	Top	/	17.67	19.0	0.321	**0.44**	0.05

Note: For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 2.0 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel until the reported SAR is ≤ 2.0 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.

Table 13.108: SAR Values (WLAN - Body) – 802.11a (Scaled Reported SAR)

Frequency		Test Position	Actual duty factor	maximum duty factor	Reported SAR (10g)(W/kg)	Scaled reported SAR (10g)(W/kg)
Ch.	MHz					
56	5280.0	Top	100%	100%	0.48	**0.48**

14. 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 14.1: SAR Measurement Variability for GSM1900 Body – Ant.1

Frequency		Test Position	Original	1st Repeated	Ratio	2nd Repeated
Ch.	MHz		SAR (W/kg)	SAR (W/kg)		SAR (W/kg)
661	1880.0	Top	0.901	0.889	1.01	/

Table 14.2: SAR Measurement Variability for WCDMA Band 2 Head – Ant.1

Frequency		Test Position	Original	1st Repeated	Ratio	2nd Repeated
Ch.	MHz		SAR (W/kg)	SAR (W/kg)		SAR (W/kg)
9262	1852.4	Right Tilt	0.857	0.844	1.02	/

Table 14.3: SAR Measurement Variability for WCDMA Band 2 Body – Ant.1

Frequency		Test Position	Original	1st Repeated	Ratio	2nd Repeated
Ch.	MHz		SAR (W/kg)	SAR (W/kg)		SAR (W/kg)
9262	1852.4	Top	0.898	0.863	1.04	/

Table 14.4: SAR Measurement Variability for WCDMA Band 4 Head – Ant.1

Frequency		Test Position	Original	1st Repeated	Ratio	2nd Repeated
Ch.	MHz		SAR (W/kg)	SAR (W/kg)		SAR (W/kg)
1513	1752.6	Right Tilt	0.864	0.852	1.01	/

Table 14.5: SAR Measurement Variability for WCDMA Band 4 Body – Ant.1

Frequency		Test Position	Original	1st Repeated	Ratio	2nd Repeated
Ch.	MHz		SAR (W/kg)	SAR (W/kg)		SAR (W/kg)
1513	1752.6	Top	0.803	0.786	1.04	/

Table 14.6: SAR Measurement Variability for WCDMA Band 5 Head – Ant.1

Frequency		Test Position	Original	1st Repeated	Ratio	2nd Repeated
Ch.	MHz		SAR (W/kg)	SAR (W/kg)		SAR (W/kg)
4233	846.6	Right Cheek	0.825	0.811	1.02	/

Table 14.7: SAR Measurement Variability for LTE Band 2 Head – Ant.1

Frequency		Test Position	Original	1st Repeated	Ratio	2nd Repeated
Ch.	MHz		SAR (W/kg)	SAR (W/kg)		SAR (W/kg)
18900	1880.0	Right Tilt	0.863	0.845	1.02	/

Table 14.8: SAR Measurement Variability for LTE Band 4 Head – Ant.1

Frequency		Test Position	Original	1st Repeated	Ratio	2nd Repeated
Ch.	MHz		SAR (W/kg)	SAR (W/kg)		SAR (W/kg)
20300	1745.0	Right Tilt	0.962	0.951	1.01	/

Table 14.9: SAR Measurement Variability for LTE Band 7 Body – Ant.1

Frequency		Test Position	Original	1st Repeated	Ratio	2nd Repeated
Ch.	MHz		SAR (W/kg)	SAR (W/kg)		SAR (W/kg)
21350	2560.0	Top	0.866	0.847	1.02	/

Table 14.10: SAR Measurement Variability for LTE Band 38 Body – Ant.1

Frequency		Test Position	Original	1st Repeated	Ratio	2nd Repeated
Ch.	MHz		SAR (W/kg)	SAR (W/kg)		SAR (W/kg)
38150	2580.0	Top	0.903	0.886	1.02	/

Table 14.11: SAR Measurement Variability for LTE Band 66 Head – Ant.1

Frequency		Test Position	Original	1st Repeated	Ratio	2nd Repeated
Ch.	MHz		SAR (W/kg)	SAR (W/kg)		SAR (W/kg)
132572	1770.0	Right Tilt	0.958	0.944	1.01	/

Table 14.12: SAR Measurement Variability for NR n7 Body – Ant.1

Frequency		Test Position	Original	1st Repeated	Ratio	2nd Repeated
Ch.	MHz		SAR (W/kg)	SAR (W/kg)		SAR (W/kg)
513500	2567.5	Top	0.845	0.832	1.02	/

Table 14.13: SAR Measurement Variability for NR n41 Body – Ant.1

Frequency		Test Position	Original	1st Repeated	Ratio	2nd Repeated
Ch.	MHz		SAR (W/kg)	SAR (W/kg)		SAR (W/kg)
501204	2506.0	Top	0.804	0.785	1.02	/

Table 14.14: SAR Measurement Variability for WLAN 2.4G Head – Ant.7

Frequency		Test Position	Original	1st Repeated	Ratio	2nd Repeated
Ch.	MHz		SAR (W/kg)	SAR (W/kg)		SAR (W/kg)
11	2462.0	Left Cheek	0.850	0.837	1.02	/

15. Measurement Uncertainty

15.1. 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	Axial isotropy	B	4.7	R	$\sqrt{3}$	√0.5	√0.5	4.3	4.3	∞
3	Hemispherical isotropy	B	9.6	R	$\sqrt{3}$	1	1	4.8	4.8	∞
4	Boundary effect	B	1.1	R	$\sqrt{3}$	1	1	0.6	0.6	∞
5	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
6	Detection limit	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
7	Modulation response	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
8	Readout electronics	B	1.0	N	1	1	1	1.0	1.0	∞
9	Response time	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	∞
10	Integration time	B	1.7	R	$\sqrt{3}$	1	1	1.0	1.0	∞
11	RF ambient conditions-noise	B	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	∞
12	RF ambient conditions-reflection	B	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	∞
13	Probe positioned mech. restrictions	B	0.35	R	$\sqrt{3}$	1	1	0.2	0.2	∞
14	Probe positioning with respect to phantom shell	B	2.9	R	$\sqrt{3}$	1	1	1.7	1.7	∞
15	Post-processing	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
Test sample related										
16	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	5
17	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
18	Drift of output power	B	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and set-up										
19	Phantom uncertainty	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
20	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
21	Liquid conductivity (meas.)	A	1.3	N	1	0.64	0.43	0.83	0.56	9
22	Liquid permittivity (target)	B	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	∞
23	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	0.96	0.78	9
Combined standard uncertainty		$u_c' = \sqrt{\sum_{i=1}^{23} c_i^2 u_i^2}$						11.3	11.2	95.5
Expanded uncertainty (Confidence interval of 95 %)		$u_e = 2u_c$						22.6	22.4	

15.2. 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	13.3	N	2	1	1	6.65	6.65	∞
2	Axial isotropy	B	4.7	R	$\sqrt{3}$	√0.5	√0.5	4.3	4.3	∞
3	Hemispherical isotropy	B	9.6	R	$\sqrt{3}$	1	1	4.8	4.8	∞
4	Boundary effect	B	1.1	R	$\sqrt{3}$	1	1	0.6	0.6	∞
5	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
6	Detection limit	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
7	modulation response	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
8	Readout electronics	B	1.0	N	1	1	1	1.0	1.0	∞
9	Response time	B	0.0	R	$\sqrt{3}$	1	1	0.0	0.0	∞
10	Integration time	B	1.7	R	$\sqrt{3}$	1	1	1.0	1.0	∞
11	RF ambient conditions-noise	B	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	∞
12	RF ambient conditions-reflection	B	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	∞
13	Probe positioned mech. Restrictions	B	0.35	R	$\sqrt{3}$	1	1	0.2	0.2	∞
14	Probe positioning with respect to phantom shell	B	2.9	R	$\sqrt{3}$	1	1	1.7	1.7	∞
15	Post-processing	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
Test sample related										
16	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	5
17	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
18	Drift of output power	B	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and set-up										
19	Phantom uncertainty	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
20	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
21	Liquid conductivity (meas.)	A	1.3	N	1	0.64	0.43	0.83	0.56	43
22	Liquid permittivity (target)	B	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	∞
23	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	0.96	0.78	521
Combined standard uncertainty		$u_c^{'} = \sqrt{\sum_{i=1}^{22} c_i^2 u_i^2}$						11.6	11.5	257
Expanded uncertainty (Confidence interval of 95 %)		$u_e = 2u_c$						23.2	23.0	

16. Main Test Instruments

Table 16.1: List of Main Instruments for original sample test

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Network analyzer	E5071C	MY46103759	2021-11-15	One year
02	Dielectric probe	85070E	MY44300317	/	/
03	Power meter	E4418B	MY50000366	2020-12-13	One year
04	Power sensor	E9304A	MY50000188		
05	Power meter	NRP	101460	2021-01-15	One year
06	Power sensor	NRP-Z91	100553		
07	Signal Generator	E8257D	MY47461211	2021-01-15	One year
08	Amplifier	VTL5400	0404	/	/
09	E-field Probe	ES3DV3	3151	2021-04-26	One year
10	E-field Probe	EX3DV4	7621	2020-11-30	One year
11	DAE	DAE4	786	2021-04-09	One year
12	Dipole Validation Kit	D750V3	1163	2019-09-03	Three year
13	Dipole Validation Kit	D835V2	4d057	2021-10-18	Three year
14	Dipole Validation Kit	D1750V2	1152	2019-08-30	Three year
15	Dipole Validation Kit	D1900V2	5d088	2021-10-18	Three year
16	Dipole Validation Kit	D2450V2	873	2021-10-21	Three year
17	Dipole Validation Kit	D2550V2	1010	2021-05-21	Three year
18	Dipole Validation Kit	D5GHzV2	1238	2019-08-29	Three year
19	BTS	MT8820C	6201341853	2021-01-15	One year
20	BTS	E5515C	GB46110722	2021-01-15	One year
21	BTS	CMW500	158344	2021-07-17	One year
22	Software	DASY5	/	/	/

ANNEX A: Graph Results

GSM850 Head

Date: 2021-11-16

Electronics: DAE4 Sn786

Medium: Head 835MHz

Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.925 S/m; ε_r = 40.583; ρ = 1000 kg/m^3

Communication System: UID 0, GSM (0) Frequency: 836.6 MHz Duty Cycle: 1:8.3

Probe: ES3DV3 – SN3151 ConvF (6.40, 6.40, 6.40);

Right Cheek Middle/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.783 W/kg

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

Reference Value = 25.83 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 1.35 W/kg

SAR(1 g) = 0.661 W/kg; SAR(10 g) = 0.413 W/kg

Maximum value of SAR (measured) = 0.775 W/kg

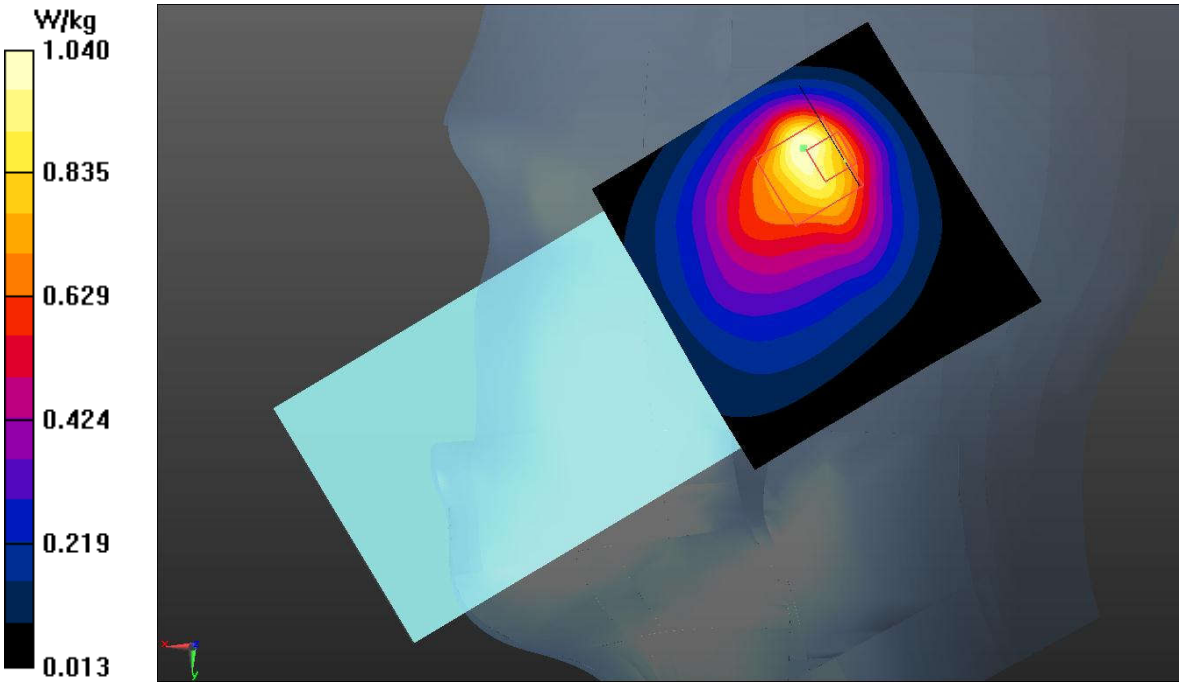


Fig.1 GSM 850 Head

GSM850 Hotspot
Date: 2021-11-16
Electronics: DAE4 Sn786
Medium: Head 835MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.925 S/m; ε_r = 40.583; ρ = 1000 kg/m^3
Communication System: UID 0, 4 slot GPRS (0) Frequency: 836.6 MHz Duty Cycle: 1:2
Probe: ES3DV3 – SN3151 ConvF (6.40, 6.40, 6.40);

Rear Side Middle/Area Scan (61x131x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.173 W/kg

Rear Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.553 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.274 W/kg
SAR(1 g) = 0.147 W/kg; SAR(10 g) = 0.082 W/kg
Maximum value of SAR (measured) = 0.180 W/kg

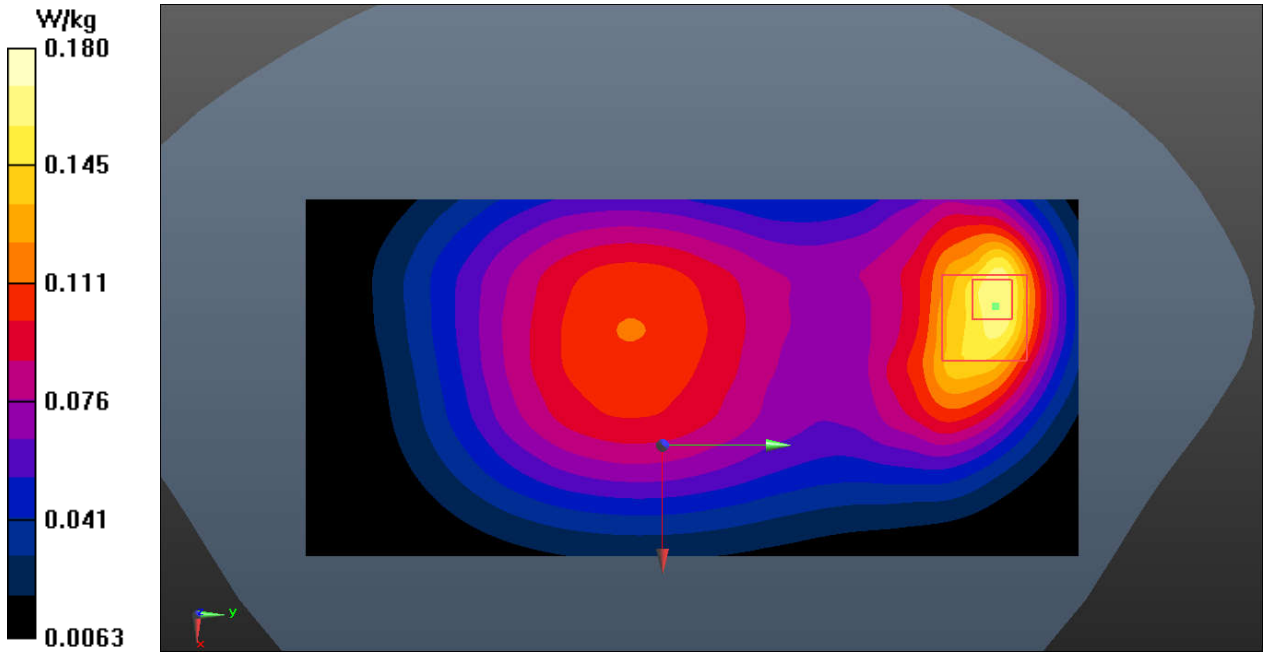


Fig.2 GSM 850 Hotspot

GSM850 Body-worn
Date: 2021-11-16
Electronics: DAE4 Sn786
Medium: Head 835MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.925 S/m; ε_r = 40.583; ρ = 1000 kg/m^3
Communication System: UID 0, 4 slot GPRS (0) Frequency: 836.6 MHz Duty Cycle: 1:2
Probe: ES3DV3 – SN3151 ConvF (6.40, 6.40, 6.40);

Rear Side Middle/Area Scan (71x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.397 W/kg

Rear Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.62 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.309 W/kg
SAR(1 g) = 0.104 W/kg; SAR(10 g) = 0.074 W/kg
Maximum value of SAR (measured) = 0.118 W/kg

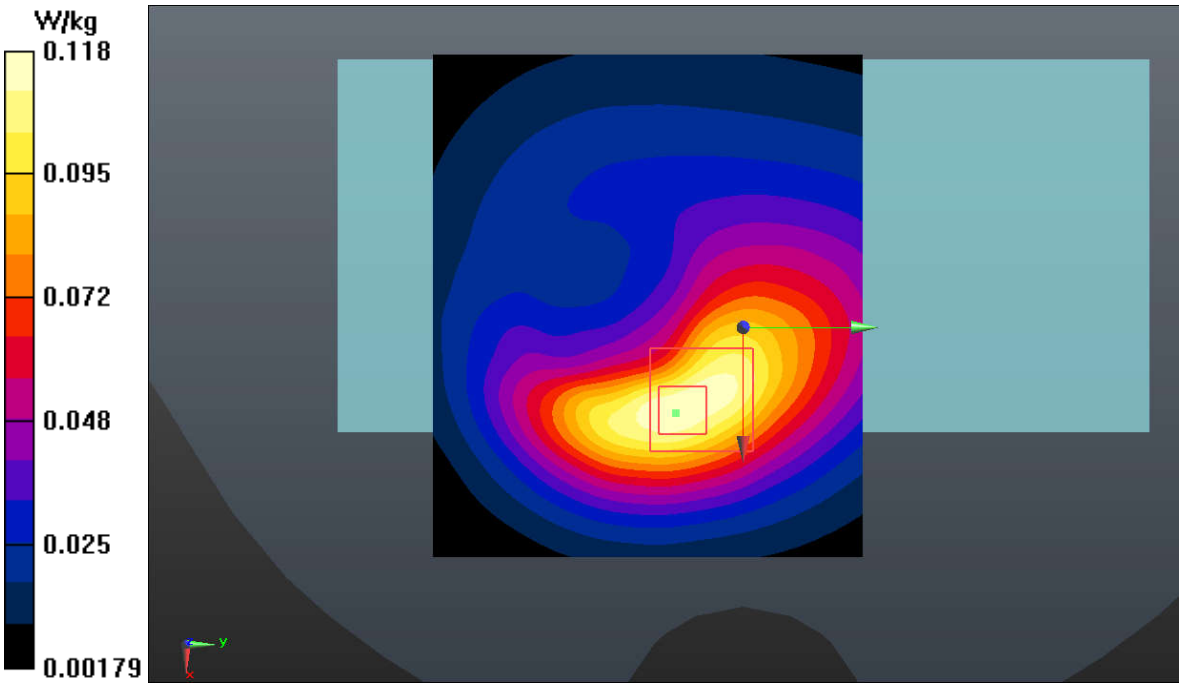


Fig.3 GSM 850 Body-worn

GSM1900 Head
Date: 2021-10-20
Electronics: DAE4 Sn786
Medium: Head 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.36 S/m; ε_r = 40.852; ρ = 1000 kg/m^3
Communication System: UID 0, GSM (0) Frequency: 1880 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 – SN3151 ConvF (5.09, 5.09, 5.09);

Right Tilt Middle/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.923 W/kg

Right Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.77 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.47 W/kg
SAR(1 g) = 0.726 W/kg; SAR(10 g) = 0.329 W/kg
Maximum value of SAR (measured) = 1.04 W/kg

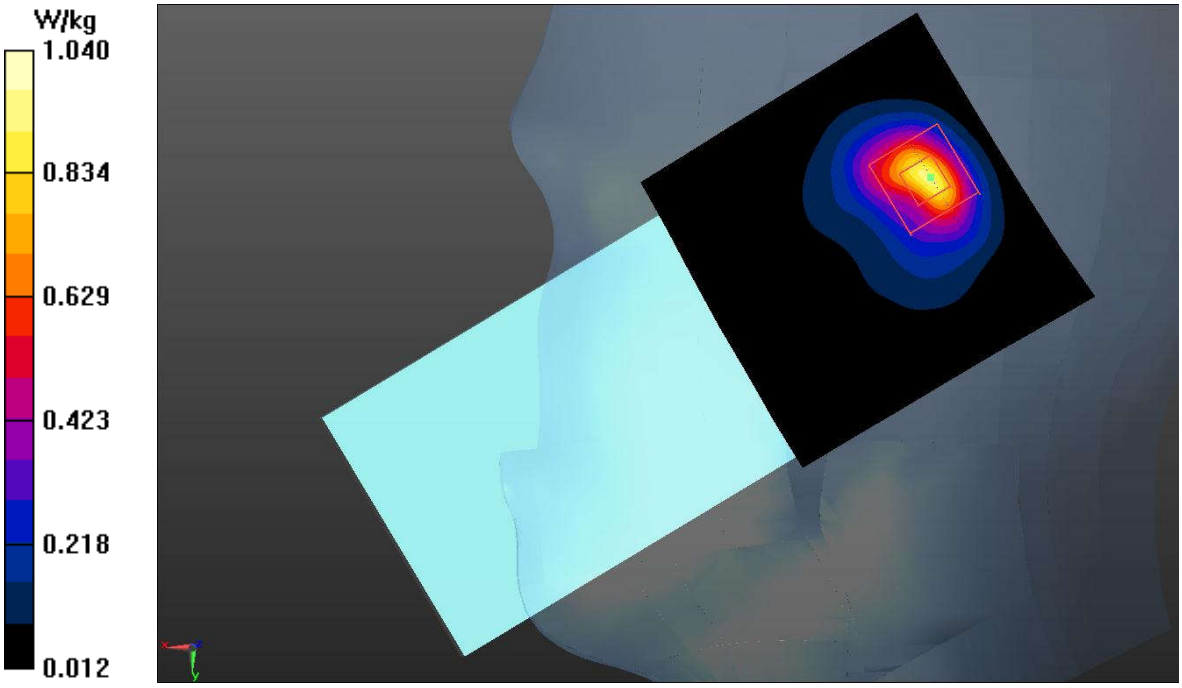


Fig.4 GSM 1900 Head

GSM1900 Hotspot
Date: 2021-10-20
Electronics: DAE4 Sn786
Medium: Head 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.36 S/m; ε_r = 40.852; ρ = 1000 kg/m^3
Communication System: UID 0, 4 slot GPRS (0) Frequency: 1880 MHz Duty Cycle: 1:2
Probe: ES3DV3 – SN3151 ConvF (5.09, 5.09, 5.09);

Top Side Middle/Area Scan (61x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.12 W/kg

Top Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.98 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.65 W/kg
SAR(1 g) = 0.901 W/kg; SAR(10 g) = 0.457 W/kg
Maximum value of SAR (measured) = 1.16 W/kg

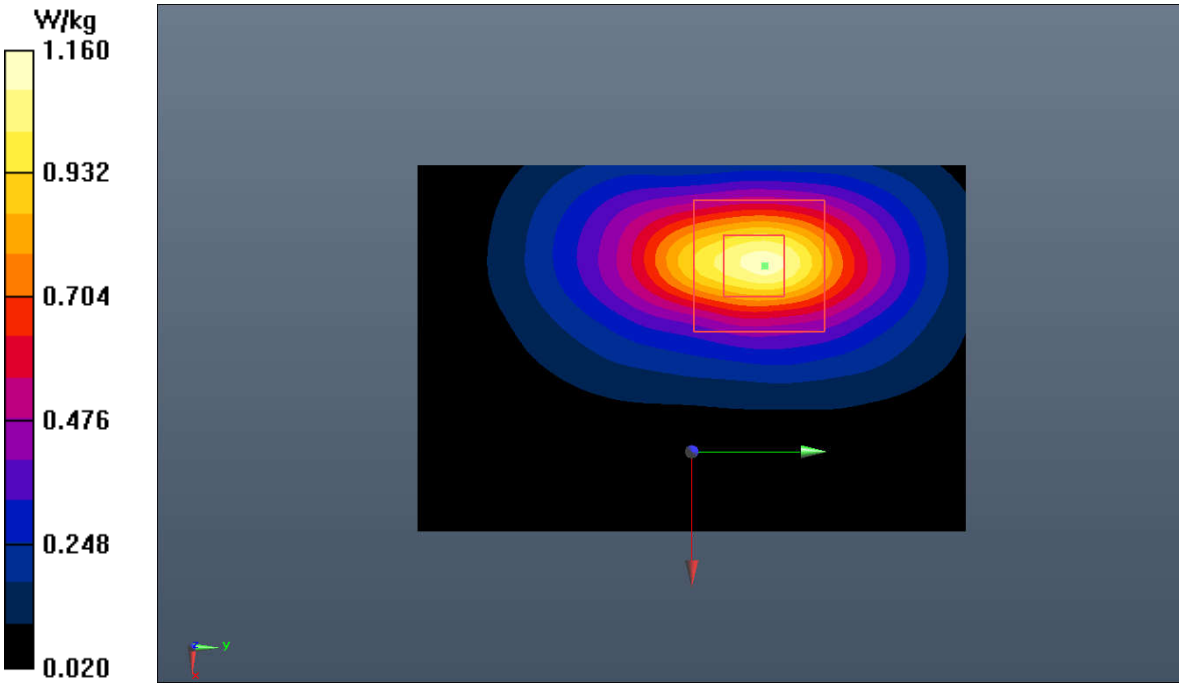


Fig.5 GSM 1900 Hotspot

GSM1900 Body-worn
Date: 2021-10-20
Electronics: DAE4 Sn786
Medium: Head 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.36 S/m; ε_r = 40.852; ρ = 1000 kg/m^3
Communication System: UID 0, 4 slot GPRS (0) Frequency: 1880 MHz Duty Cycle: 1:2
Probe: ES3DV3 – SN3151 ConvF (5.09, 5.09, 5.09);

Rear Side Middle/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.318 W/kg

Rear Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.131V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.435 W/kg
SAR(1 g) = 0.245 W/kg; SAR(10 g) = 0.141 W/kg
Maximum value of SAR (measured) = 0.307 W/kg

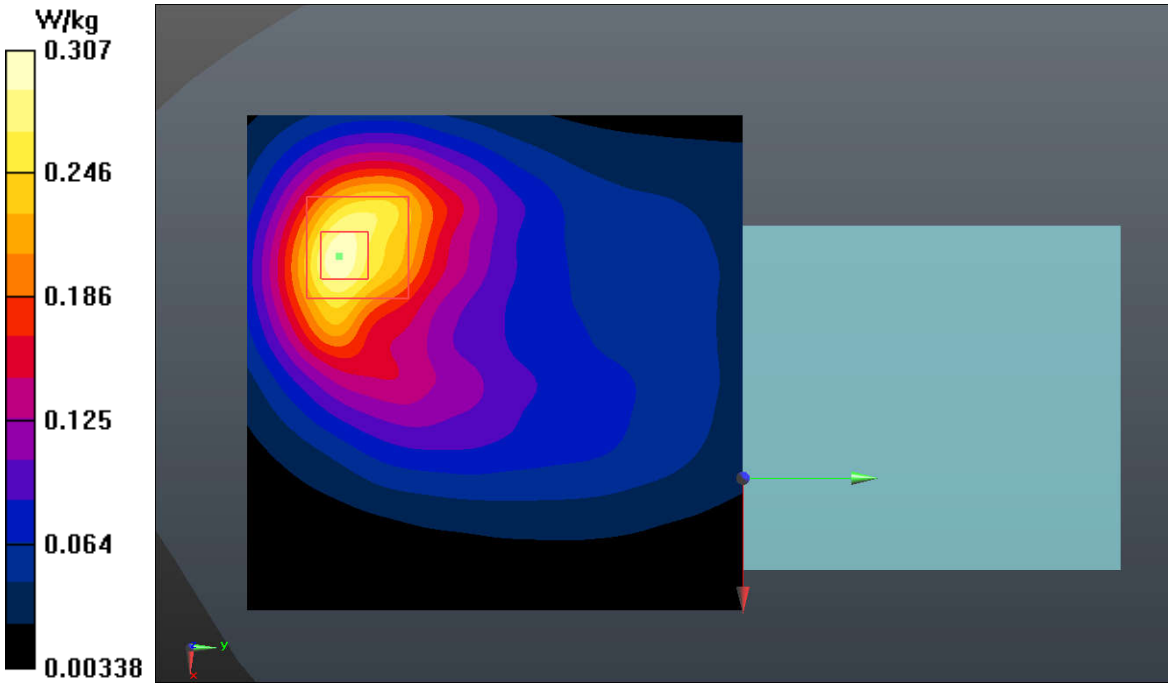


Fig.6 GSM 1900 Body-worn

WCDMA Band 2 Head
Date: 2021-10-20
Electronics: DAE4 Sn786
Medium: Head 1900MHz
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.336 S/m; ε_r = 40.96; ρ = 1000 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 1852.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (5.09, 5.09, 5.09);

Right Tilt Low/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.01 W/kg

Right Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.10 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.78 W/kg
SAR(1 g) = 0.857 W/kg; SAR(10 g) = 0.390 W/kg
Maximum value of SAR (measured) = 1.15 W/kg

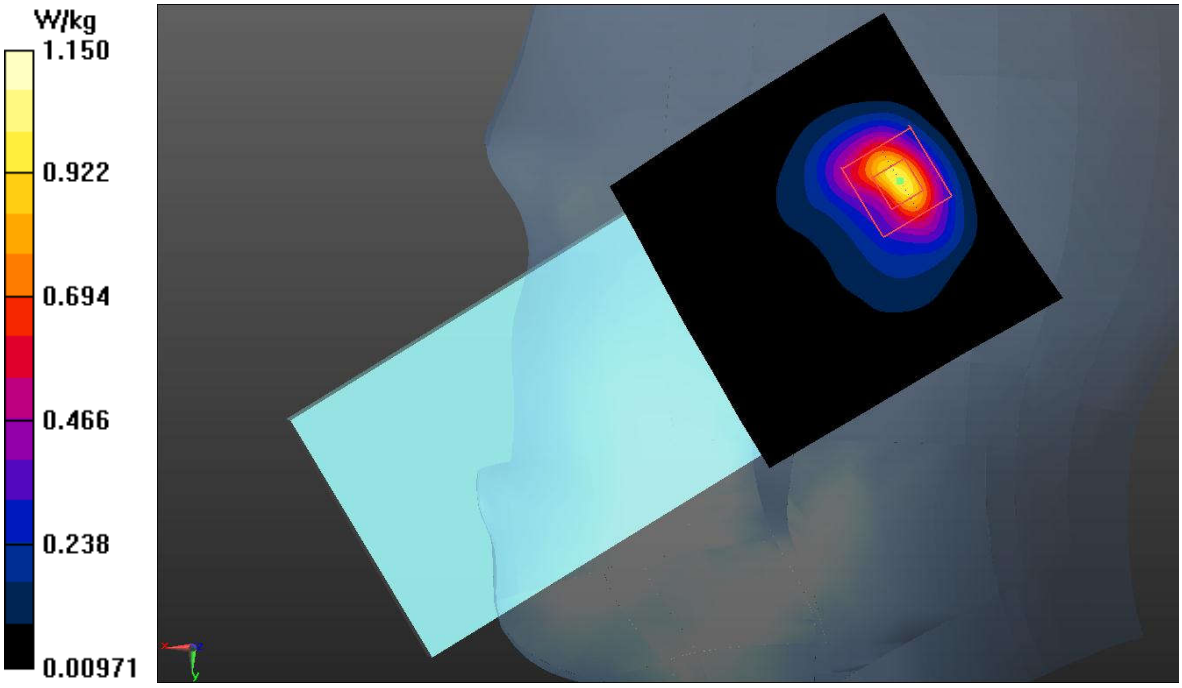


Fig.7 WCDMA Band 2 Head

WCDMA Band 2 Hotspot
Date: 2021-10-20
Electronics: DAE4 Sn786
Medium: Head 1900MHz
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.336 S/m; ε_r = 40.96; ρ = 1000 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 1852.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (5.09, 5.09, 5.09);

Top Side Low/Area Scan (61x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.13 W/kg

Top Side Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.62 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 1.66 W/kg
SAR(1 g) = 0.898 W/kg; SAR(10 g) = 0.453 W/kg
Maximum value of SAR (measured) = 1.15 W/kg

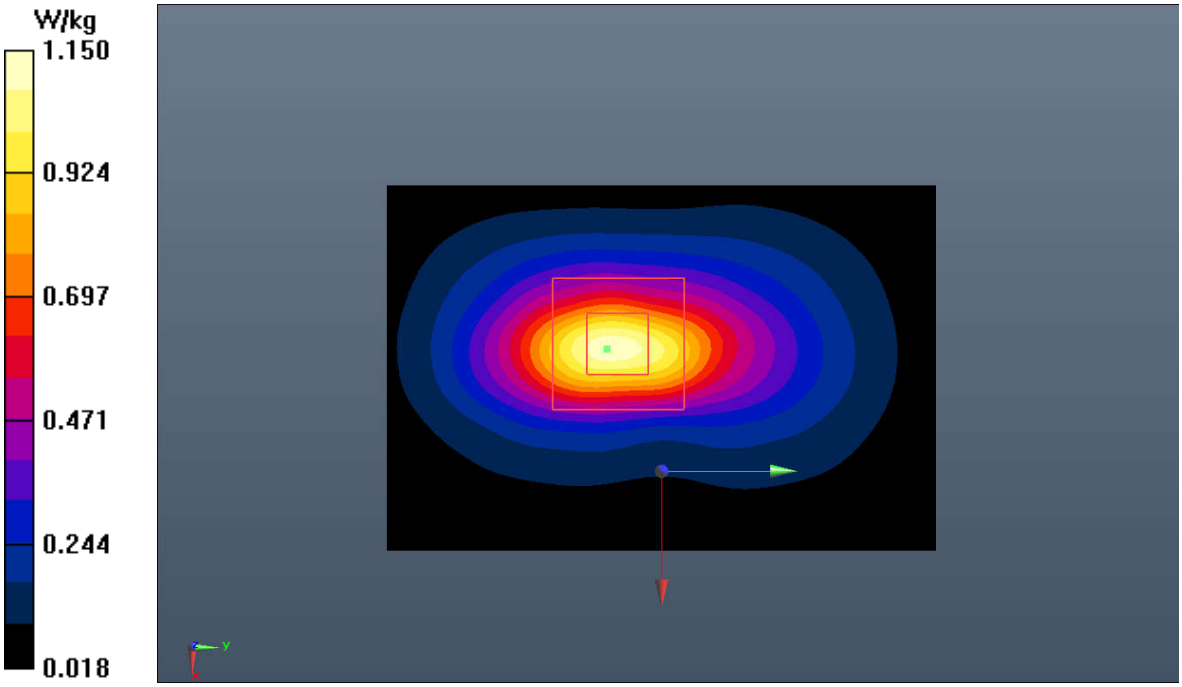


Fig.8 WCDMA Band 2 Hotspot

WCDMA Band 2 Body-worn
Date: 2021-10-20
Electronics: DAE4 Sn786
Medium: Head 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.36 S/m; ε_r = 40.852; ρ = 1000 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (5.09, 5.09, 5.09);

Rear Side Middle/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.445 W/kg

Rear Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.616 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.607 W/kg
SAR(1 g) = 0.380 W/kg; SAR(10 g) = 0.235 W/kg
Maximum value of SAR (measured) = 0.452 W/kg

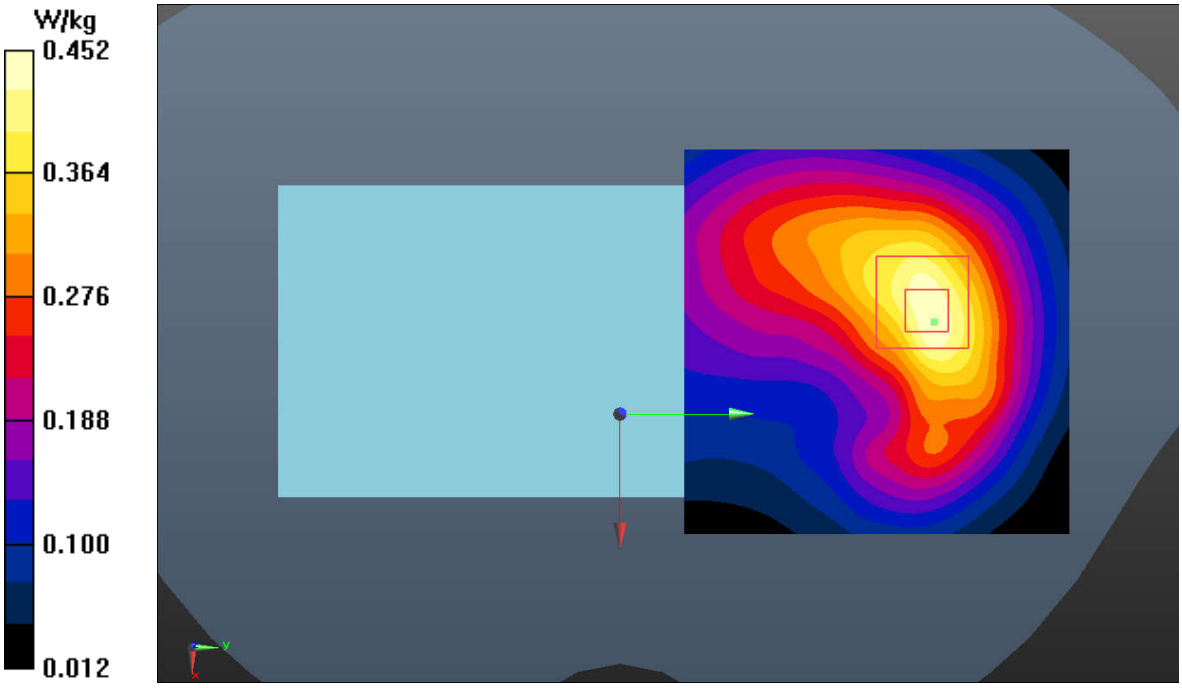


Fig.9 WCDMA Band 2 Body-worn

WCDMA Band 4 Head
Date: 2021-10-29
Electronics: DAE4 Sn786
Medium: Head 1750MHz
Medium parameters used: f = 1753 MHz; σ = 1.385 S/m; ε_r = 39.544; ρ = 1000 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 1752.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (5.25, 5.25, 5.25);

Right Tilt High/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.00 W/kg

Right Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.19 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 1.83 W/kg
SAR(1 g) = 0.864 W/kg; SAR(10 g) = 0.391 W/kg
Maximum value of SAR (measured) = 1.11 W/kg

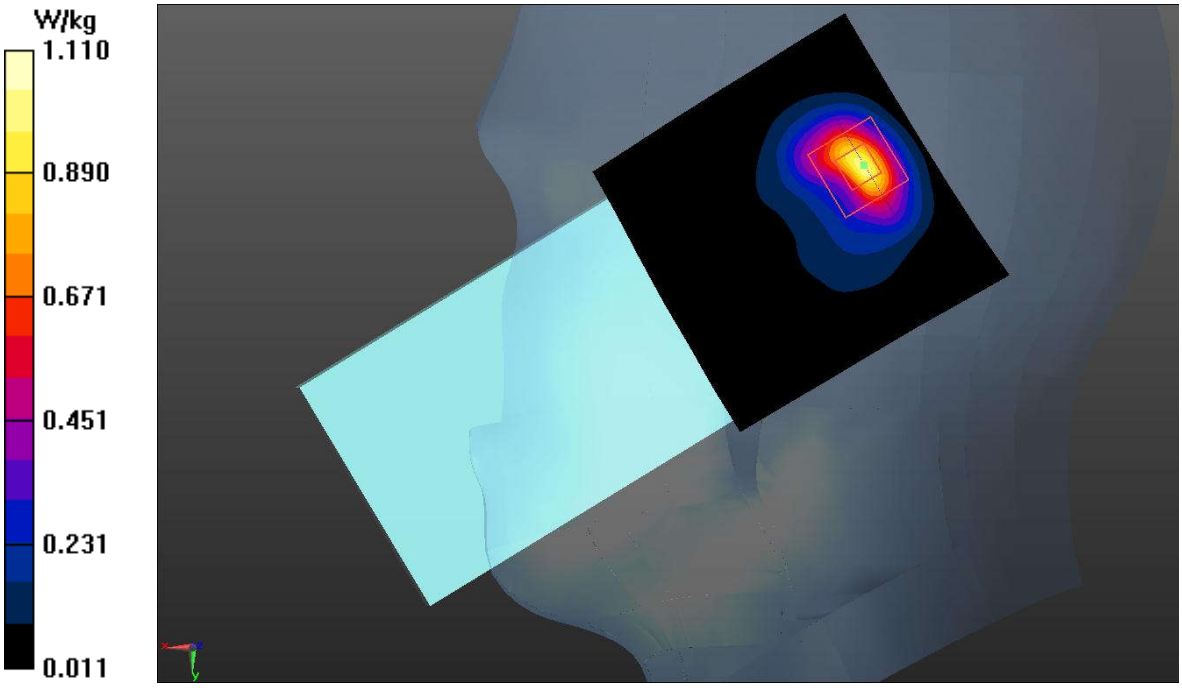


Fig.10 WCDMA Band 4 Head

WCDMA Band 4 Hotspot
Date: 2021-10-29
Electronics: DAE4 Sn786
Medium: Head 1750MHz
Medium parameters used: f = 1753 MHz; σ = 1.385 S/m; ε_r = 39.544; ρ = 1000 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 1752.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (5.25, 5.25, 5.25);

Top Side High/Area Scan (61x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.01 W/kg

Top Side High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.39 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.49 W/kg
SAR(1 g) = 0.803 W/kg; SAR(10 g) = 0.404 W/kg
Maximum value of SAR (measured) = 1.03 W/kg

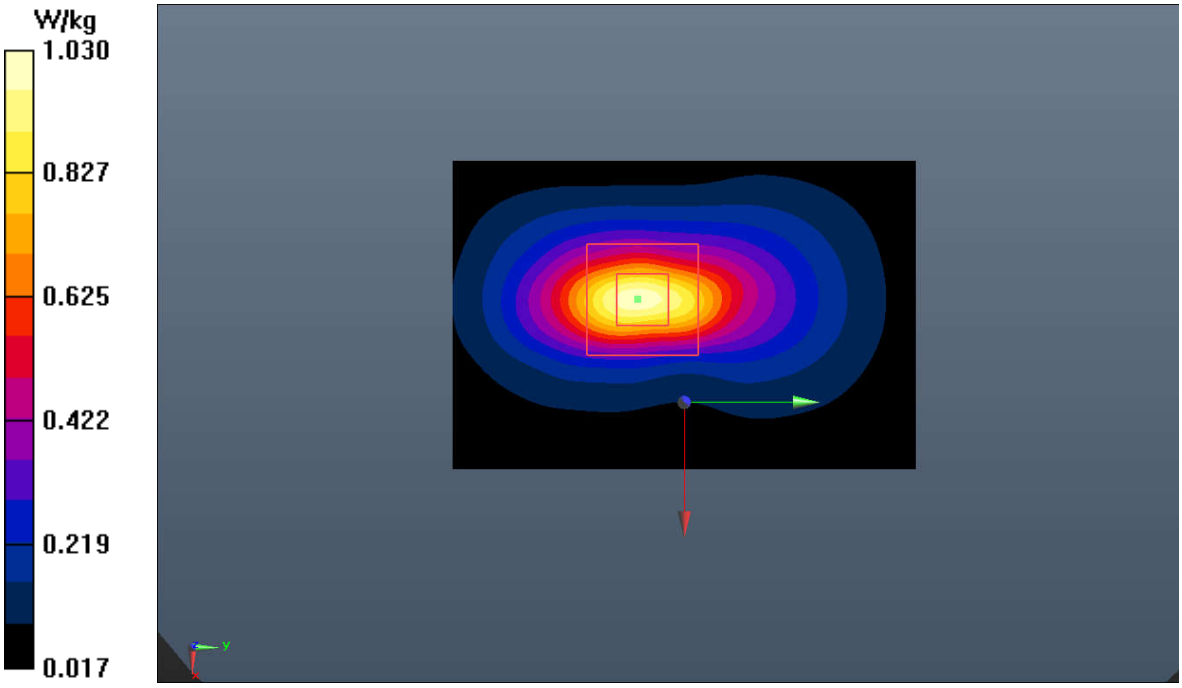


Fig.11 WCDMA Band 4 Hotspot

WCDMA Band 4 Body-worn
Date: 2021-10-29
Electronics: DAE4 Sn786
Medium: Head 1750MHz
Medium parameters used: f = 1733 MHz; σ = 1.367 S/m; ε_r = 39.622; ρ = 1000 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 1732.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (5.25, 5.25, 5.25);

Rear Side Middle/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.534 W/kg

Rear Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.885 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.731 W/kg
SAR(1 g) = 0.417 W/kg; SAR(10 g) = 0.256 W/kg
Maximum value of SAR (measured) = 0.501 W/kg

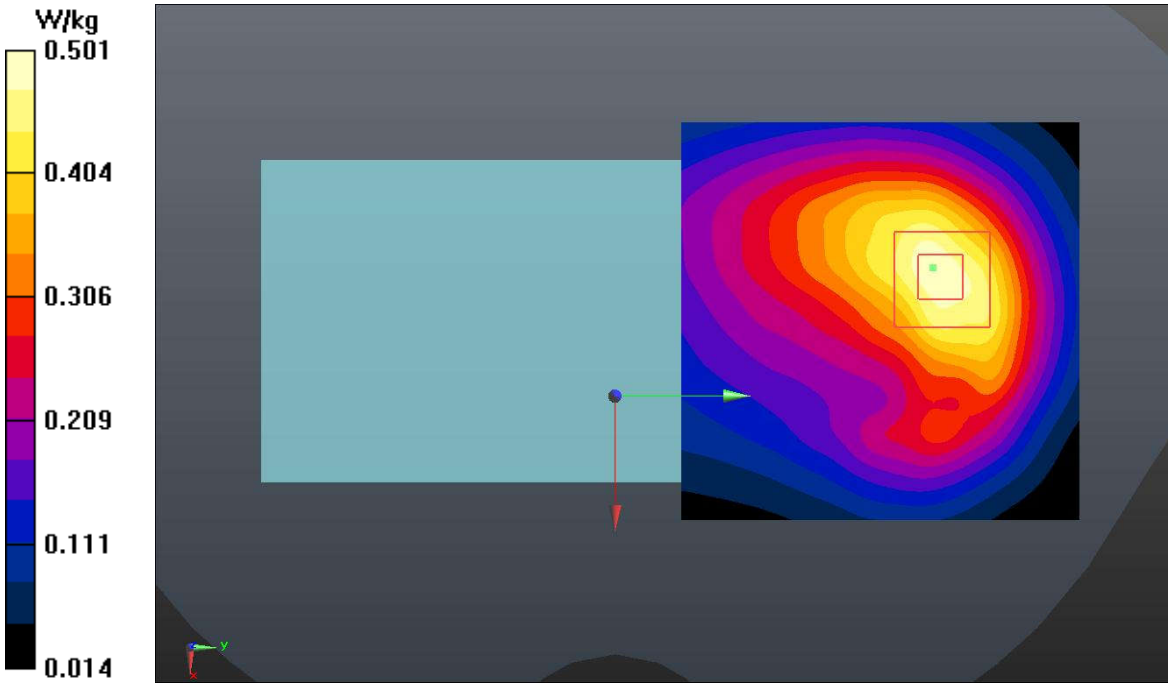


Fig.12 WCDMA Band 4 Body-worn

WCDMA Band 5 Head
Date: 2021-11-16
Electronics: DAE4 Sn786
Medium: Head 835MHz
Medium parameters used (interpolated): f = 846.6 MHz; σ = 0.935 S/m; ε_r = 40.463; ρ = 1000 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 846.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (6.40, 6.40, 6.40);

Right Cheek High/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.10 W/kg

Right Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.64 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 2.03 W/kg
SAR(1 g) = 0.825 W/kg; SAR(10 g) = 0.463 W/kg
Maximum value of SAR (measured) = 1.06 W/kg

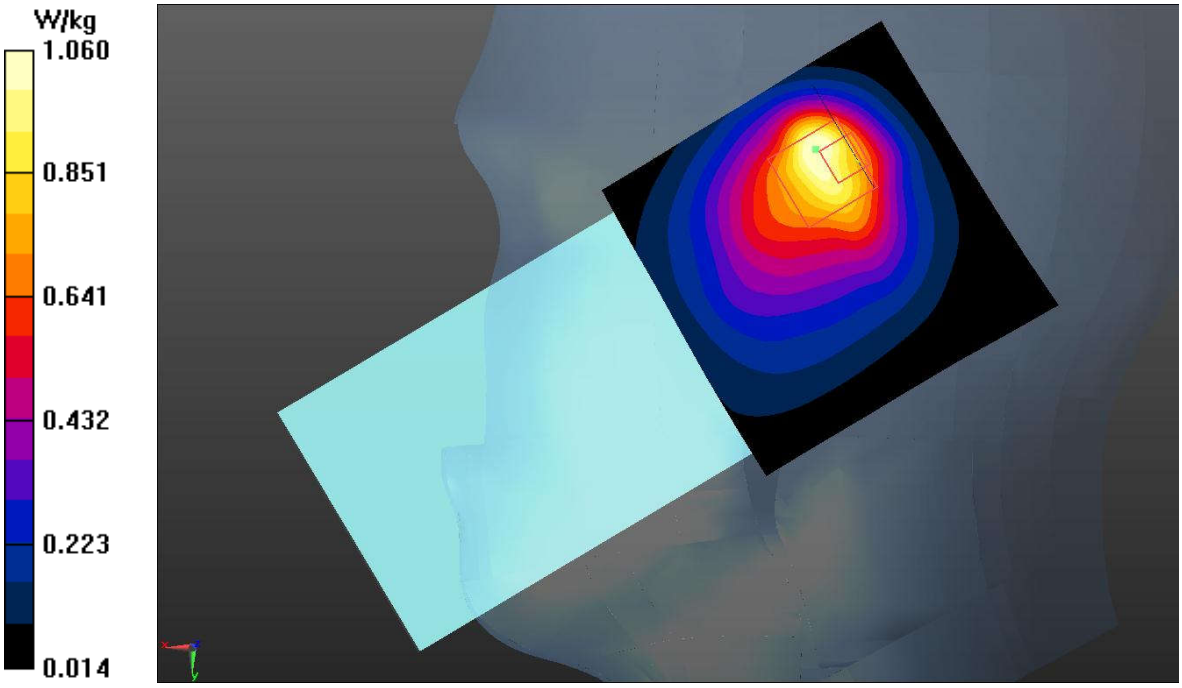


Fig.13 WCDMA Band 5 Head

WCDMA Band 5 Hotspot
Date: 2021-11-16
Electronics: DAE4 Sn786
Medium: Head 835MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.925 S/m; ε_r = 40.583; ρ = 1000 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 836.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (6.40, 6.40, 6.40);

Left Side Middle/Area Scan (61x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.187 W/kg

Left Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.74 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.216 W/kg
SAR(1 g) = 0.150 W/kg; SAR(10 g) = 0.102 W/kg
Maximum value of SAR (measured) = 0.186 W/kg

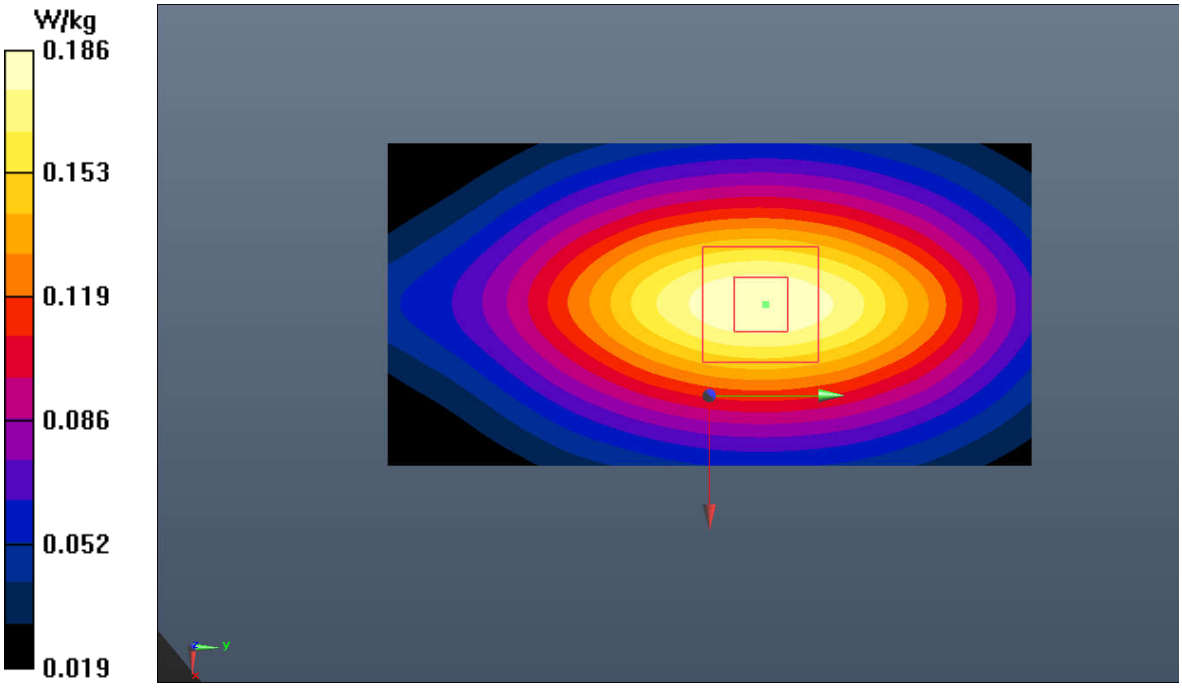


Fig.14 WCDMA Band 5 Hotspot

WCDMA Band 5 Body-worn
Date: 2021-11-16
Electronics: DAE4 Sn786
Medium: Head 835MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.925 S/m; ε_r = 40.583; ρ = 1000 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 836.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (6.40, 6.40, 6.40);

Rear Side Middle/Area Scan (71x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.159 W/kg

Rear Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.00 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.198 W/kg
SAR(1 g) = 0.111 W/kg; SAR(10 g) = 0.078 W/kg
Maximum value of SAR (measured) = 0.134 W/kg

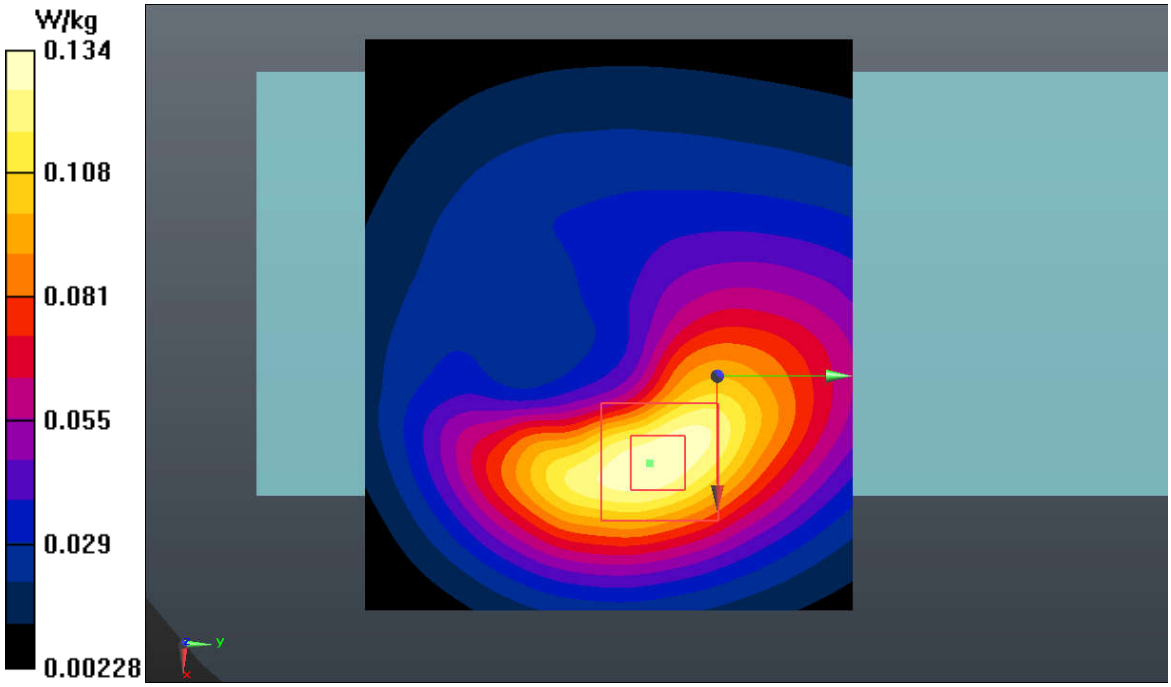


Fig.15 WCDMA Band 5 Body-worn

LTE Band 2 Head
Date: 2021-10-22
Electronics: DAE4 Sn786
Medium: Head 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.371 S/m; ε_r = 40.923; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (5.09, 5.09, 5.09);

Right Tilt Middle 50RB0/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.03 W/kg

Right Tilt Middle 50RB0/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.07 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 1.81 W/kg
SAR(1 g) = 0.863 W/kg; SAR(10 g) = 0.393 W/kg
Maximum value of SAR (measured) = 1.17 W/kg

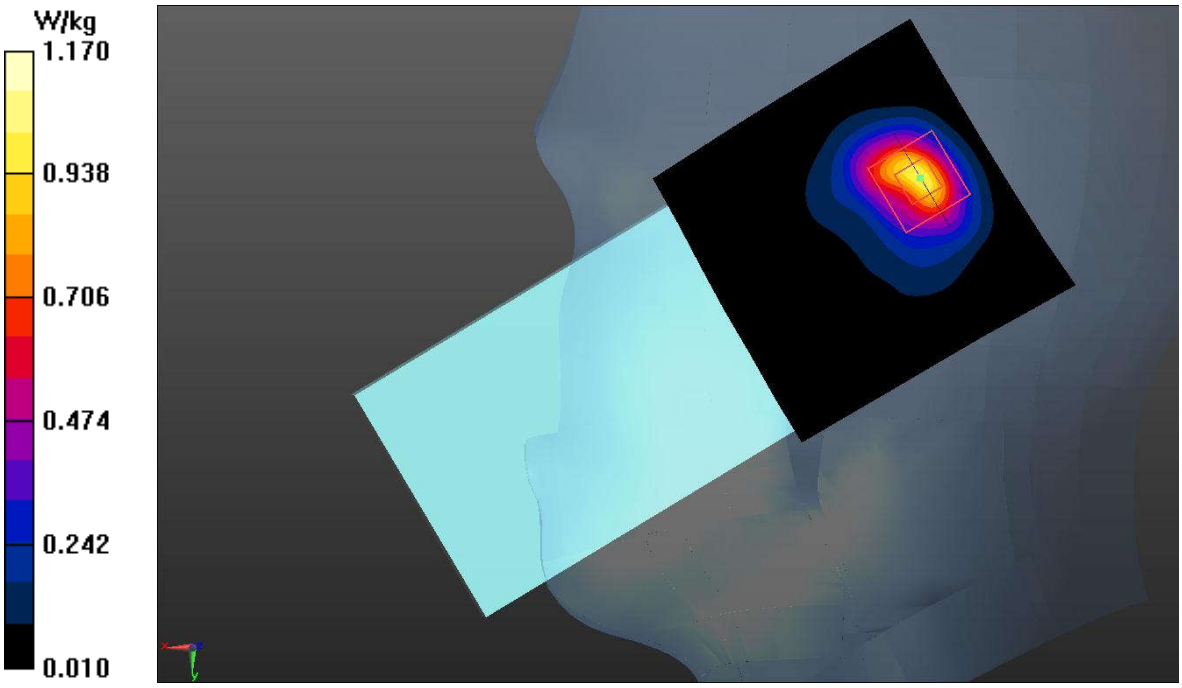


Fig.16 LTE Band 2 Head

LTE Band 2 Hotspot
Date: 2021-10-22
Electronics: DAE4 Sn786
Medium: Head 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.371 S/m; ε_r = 40.923; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (5.09, 5.09, 5.09);

Bottom Side Middle 1RB50/Area Scan (61x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.03 W/kg

Bottom Side Middle 1RB50/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.49 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 1.33 W/kg
SAR(1 g) = 0.779 W/kg; SAR(10 g) = 0.448 W/kg
Maximum value of SAR (measured) = 0.940 W/kg

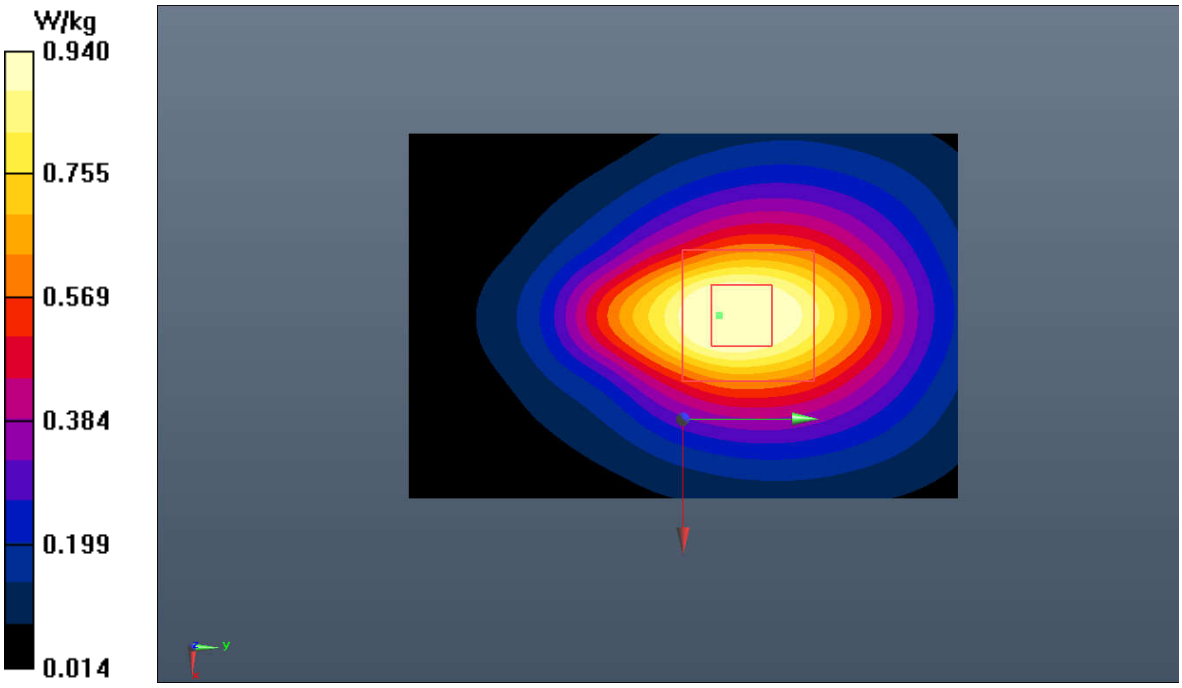


Fig.17 LTE Band 2 Hotspot

LTE Band 2 Body-worn
Date: 2021-10-22
Electronics: DAE4 Sn786
Medium: Head 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.371 S/m; ε_r = 40.923; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (5.09, 5.09, 5.09);

Rear Side Middle 1RB50/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.391 W/kg

Rear Side Middle 1RB50/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.108 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.591 W/kg
SAR(1 g) = 0.324 W/kg; SAR(10 g) = 0.207 W/kg
Maximum value of SAR (measured) = 0.389 W/kg

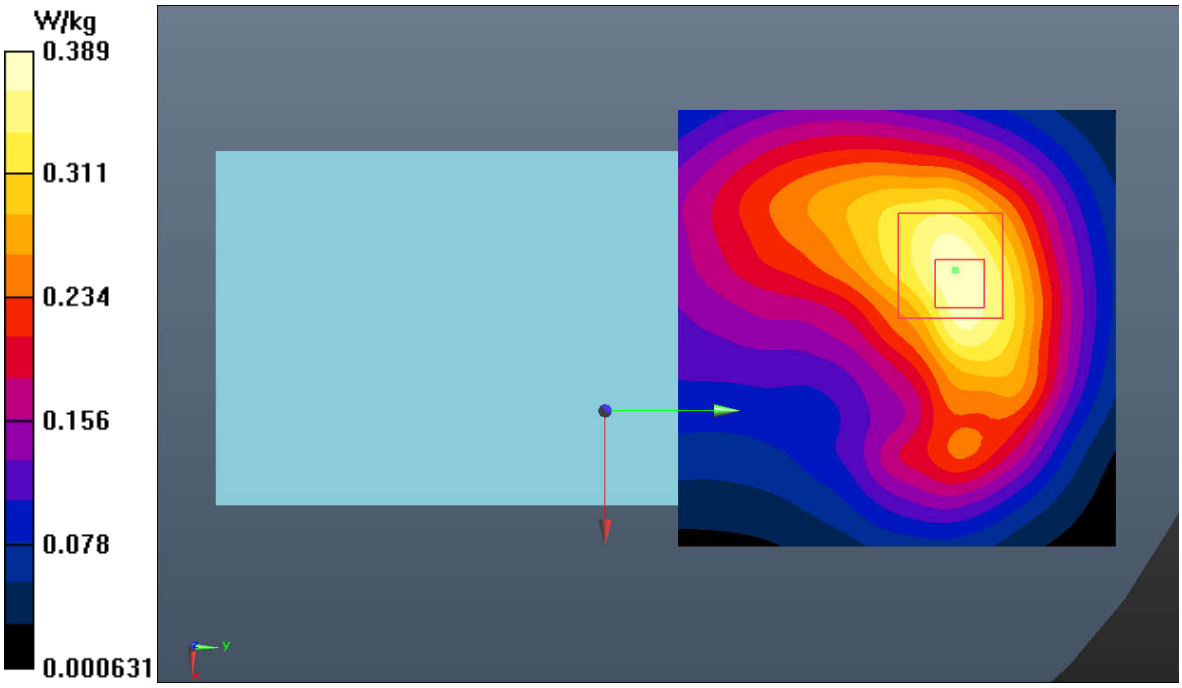


Fig.18 LTE Band 2 Body-worn

LTE Band 4 Head
Date: 2021-10-29
Electronics: DAE4 Sn786
Medium: Head 1750MHz
Medium parameters used: f = 1745 MHz; σ = 1.378 S/m; ε_r = 39.576; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 1745 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (5.25, 5.25, 5.25);

Right Tilt High 50RB25/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.16 W/kg

Right Tilt High 50RB25/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.27 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 2.04 W/kg
SAR(1 g) = 0.962 W/kg; SAR(10 g) = 0.432 W/kg
Maximum value of SAR (measured) = 1.33 W/kg

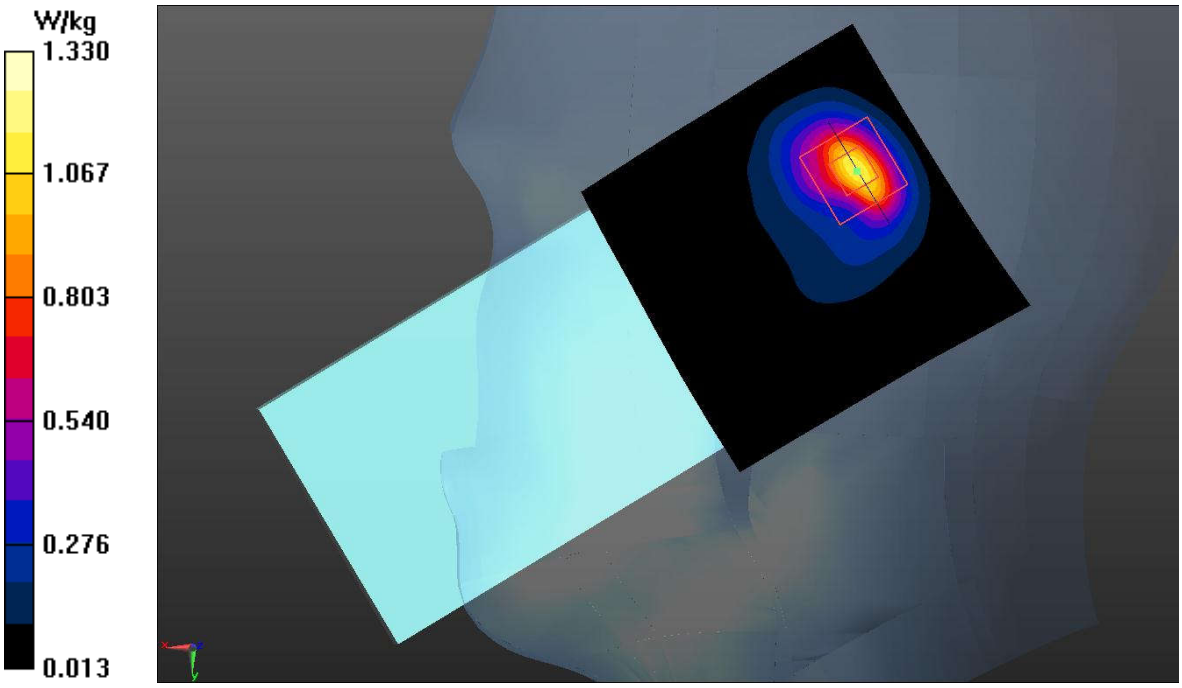


Fig.19 LTE Band 4 Head

LTE Band 4 Hotspot
Date: 2021-10-29
Electronics: DAE4 Sn786
Medium: Head 1750MHz
Medium parameters used: f = 1720 MHz; σ = 1.356 S/m; ε_r = 39.673; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 1720 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (5.25, 5.25, 5.25);

Bottom Side Low 1RB50/Area Scan (61x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.957 W/kg

Bottom Side Low 1RB50/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.59 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 1.26 W/kg
SAR(1 g) = 0.739 W/kg; SAR(10 g) = 0.410 W/kg
Maximum value of SAR (measured) = 0.916 W/kg

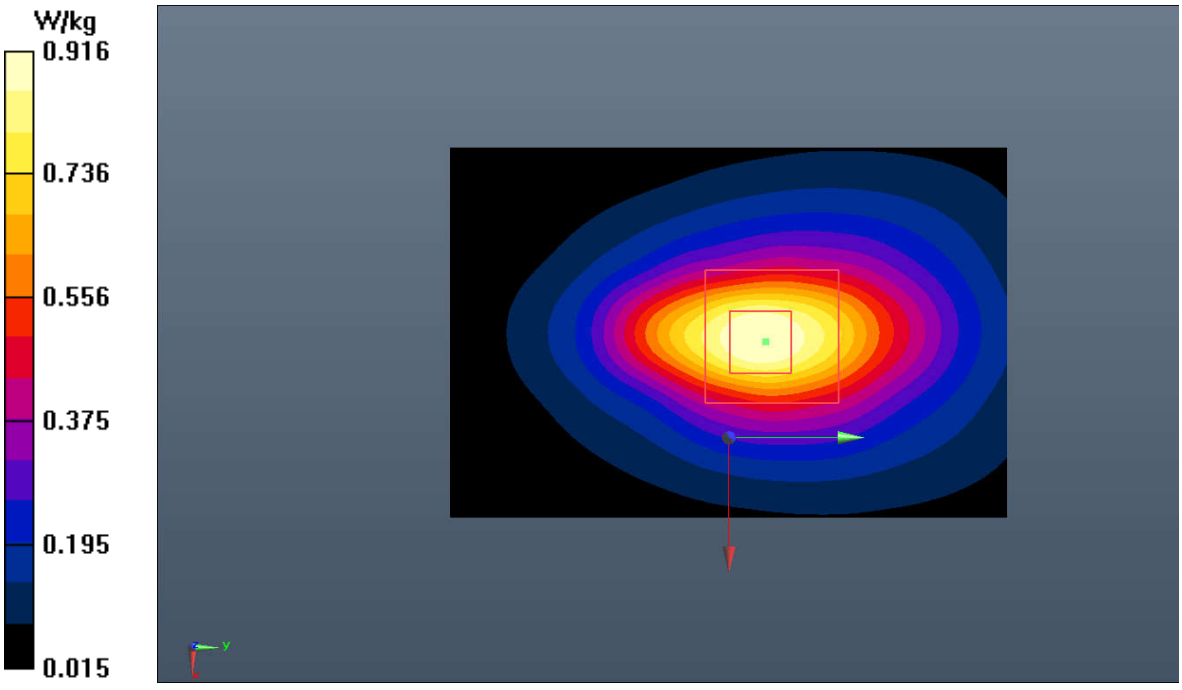


Fig.20 LTE Band 4 Hotspot

LTE Band 4 Body-worn
Date: 2021-10-29
Electronics: DAE4 Sn786
Medium: Head 1750MHz
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.367 S/m; ε_r = 39.624; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 1732.5 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (5.25, 5.25, 5.25);

Rear Side Middle 50RB50/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.409 W/kg

Rear Side Middle 50RB50/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.342 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.572 W/kg
SAR(1 g) = 0.328 W/kg; SAR(10 g) = 0.186 W/kg
Maximum value of SAR (measured) = 0.395 W/kg

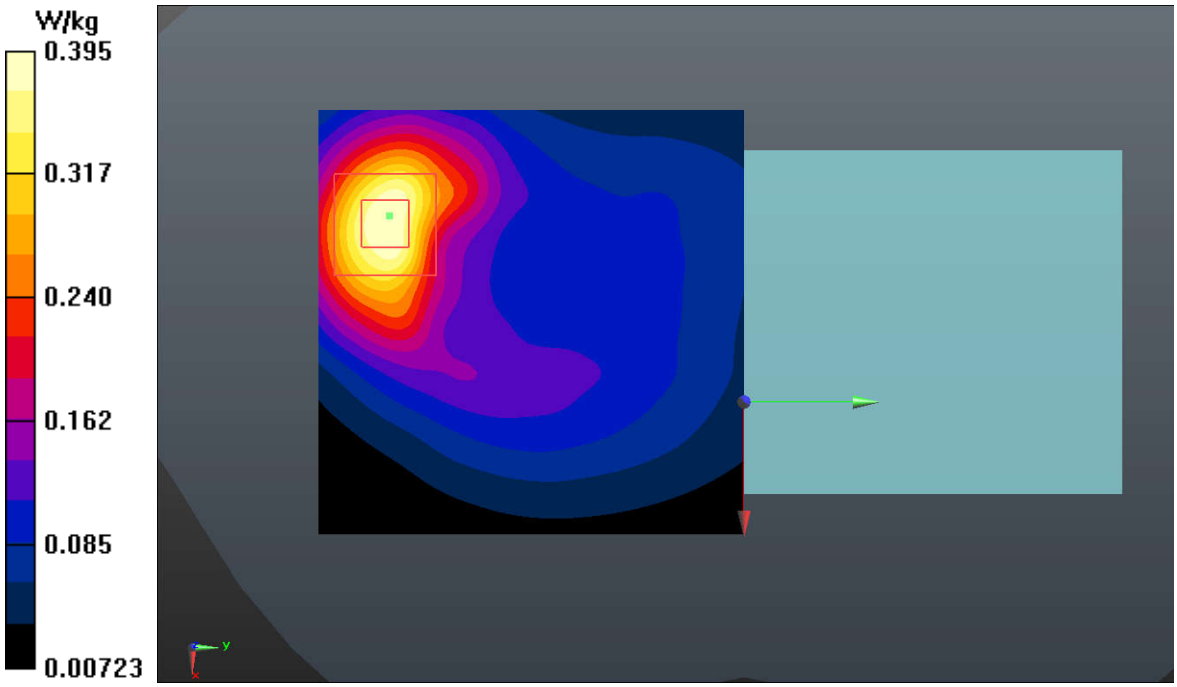


Fig.21 LTE Band 4 Body-worn

LTE Band 5 Head
Date: 2021-11-16
Electronics: DAE4 Sn786
Medium: Head 835MHz
Medium parameters used (interpolated): f = 829 MHz; σ = 0.919 S/m; ε_r = 40.674; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 829 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (6.40, 6.40, 6.40);

Right Cheek Low 1RB49/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.974 W/kg

Right Cheek Low 1RB49/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.38 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.53 W/kg
SAR(1 g) = 0.651 W/kg; SAR(10 g) = 0.377 W/kg
Maximum value of SAR (measured) = 0.973 W/kg

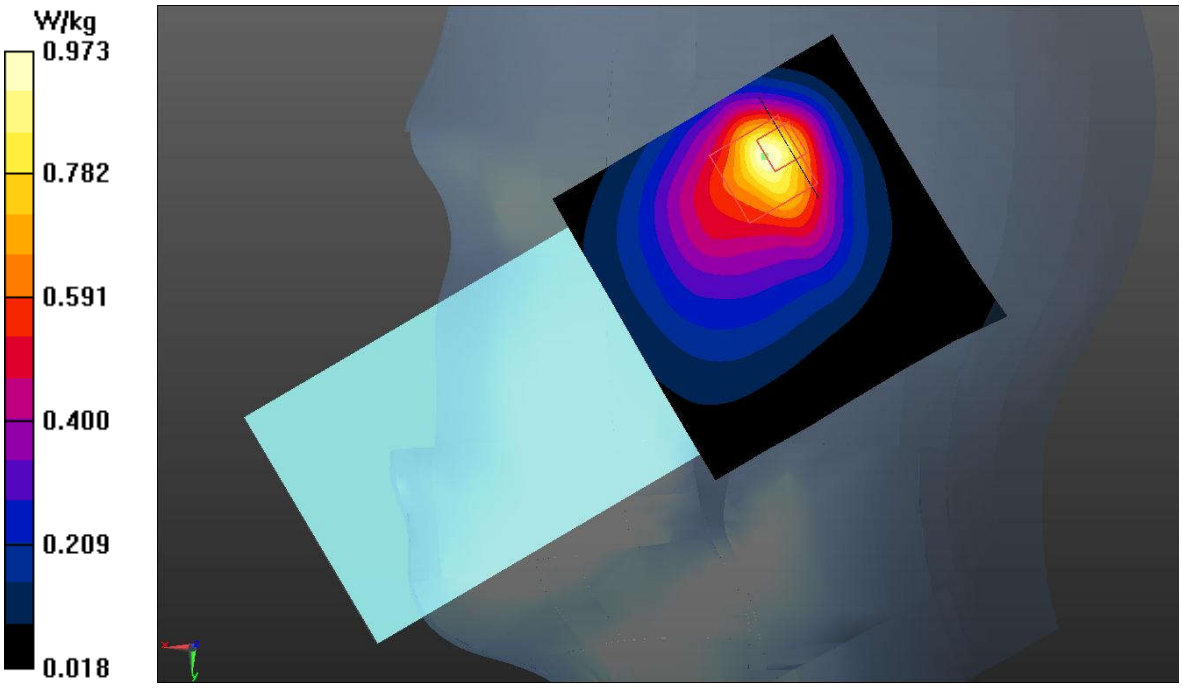


Fig.22 LTE Band 5 Head

LTE Band 5 Hotspot
Date: 2021-11-16
Electronics: DAE4 Sn786
Medium: Head 835MHz
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.925 S/m; ε_r = 40.584; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 836.5 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (6.40, 6.40, 6.40);

Rear Side Middle 1RB24/Area Scan (61x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.151 W/kg

Rear Side Middle 1RB24/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.590 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.244 W/kg
SAR(1 g) = 0.133 W/kg; SAR(10 g) = 0.075 W/kg
Maximum value of SAR (measured) = 0.161 W/kg

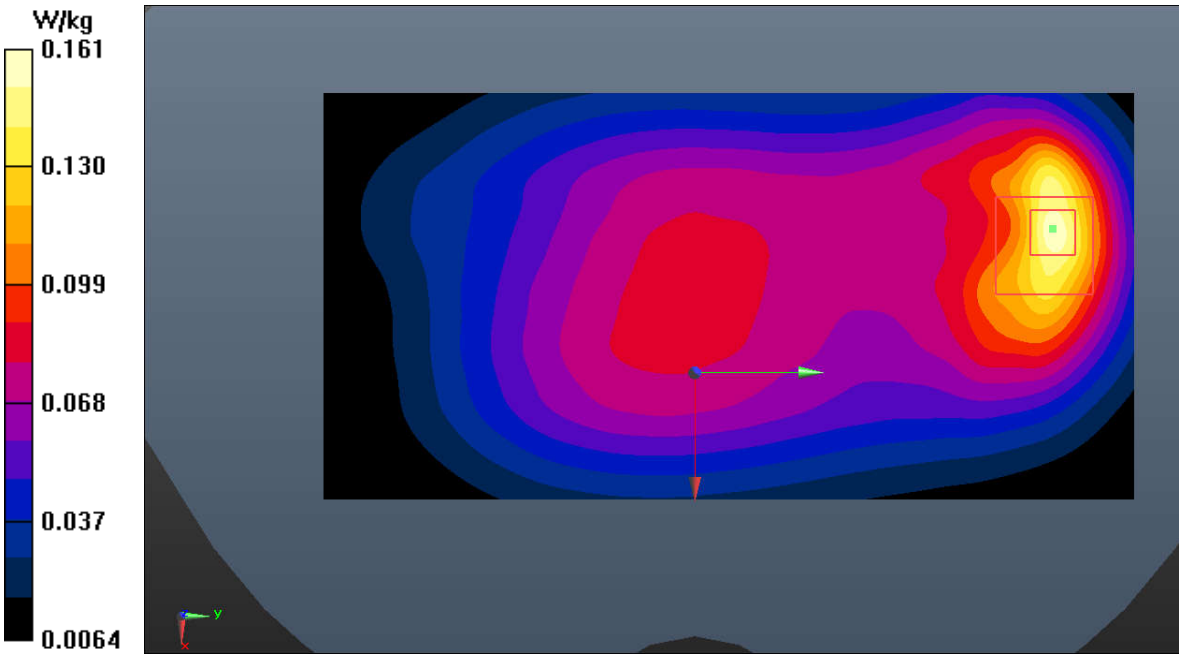


Fig.23 LTE Band 5 Hotspot

LTE Band 5 Body-worn
Date: 2021-11-16
Electronics: DAE4 Sn786
Medium: Head 835MHz
Medium parameters used (interpolated): f = 829 MHz; σ = 0.919 S/m; ε_r = 40.674; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 829 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (6.40, 6.40, 6.40);

Rear Side Low 1RB49/Area Scan (71x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.134 W/kg

Rear Side Low 1RB49/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.14 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.232 W/kg
SAR(1 g) = 0.091 W/kg; SAR(10 g) = 0.064 W/kg
Maximum value of SAR (measured) = 0.110 W/kg

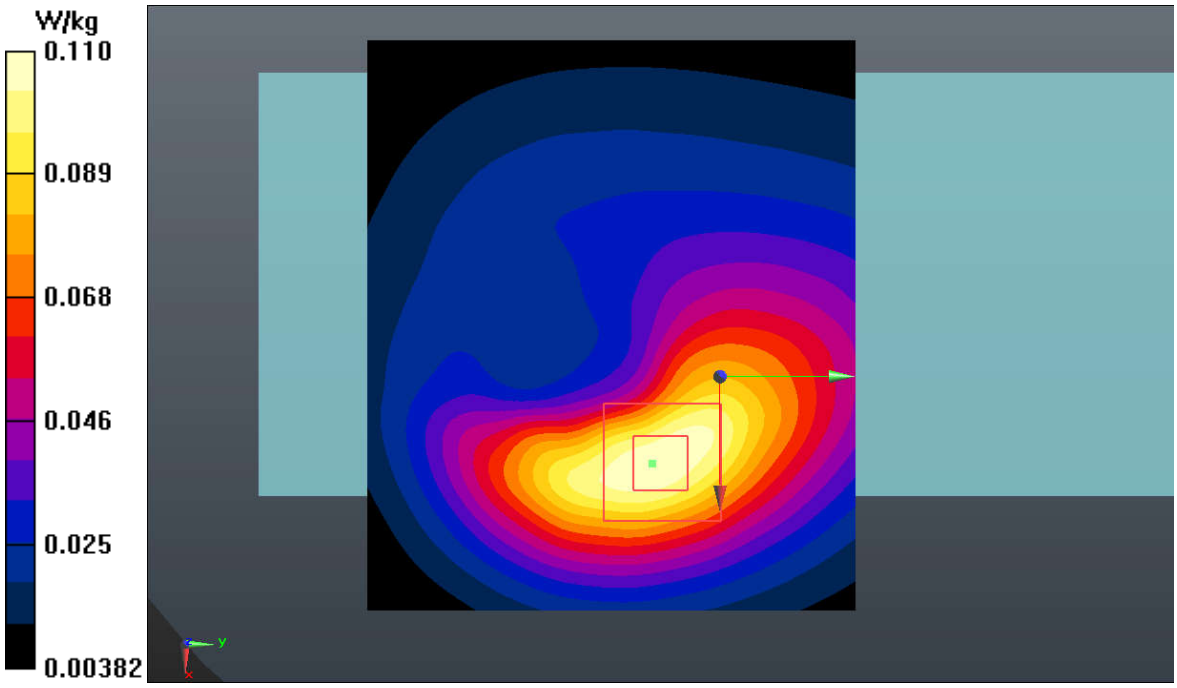


Fig.24 LTE Band 5 Body-worn

LTE Band 7 Head
Date: 2021-10-25
Electronics: DAE4 Sn786
Medium: Head 2550MHz
Medium parameters used: f = 2560 MHz; σ = 1.951 S/m; ε_r = 38.474; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 2560 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (4.39, 4.39, 4.39);

Right Tilt High 50RB50/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.01 W/kg

Right Tilt High 50RB50/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.068 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 1.71 W/kg
SAR(1 g) = 0.751 W/kg; SAR(10 g) = 0.304 W/kg
Maximum value of SAR (measured) = 1.27 W/kg

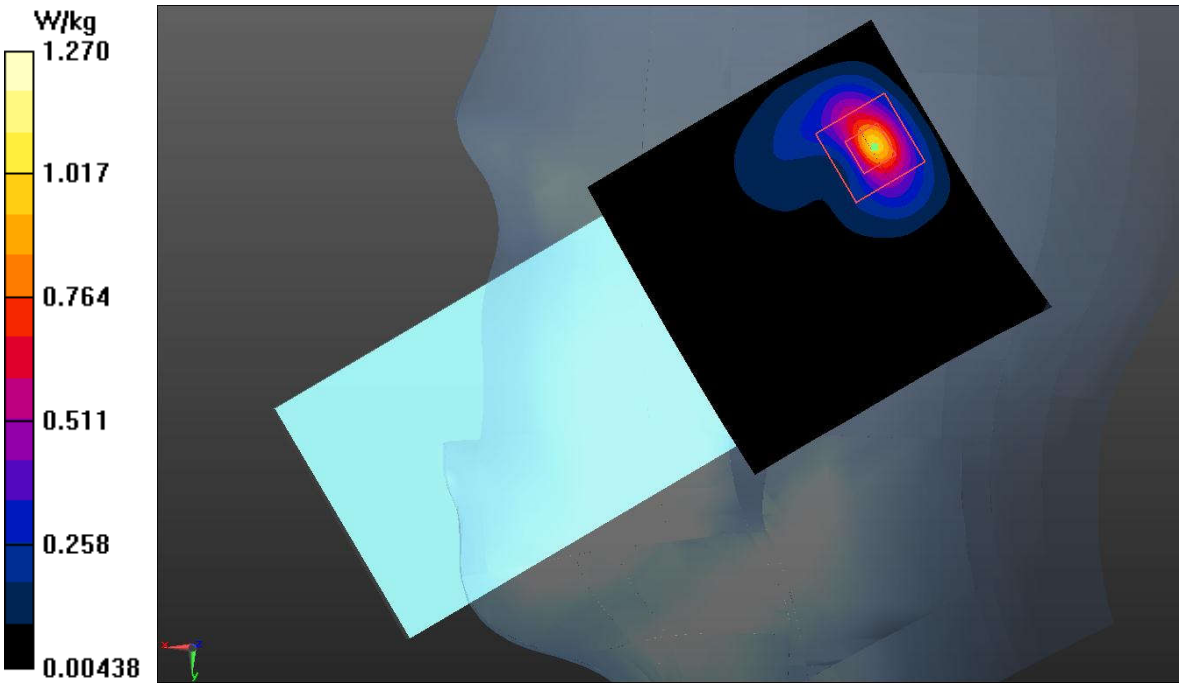


Fig.25 LTE Band 7 Head

LTE Band 7 Hotspot
Date: 2021-10-25
Electronics: DAE4 Sn786
Medium: Head 2550MHz
Medium parameters used: f = 2560 MHz; σ = 1.951 S/m; ε_r = 38.474; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 2560 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (4.39, 4.39, 4.39);

Top Side High 50RB50/Area Scan (61x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.26 W/kg

Top Side High 50RB50/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.34 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 1.82 W/kg
SAR(1 g) = 0.866 W/kg; SAR(10 g) = 0.379 W/kg
Maximum value of SAR (measured) = 1.37 W/kg

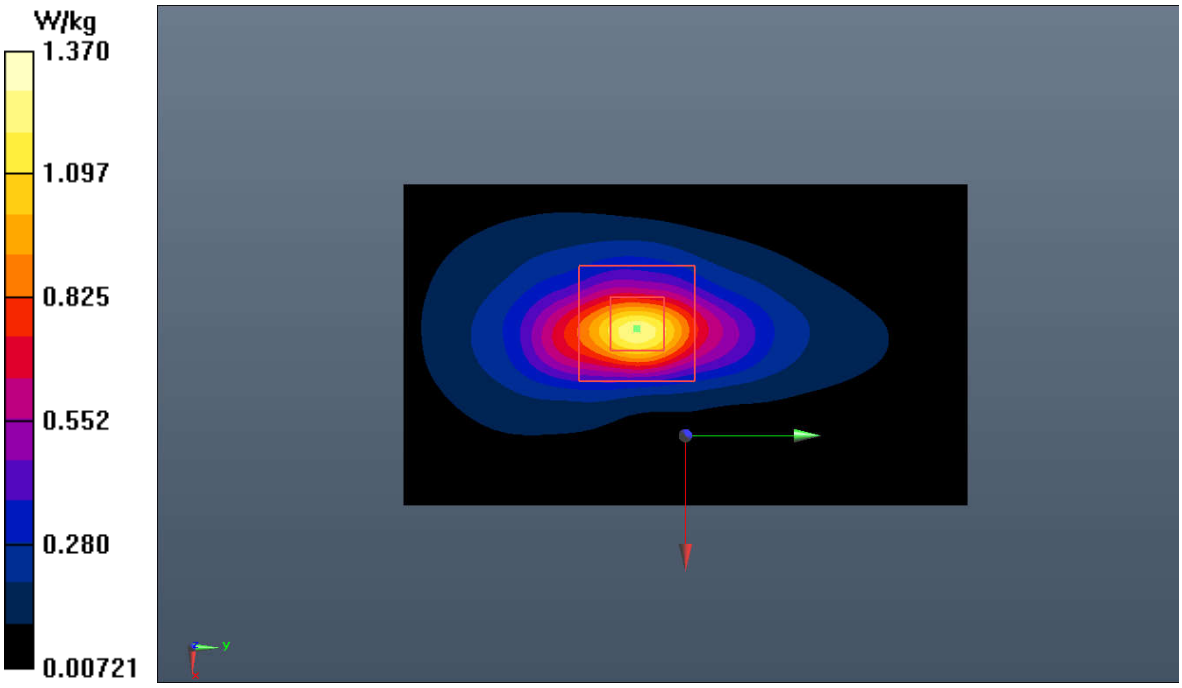


Fig.26 LTE Band 7 Hotspot

LTE Band 7 Body-worn
Date: 2021-10-25
Electronics: DAE4 Sn786
Medium: Head 2550MHz
Medium parameters used (interpolated): f = 2535 MHz; σ = 1.921 S/m; ε_r = 38.557; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 2535 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (4.58, 4.58, 4.58);

Rear Side Middle 50RB50/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.428 W/kg

Rear Side Middle 50RB50/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.795 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.571 W/kg
SAR(1 g) = 0.306 W/kg; SAR(10 g) = 0.155 W/kg
Maximum value of SAR (measured) = 0.432 W/kg

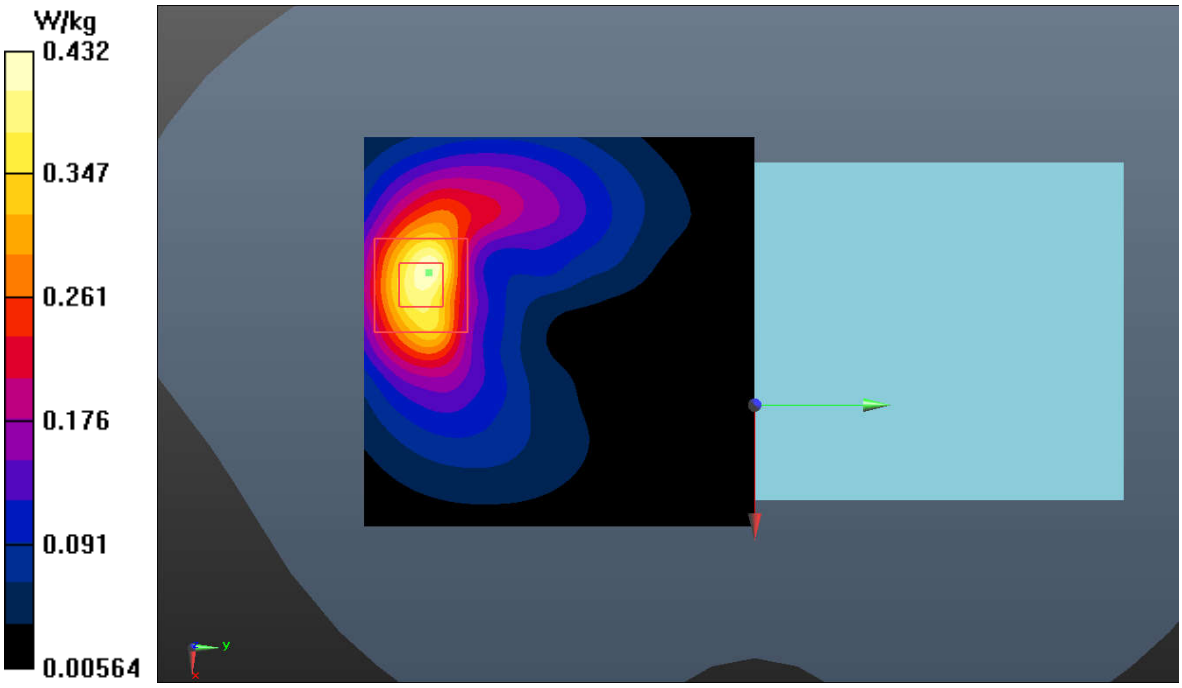


Fig.27 LTE Band 7 Body-worn

LTE Band 12 Head
Date: 2021-11-01
Electronics: DAE4 Sn786
Medium: Head 750MHz
Medium parameters used (interpolated): f = 711 MHz; σ = 0.891 S/m; ε_r = 41.352; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 711 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (6.40, 6.40, 6.40);

Right Cheek High 1RB49/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.524 W/kg

Right Cheek High 1RB49/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.66 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.768 W/kg
SAR(1 g) = 0.312 W/kg; SAR(10 g) = 0.176 W/kg
Maximum value of SAR (measured) = 0.493 W/kg

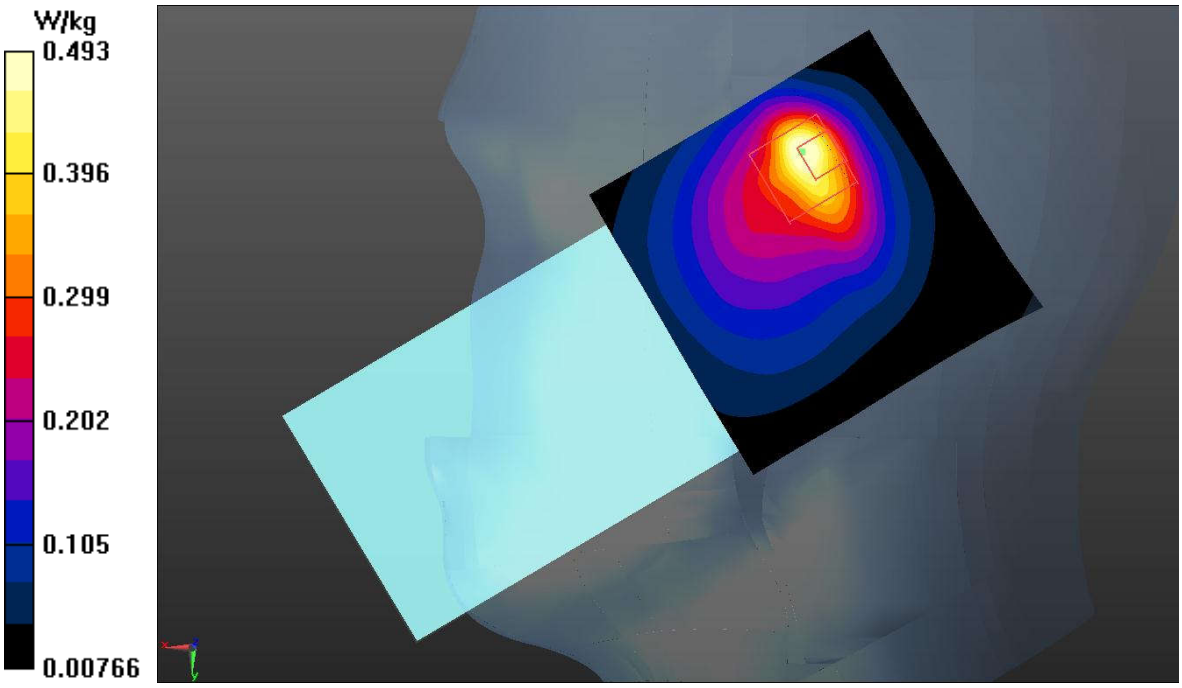


Fig.28 LTE Band 12 Head

LTE Band 12 Hotspot
Date: 2021-11-01
Electronics: DAE4 Sn786
Medium: Head 750MHz
Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.889 S/m; ε_r = 41.394; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 707.5 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (6.40, 6.40, 6.40);

Left Middle 1RB49/Area Scan (61x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.250 W/kg

Left Middle 1RB49/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.55 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.319 W/kg
SAR(1 g) = 0.221 W/kg; SAR(10 g) = 0.153 W/kg
Maximum value of SAR (measured) = 0.253 W/kg

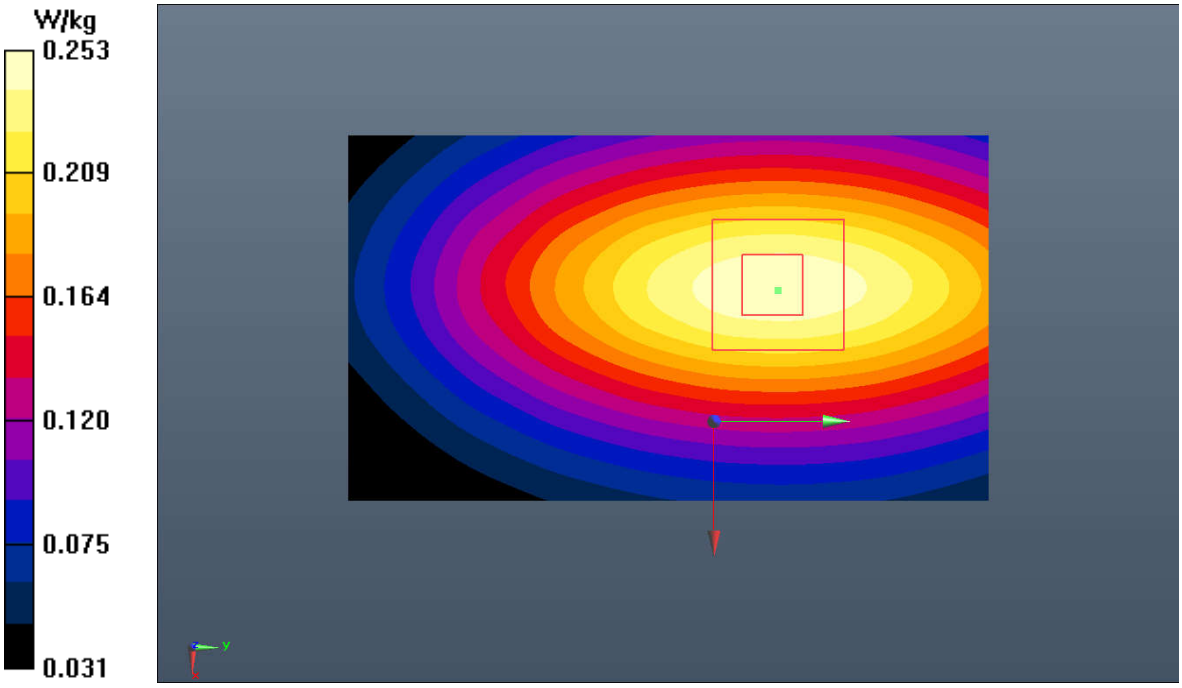


Fig.29 LTE Band 12 Hotspot

LTE Band 12 Body-worn
Date: 2021-11-01
Electronics: DAE4 Sn786
Medium: Head 750MHz
Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.889 S/m; ε_r = 41.394; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 707.5 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (6.40, 6.40, 6.40);

Rear Side Middle 1RB49/Area Scan (91x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.151 W/kg

Rear Side Middle 1RB49/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.90 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.226 W/kg
SAR(1 g) = 0.124 W/kg; SAR(10 g) = 0.089 W/kg
Maximum value of SAR (measured) = 0.139 W/kg

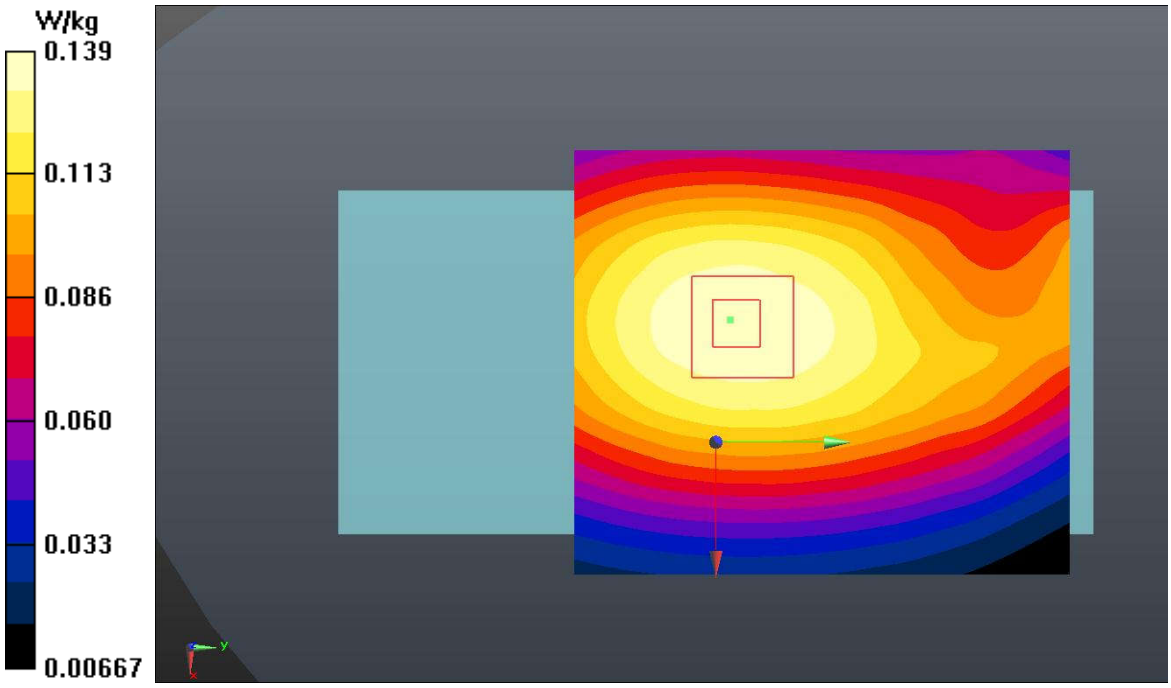


Fig.30 LTE Band 12 Body-worn

LTE Band 13 Head
Date: 2021-11-01
Electronics: DAE4 Sn786
Medium: Head 750MHz
Medium parameters used: f = 782 MHz; σ = 0.929 S/m; ε_r = 40.501; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 782 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (6.40, 6.40, 6.40);

Right Cheek Middle 1RB24/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.658 W/kg

Right Cheek Middle 1RB24/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.24 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.931 W/kg
SAR(1 g) = 0.400 W/kg; SAR(10 g) = 0.231 W/kg
Maximum value of SAR (measured) = 0.615 W/kg

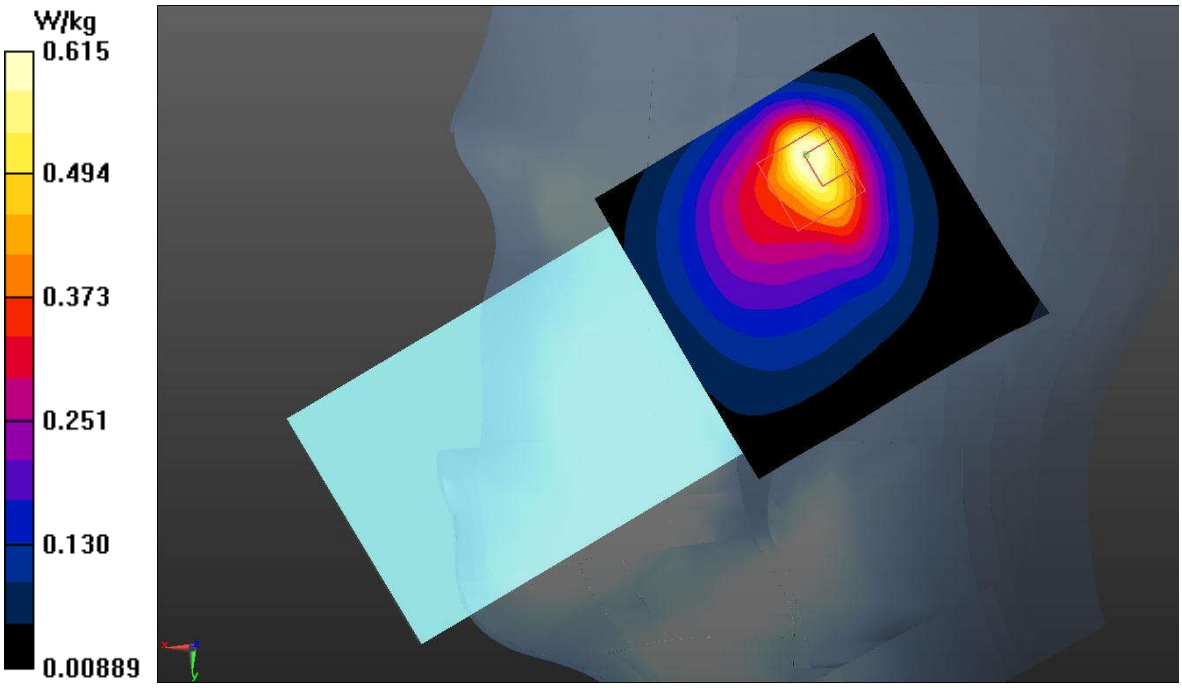


Fig.31 LTE Band 13 Head

LTE Band 13 Hotspot
Date: 2021-11-01
Electronics: DAE4 Sn786
Medium: Head 750MHz
Medium parameters used: f = 782 MHz; σ = 0.929 S/m; ε_r = 40.501; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 782 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (6.40, 6.40, 6.40);

Rear Side Middle 1RB24/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.183 W/kg

Rear Side Middle 1RB24/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.62 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.277 W/kg
SAR(1 g) = 0.148 W/kg; SAR(10 g) = 0.086 W/kg
Maximum value of SAR (measured) = 0.183 W/kg

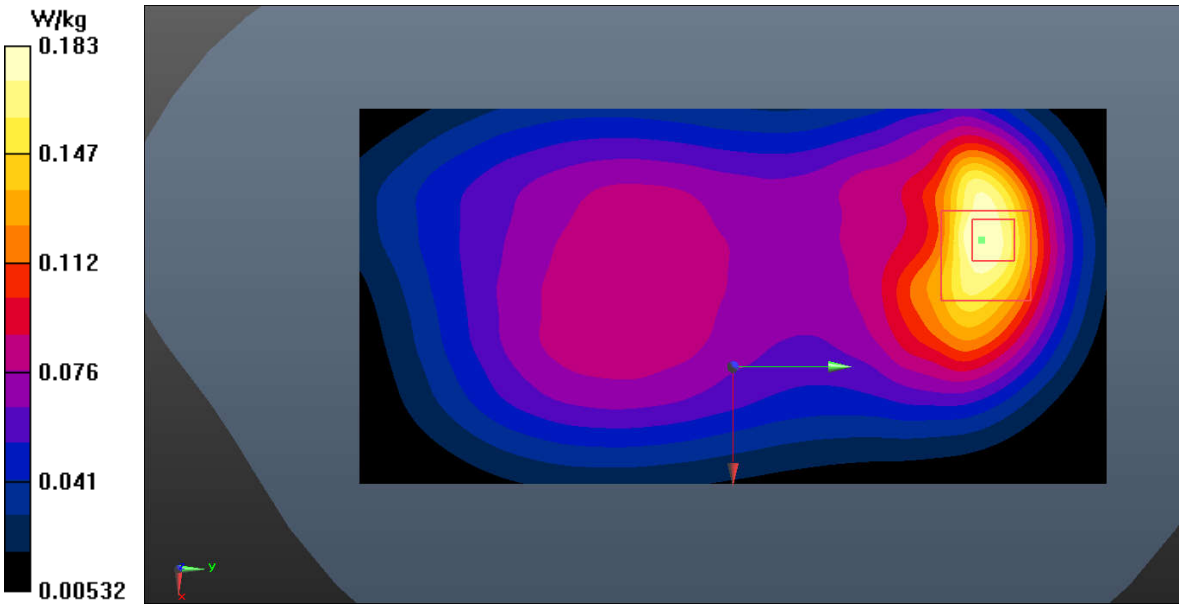


Fig.32 LTE Band 13 Hotspot

LTE Band 13 Body-worn
Date: 2021-11-01
Electronics: DAE4 Sn786
Medium: Head 750MHz
Medium parameters used: f = 782 MHz; σ = 0.929 S/m; ε_r = 40.501; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 782 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (6.40, 6.40, 6.40);

Rear Side Middle 1RB24/Area Scan (91x141x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.150 W/kg

Rear Side Middle 1RB24/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.00 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.175 W/kg
SAR(1 g) = 0.136 W/kg; SAR(10 g) = 0.103 W/kg
Maximum value of SAR (measured) = 0.149 W/kg

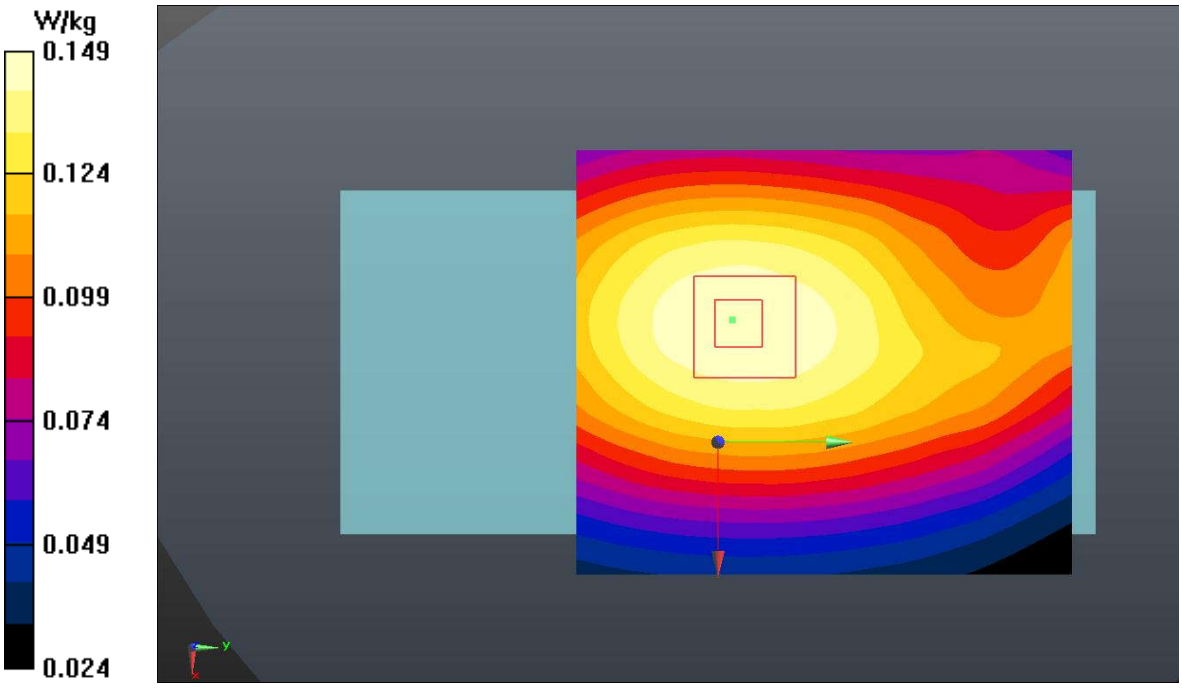


Fig.33 LTE Band 13 Body-worn

LTE Band 26 Head
Date: 2021-11-16
Electronics: DAE4 Sn786
Medium: Head 835MHz
Medium parameters used (interpolated): f = 831.5 MHz; σ = 0.921 S/m; ε_r = 40.644; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 831.5 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (6.40, 6.40, 6.40);

Right Cheek Middle 1RB37/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.872 W/kg

Right Cheek Middle 1RB37/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.81 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.18 W/kg
SAR(1 g) = 0.519 W/kg; SAR(10 g) = 0.307 W/kg
Maximum value of SAR (measured) = 0.766 W/kg

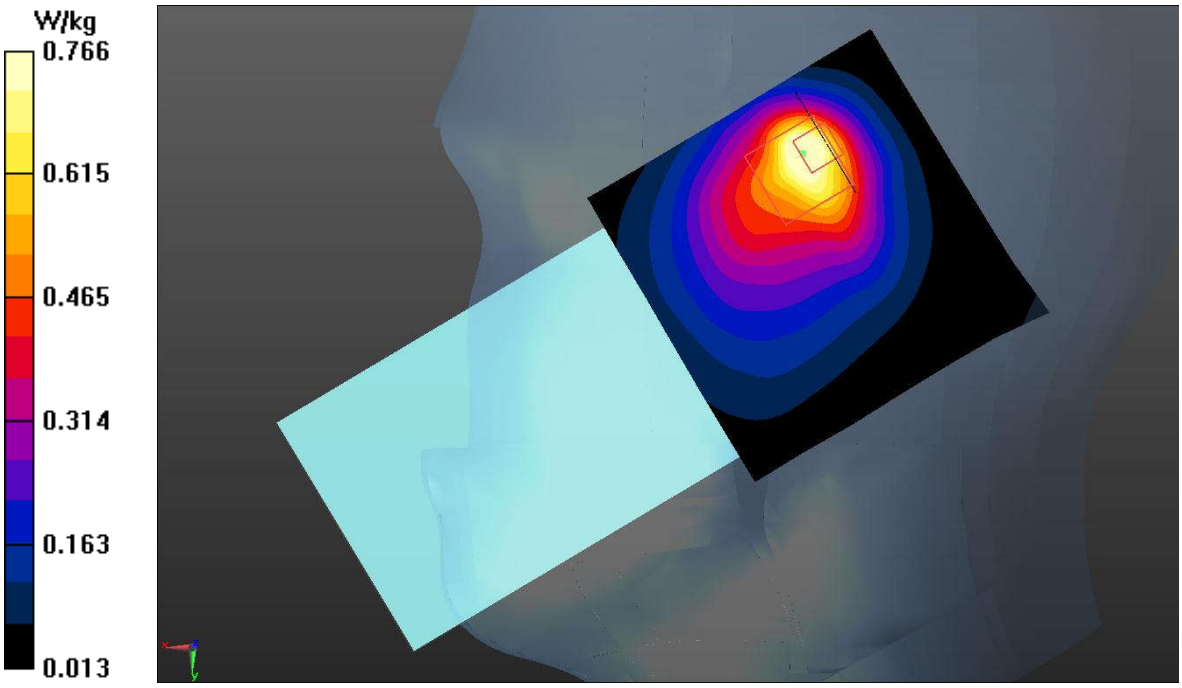


Fig.34 LTE Band 26 Head

LTE Band 26 Hotspot
Date: 2021-11-16
Electronics: DAE4 Sn786
Medium: Head 835MHz
Medium parameters used (interpolated): f = 822.5 MHz; σ = 0.913 S/m; ε_r = 40.752; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 822.5 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (6.40, 6.40, 6.40);

Left Side Low 1RB37/Area Scan (61x141x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.142 W/kg

Left Side Low 1RB37/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.64 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.181 W/kg
SAR(1 g) = 0.125 W/kg; SAR(10 g) = 0.086 W/kg
Maximum value of SAR (measured) = 0.144 W/kg

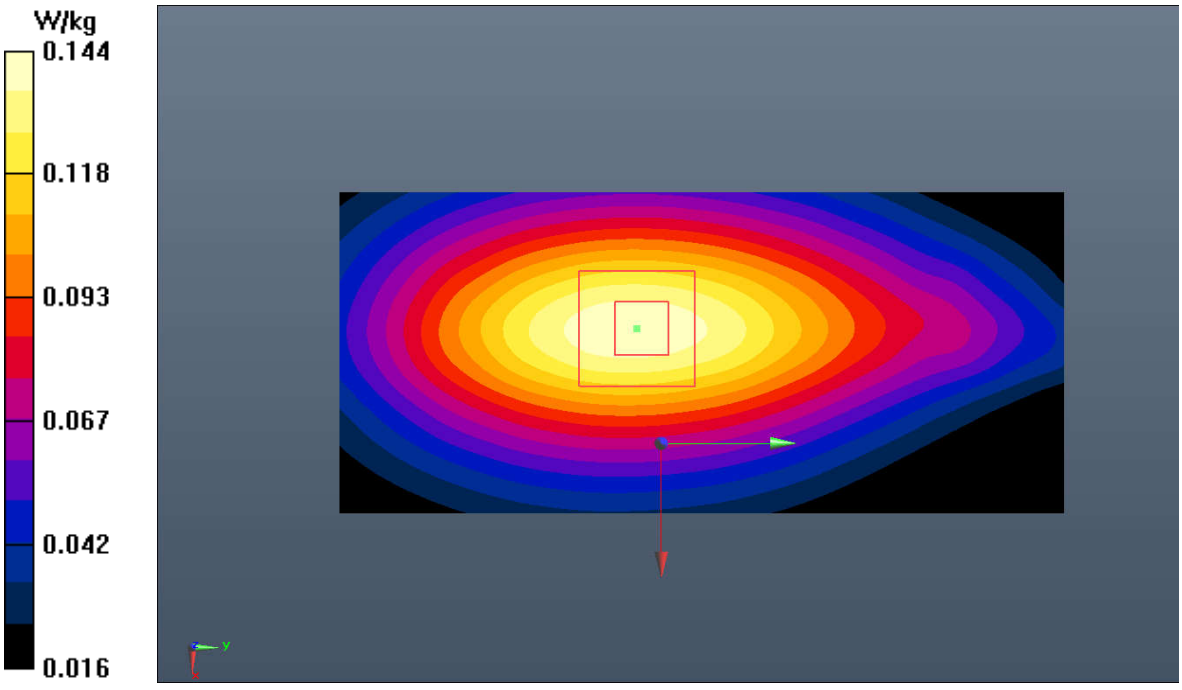


Fig.35 LTE Band 26 Hotspot

LTE Band 26 Body-worn
Date: 2021-11-16
Electronics: DAE4 Sn786
Medium: Head 835MHz
Medium parameters used (interpolated): f = 822.5 MHz; σ = 0.913 S/m; ε_r = 40.752; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 822.5 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (6.40, 6.40, 6.40);

Rear Side Low 1RB37/Area Scan (91x141x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0821 W/kg

Rear Side Low 1RB37/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.582 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.0960 W/kg
SAR(1 g) = 0.075 W/kg; SAR(10 g) = 0.056 W/kg
Maximum value of SAR (measured) = 0.0823 W/kg

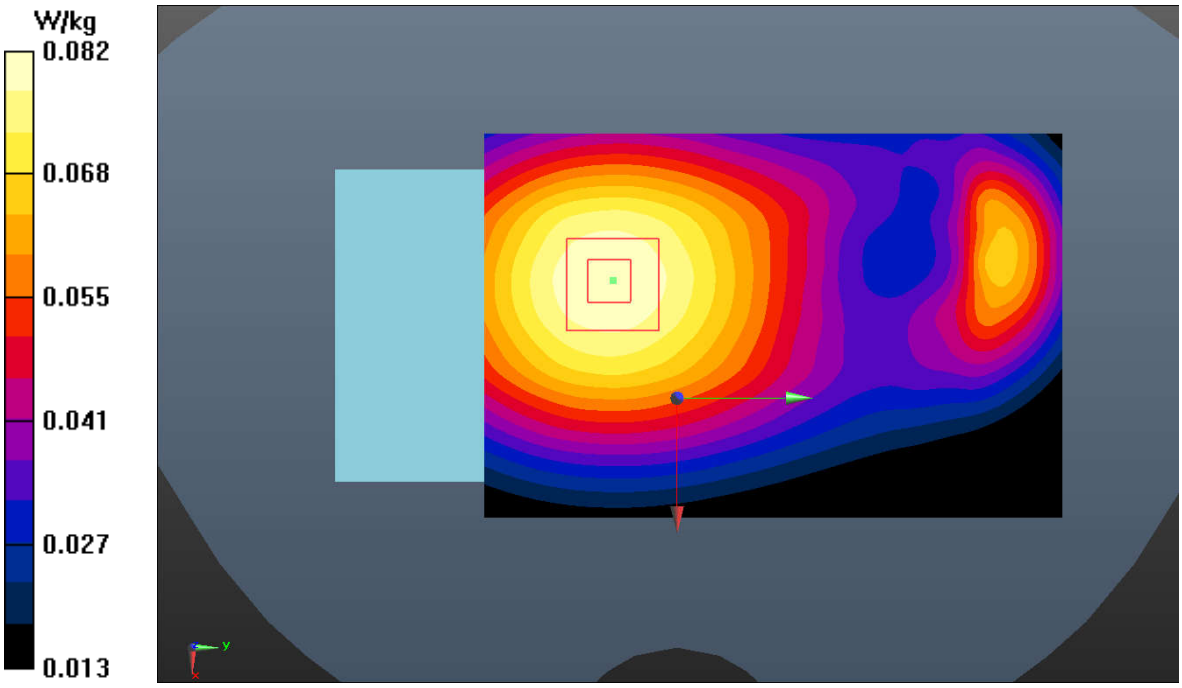


Fig.36 LTE Band 26 Body-worn

LTE Band 38 Head
Date: 2021-10-26
Electronics: DAE4 Sn786
Medium: Head 2550MHz
Medium parameters used (interpolated): f = 2595 MHz; σ = 1.998 S/m; ε_r = 37.878; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_TDD (0) Frequency: 2595 MHz Duty Cycle: 1:1.58
Probe: ES3DV3 – SN3151 ConvF (4.39, 4.39, 4.39);

Right Tilt Middle 50RB50/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.814 W/kg

Right Tilt Middle 50RB50/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.04 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.53 W/kg
SAR(1 g) = 0.666 W/kg; SAR(10 g) = 0.273 W/kg
Maximum value of SAR (measured) = 1.13 W/kg

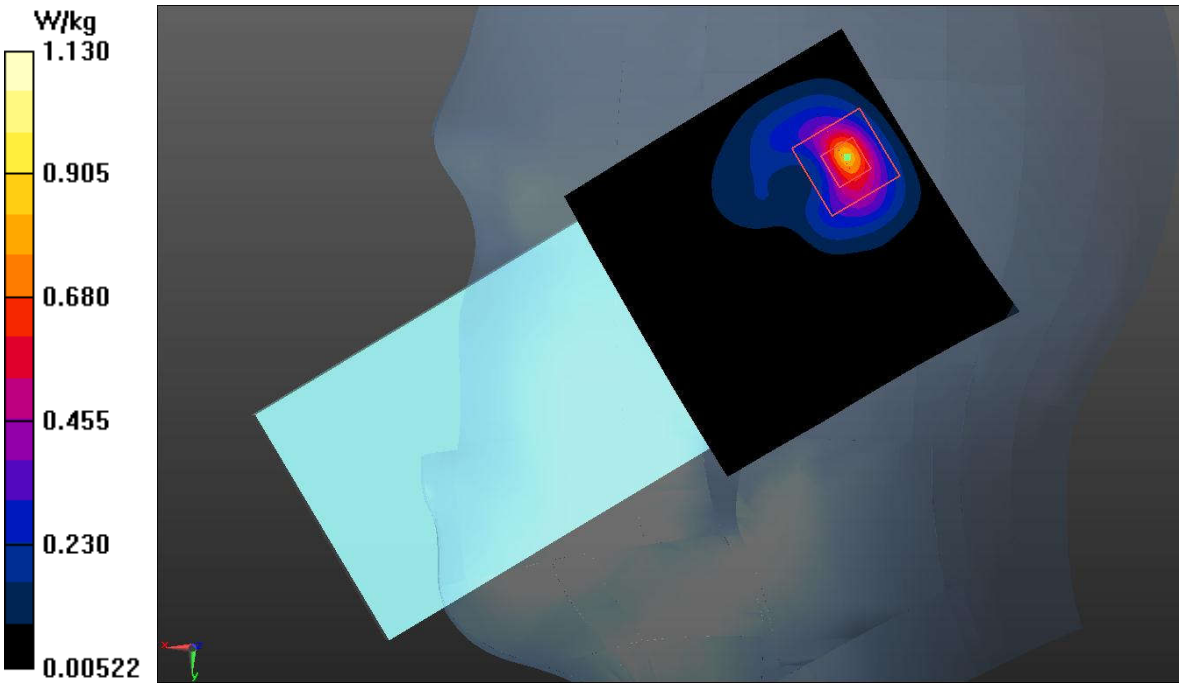


Fig.37 LTE Band 38 Head

LTE Band 38 Hotspot
Date: 2021-10-26
Electronics: DAE4 Sn786
Medium: Head 2550MHz
Medium parameters used: f = 2580 MHz; σ = 1.98 S/m; ε_r = 37.927; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_TDD (0) Frequency: 2580 MHz Duty Cycle: 1:1.58
Probe: ES3DV3 – SN3151 ConvF (4.39, 4.39, 4.39);

Top Side High 50RB25/Area Scan (61x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.36 W/kg

Top Side High 50RB25/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.74 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 1.93 W/kg
SAR(1 g) = 0.903 W/kg; SAR(10 g) = 0.393 W/kg
Maximum value of SAR (measured) = 1.41 W/kg

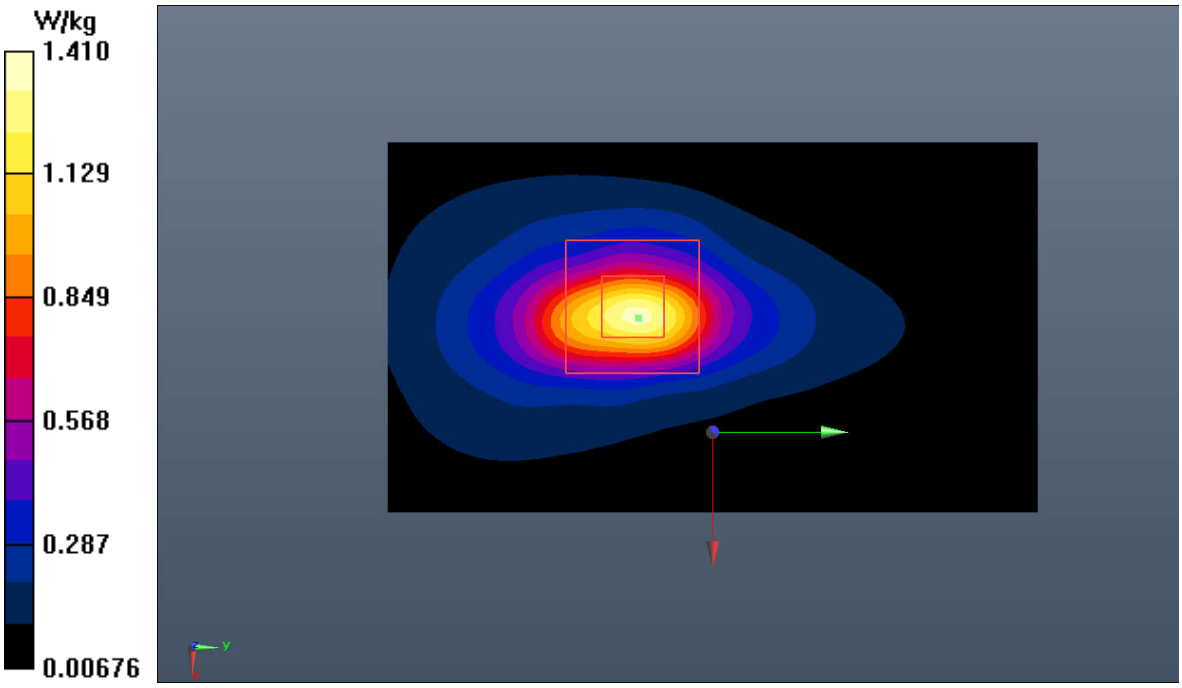


Fig.38 LTE Band 38 Hotspot

LTE Band 38 Body-worn
Date: 2021-10-26
Electronics: DAE4 Sn786
Medium: Head 2550MHz
Medium parameters used: f = 2580 MHz; σ = 1.98 S/m; ε_r = 37.927; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_TDD (0) Frequency: 2580 MHz Duty Cycle: 1:1.58
Probe: ES3DV3 – SN3151 ConvF (4.39, 4.39, 4.39);

Rear Side Low 1RB50/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.504 W/kg

Rear Side Low 1RB50/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.215 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.664 W/kg
SAR(1 g) = 0.345 W/kg; SAR(10 g) = 0.172 W/kg
Maximum value of SAR (measured) = 0.503 W/kg

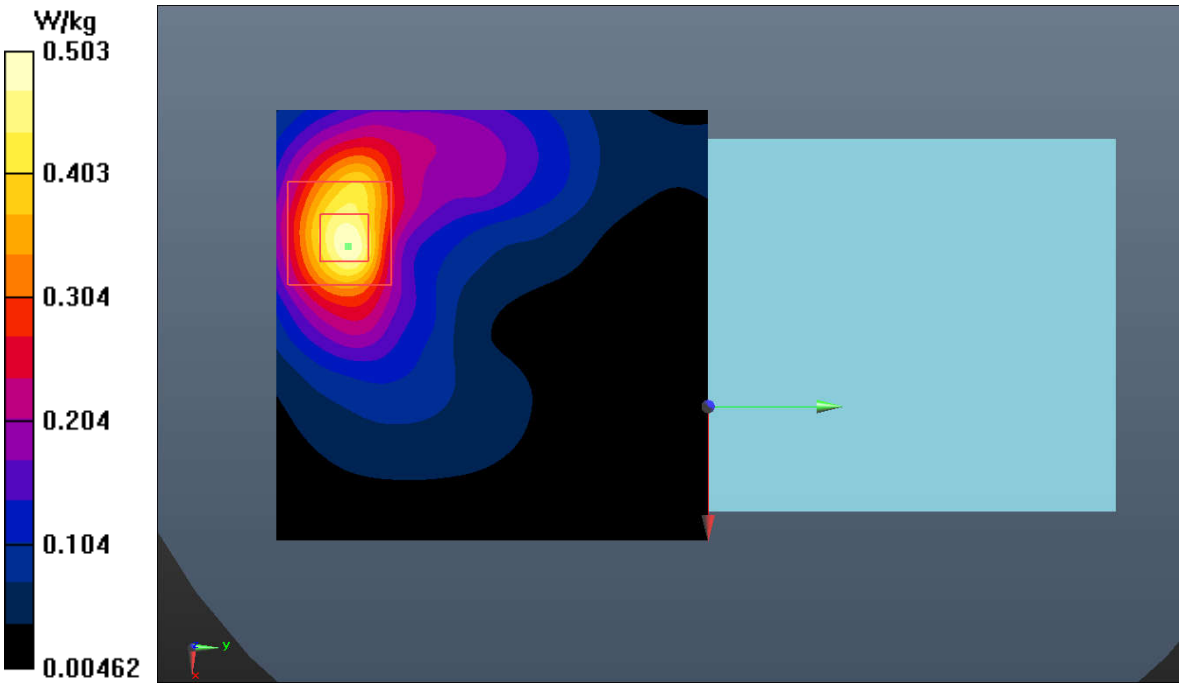


Fig.39 LTE Band 38 Body-worn

LTE Band 41 Head
Date: 2021-10-26
Electronics: DAE4 Sn786
Medium: Head 2550MHz
Medium parameters used: f = 2680 MHz; σ = 2.098 S/m; ε_r = 37.597; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_TDD (0) Frequency: 2680 MHz Duty Cycle: 1:1.58
Probe: ES3DV3 – SN3151 ConvF (4.39, 4.39, 4.39);

Right Tilt High 50RB25/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.823 W/kg

Right/Right Tilt High 50RB25/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.984 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 1.28 W/kg
SAR(1 g) = 0.519 W/kg; SAR(10 g) = 0.207 W/kg
Maximum value of SAR (measured) = 0.919 W/kg

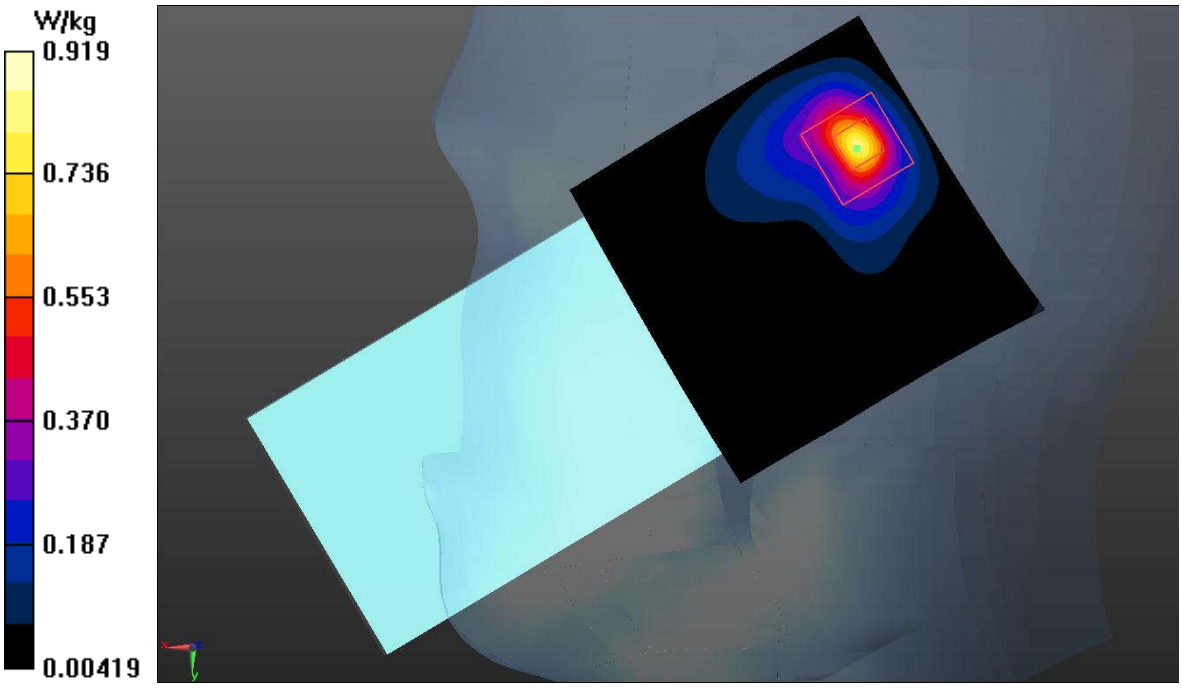


Fig.40 LTE Band 41 Head

LTE Band 41 Hotspot
Date: 2021-10-26
Electronics: DAE4 Sn786
Medium: Head 2550MHz
Medium parameters used (interpolated): f = 2636.5 MHz; σ = 2.047 S/m; ε_r = 37.471; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_TDD (0) Frequency: 2636.5 MHz Duty Cycle: 1:1.58
Probe: ES3DV3 – SN3151 ConvF (4.39, 4.39, 4.39);

Top Side Middle High 1RB50/Area Scan (61x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.12 W/kg

Top Side Middle High 1RB50/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.88 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 1.59 W/kg
SAR(1 g) = 0.750 W/kg; SAR(10 g) = 0.329 W/kg
Maximum value of SAR (measured) = 1.17 W/kg

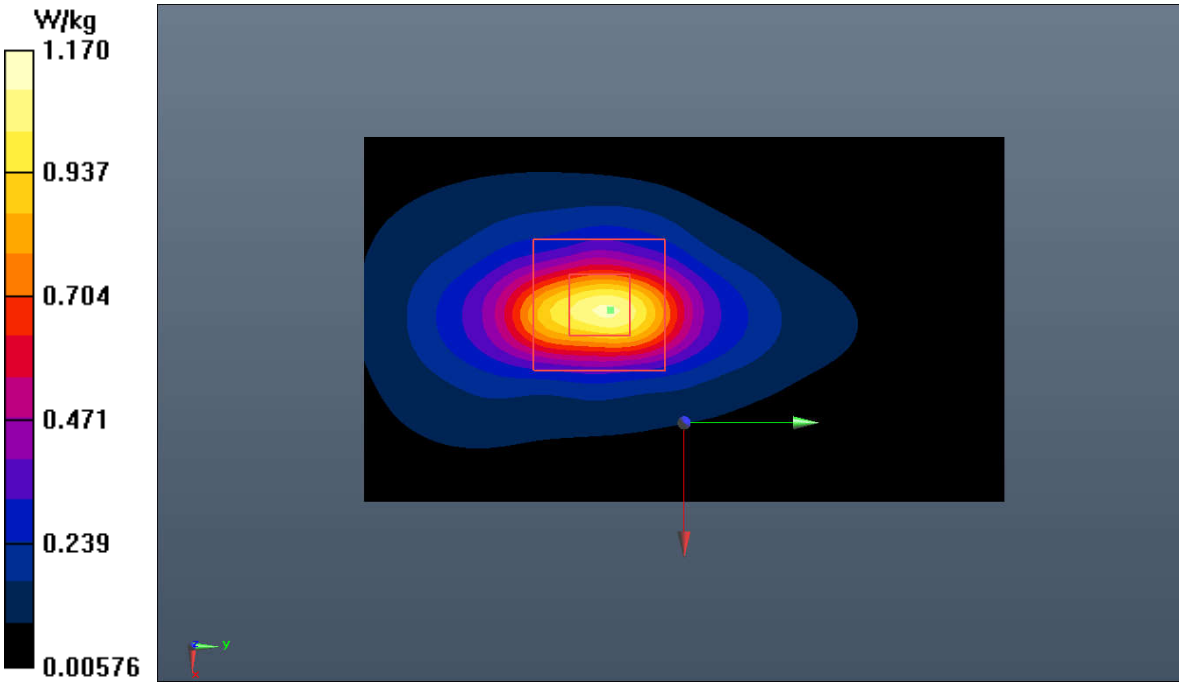


Fig.41 LTE Band 41 Hotspot

LTE Band 41 Body-worn
Date: 2021-10-26
Electronics: DAE4 Sn786
Medium: Head 2550MHz
Medium parameters used (interpolated): f = 2593 MHz; σ = 1.996 S/m; ε_r = 37.884; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_TDD (0) Frequency: 2593 MHz Duty Cycle: 1:1.58
Probe: ES3DV3 – SN3151 ConvF (4.39, 4.39, 4.39);

Rear Side Middle 50RB50/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.430 W/kg

Rear Side Middle 50RB50/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0.9480 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.592 W/kg
SAR(1 g) = 0.306 W/kg; SAR(10 g) = 0.153 W/kg
Maximum value of SAR (measured) = 0.445 W/kg

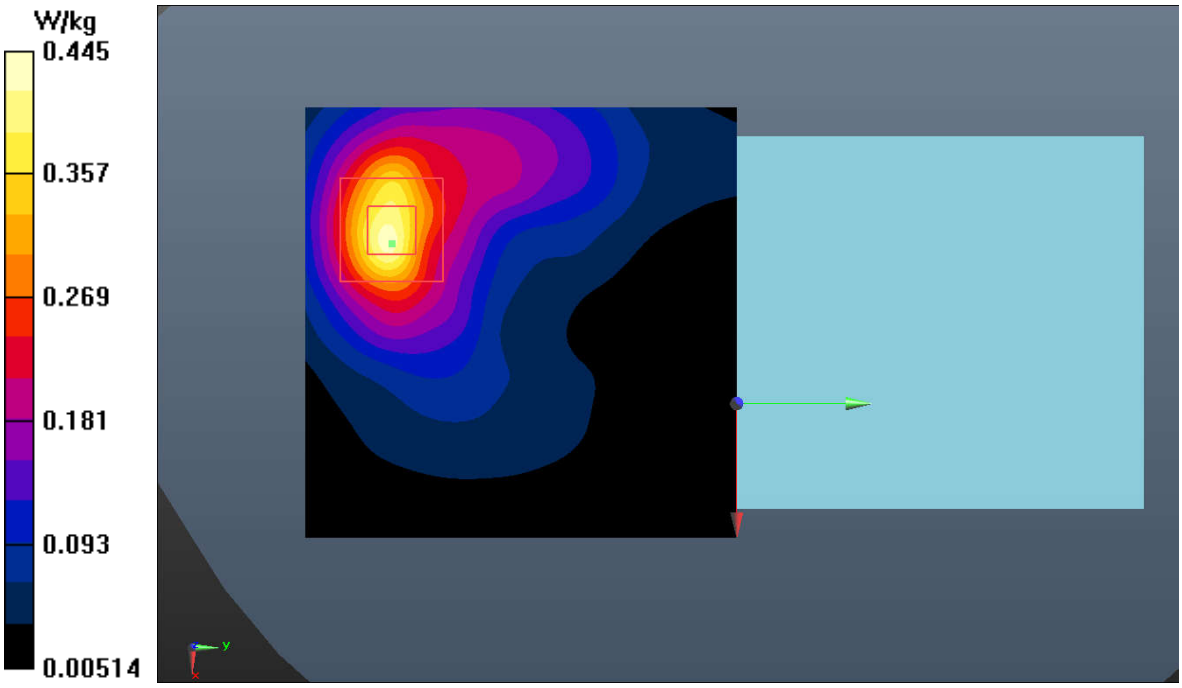


Fig.42 LTE Band 41 Body-worn

LTE Band 66 Head
Date: 2021-11-05
Electronics: DAE4 Sn786
Medium: Head 1750MHz
Medium parameters used: f = 1770 MHz; σ = 1.395 S/m; ε_r = 39.253; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 1770 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (5.25, 5.25, 5.25);

Right Tilt High 1RB50/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.19 W/kg

Right Tilt High 1RB50/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.62 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 2.02 W/kg
SAR(1 g) = 0.958 W/kg; SAR(10 g) = 0.429 W/kg
Maximum value of SAR (measured) = 1.27 W/kg

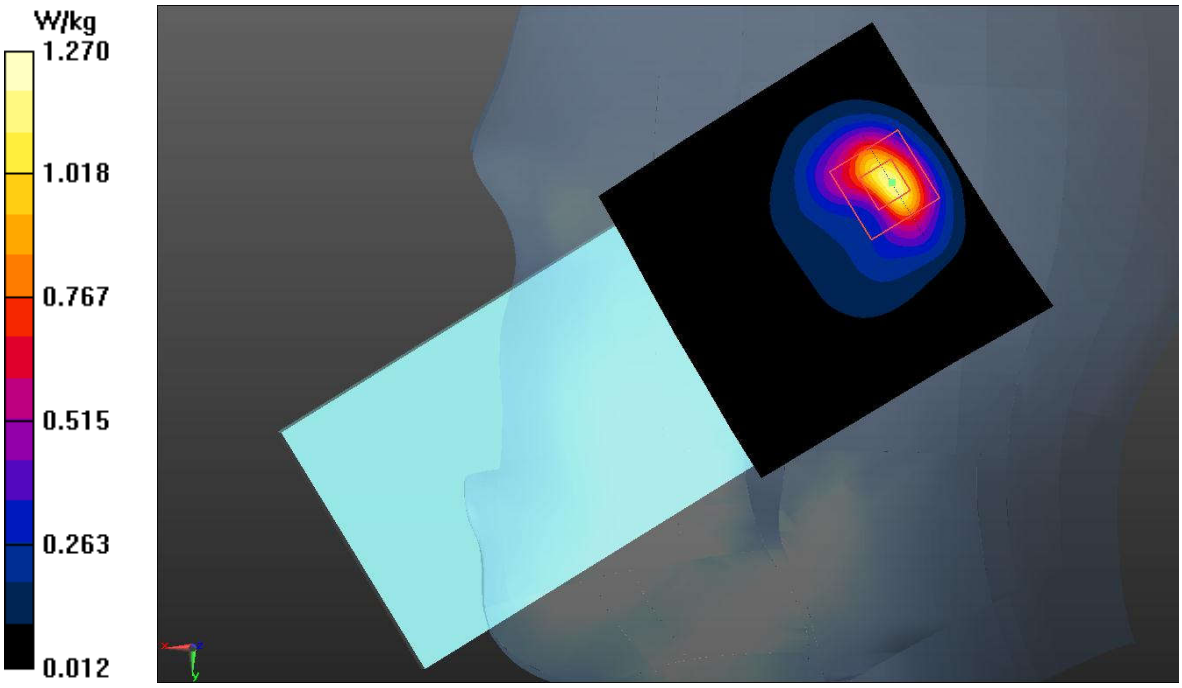


Fig.43 LTE Band 66 Head

LTE Band 66 Hotspot
Date: 2021-11-05
Electronics: DAE4 Sn786
Medium: Head 1750MHz
Medium parameters used: f = 1720 MHz; σ = 1.351 S/m; ε_r = 39.448; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 1720 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (5.25, 5.25, 5.25);

Top Side Low 1RB50/Area Scan (61x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.827 W/kg

Top Side Low 1RB50/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.83 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.665 W/kg; SAR(10 g) = 0.335 W/kg
Maximum value of SAR (measured) = 0.859 W/kg

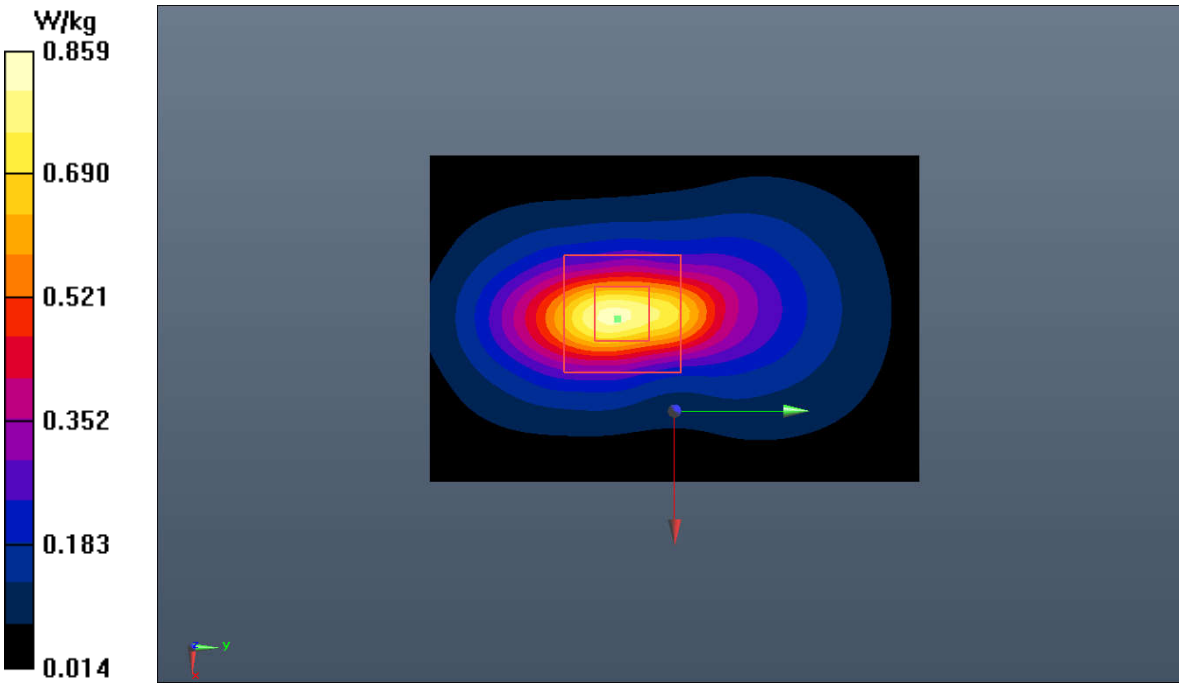


Fig.44 LTE Band 66 Hotspot

LTE Band 66 Body-worn
Date: 2021-11-05
Electronics: DAE4 Sn786
Medium: Head 1750MHz
Medium parameters used: f = 1720 MHz; σ = 1.351 S/m; ε_r = 39.448; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 1720 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (5.25, 5.25, 5.25);

Rear Side Low 1/RB50/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.352 W/kg

Rear Side Low 1/RB50/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.940 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.786 W/kg
SAR(1 g) = 0.281 W/kg; SAR(10 g) = 0.159 W/kg
Maximum value of SAR (measured) = 0.339 W/kg

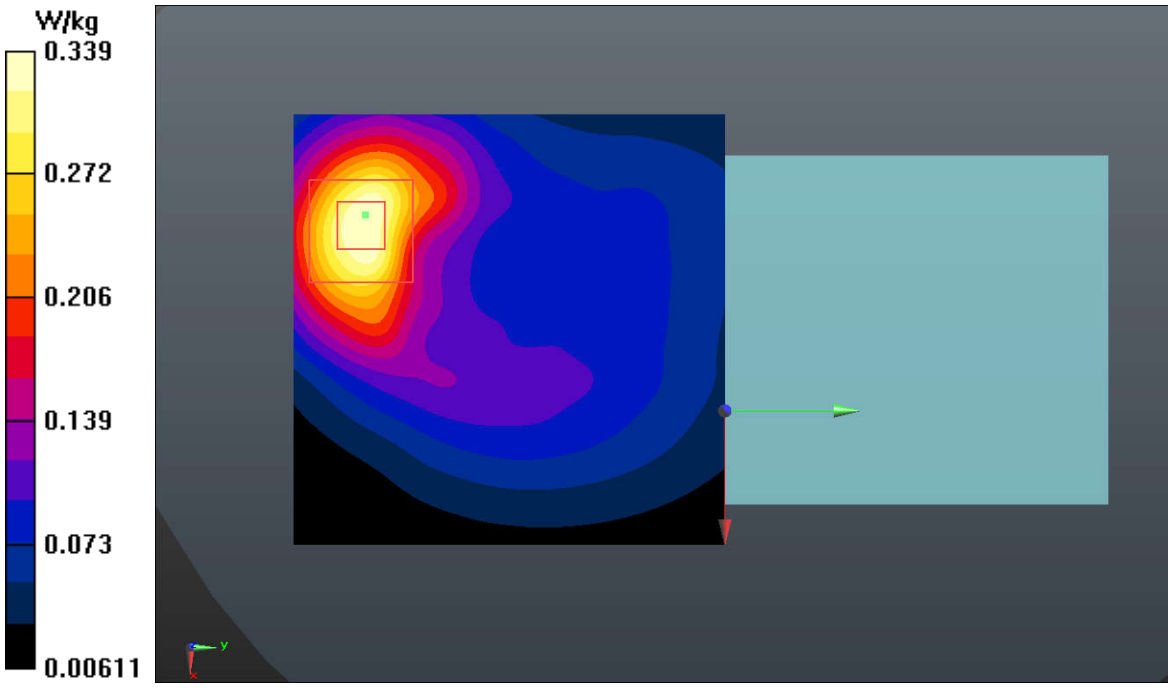


Fig.45 LTE Band 66 Body worn

NR n5 Head
Date: 2021-11-16
Electronics: DAE4 Sn786
Medium: Head 900MHz
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.925 S/m; ε_r = 40.584; ρ = 1000 kg/m^3
Communication System: UID 0, nR (0) Frequency: 836.5 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (6.40, 6.40, 6.40);

Right Cheek Middle 12@6/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.994 W/kg

Right Cheek Middle 12@6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.81 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 1.52 W/kg
SAR(1 g) = 0.662 W/kg; SAR(10 g) = 0.388 W/kg
Maximum value of SAR (measured) = 0.984 W/kg

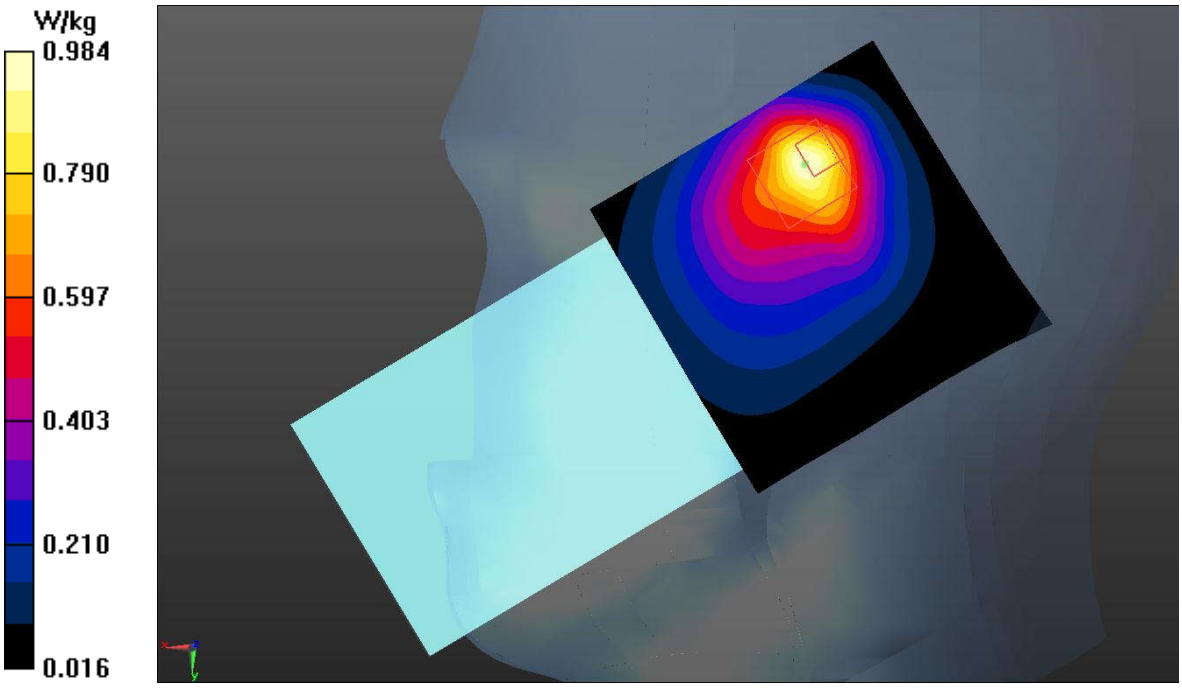


Fig.46 NR n5 Head

NR n5 Hotspot
Date: 2021-11-16
Electronics: DAE4 Sn786
Medium: Head 900MHz
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.925 S/m; ε_r = 40.584; ρ = 1000 kg/m^3
Communication System: UID 0, nR (0) Frequency: 836.5 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (6.40, 6.40, 6.40);

Rear Side Middle 12@6/Area Scan (91x181x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.180 W/kg

Rear Side Middle 12@6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.01 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.223 W/kg
SAR(1 g) = 0.135 W/kg; SAR(10 g) = 0.084 W/kg
Maximum value of SAR (measured) = 0.174 W/kg

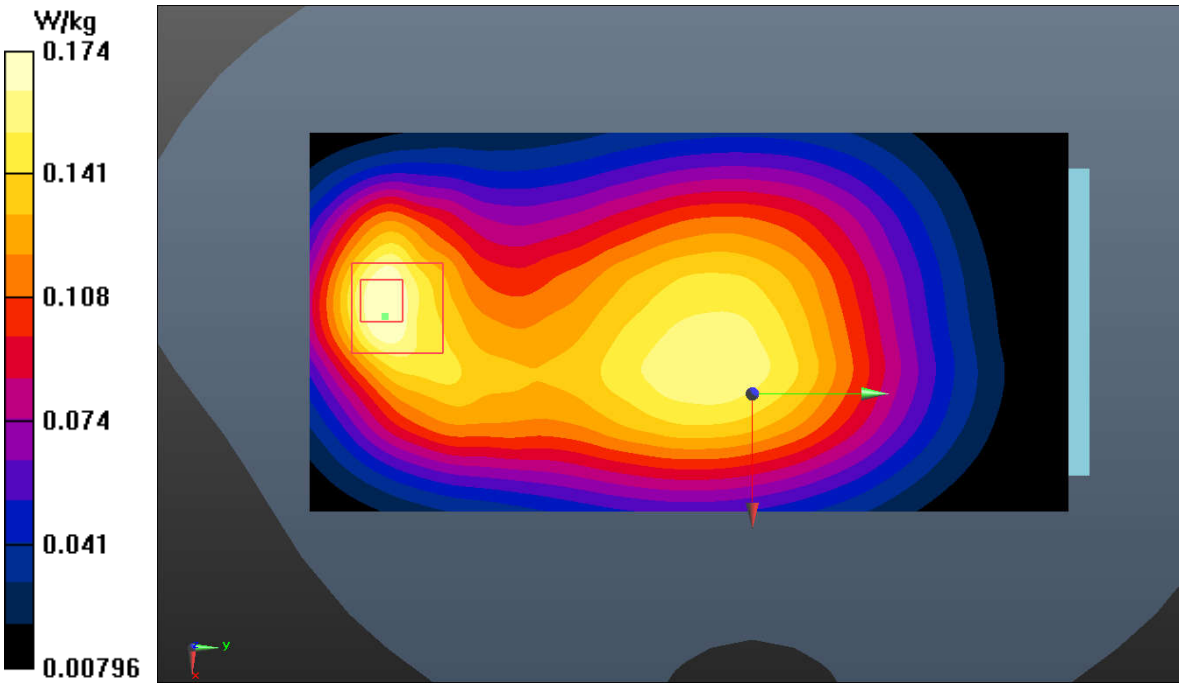


Fig.47 NR n5 Hotspot

NR n5 Body-worn
Date: 2021-11-16
Electronics: DAE4 Sn786
Medium: Head 900MHz
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.925 S/m; ε_r = 40.584; ρ = 1000 kg/m^3
Communication System: UID 0, nR (0) Frequency: 836.5 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (6.40, 6.40, 6.40);

Rear Side Middle 12@6/Area Scan (71x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.155 W/kg

Rear Side Middle 12@6/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.96 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.370 W/kg
SAR(1 g) = 0.117 W/kg; SAR(10 g) = 0.083 W/kg
Maximum value of SAR (measured) = 0.142 W/kg

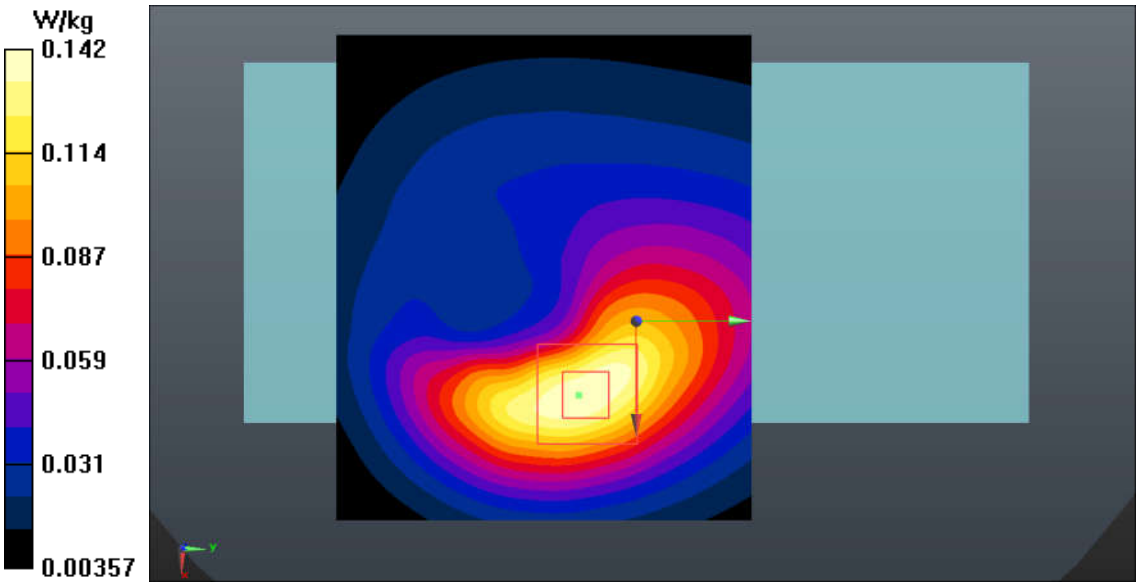


Fig.48 NR n5 Body-worn

NR n7 Head
Date: 2021-11-26
Electronics: DAE4 Sn786
Medium: Head 2550MHz
Medium parameters used: f = 2568 MHz; σ = 1.952 S/m; ε_r = 38.21; ρ = 1000 kg/m^3
Communication System: UID 0, nR (0) Frequency: 2567.5 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (4.39, 4.39, 4.39);

Right Tilt High 12@6/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.09 W/kg

Right Tilt High 12@6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.323 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.83 W/kg
SAR(1 g) = 0.798 W/kg; SAR(10 g) = 0.322 W/kg
Maximum value of SAR (measured) = 1.30 W/kg

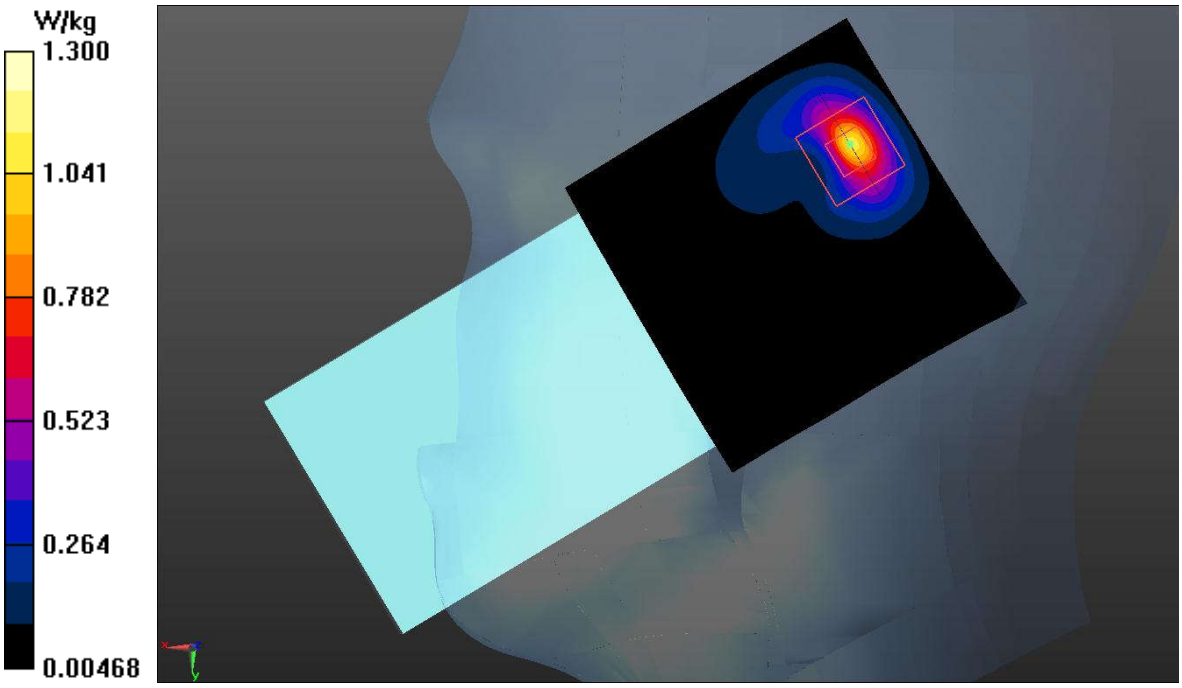


Fig.49 NR n7 Head

NR n7 Hotspot
Date: 2021-11-26
Electronics: DAE4 Sn786
Medium: Head 2550MHz
Medium parameters used: f = 2568 MHz; σ = 1.952 S/m; ε_r = 38.21; ρ = 1000 kg/m^3
Communication System: UID 0, nR (0) Frequency: 2567.5 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (4.39, 4.39, 4.39);

Top Side High 12@6/Area Scan (61x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.25 W/kg

Top Side High 12@6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.91 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.81 W/kg
SAR(1 g) = 0.845 W/kg; SAR(10 g) = 0.363 W/kg
Maximum value of SAR (measured) = 1.30 W/kg

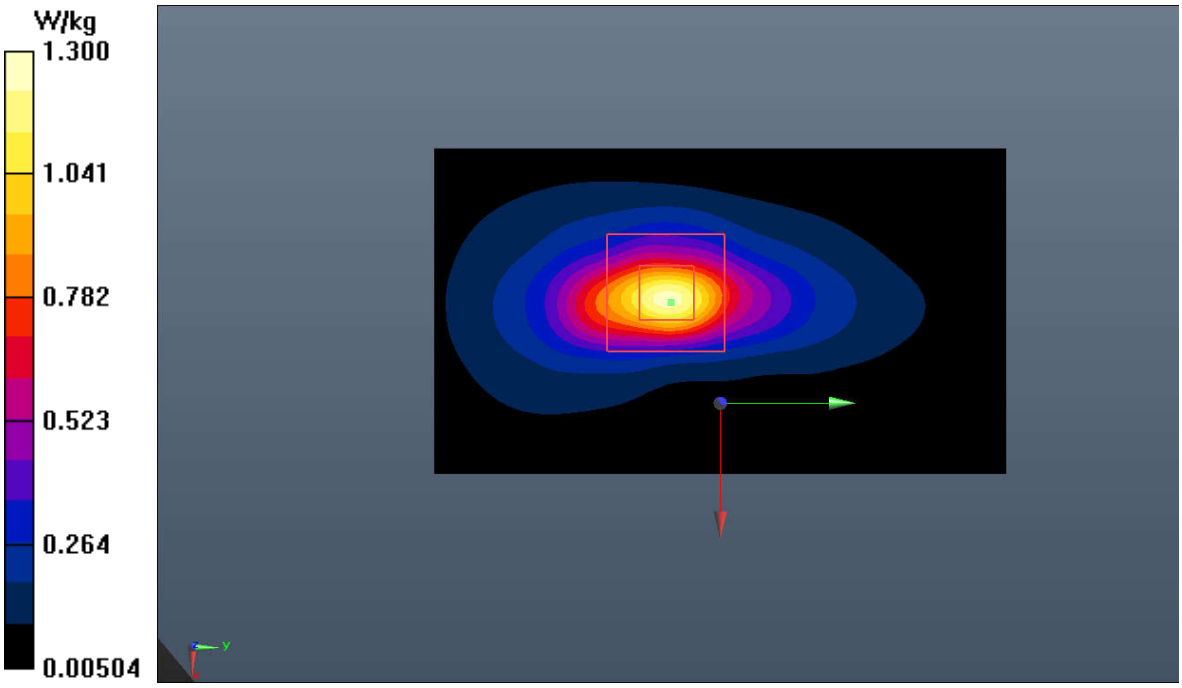


Fig.50 NR n7 Hotspot

NR n7 Body-worn
Date: 2021-11-26
Electronics: DAE4 Sn786
Medium: Head 2550MHz
Medium parameters used: f = 2568 MHz; σ = 1.952 S/m; ε_r = 38.21; ρ = 1000 kg/m^3
Communication System: UID 0, nR (0) Frequency: 2567.5 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (4.39, 4.39, 4.39);

Rear Side High 12@6/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.485 W/kg

Rear Side High 12@6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.803 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.629 W/kg
SAR(1 g) = 0.327 W/kg; SAR(10 g) = 0.164 W/kg
Maximum value of SAR (measured) = 0.480 W/kg

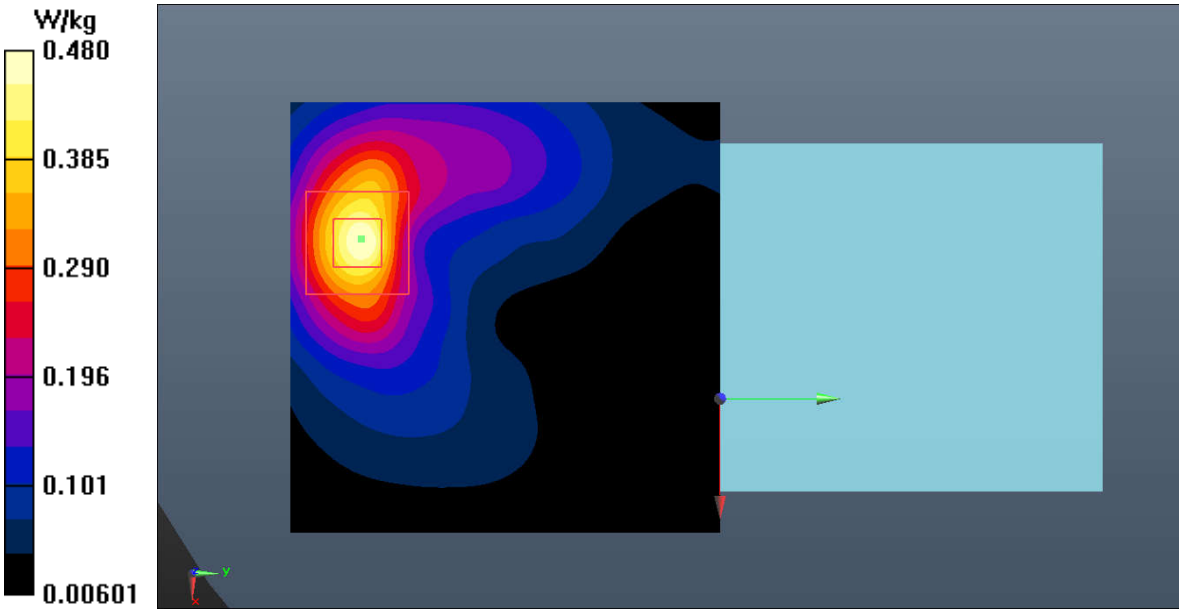


Fig.51 NR n7 Body-worn

NR n38 Head
Date: 2021-11-27
Electronics: DAE4 Sn786
Medium: Head 2550MHz
Medium parameters used: f = 2610 MHz; σ = 1.995 S/m; ε_r = 38.484; ρ = 1000 kg/m^3
Communication System: UID 0, nR (0) Frequency: 2610 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (4.39, 4.39, 4.39);

Right Tilt High 12@6/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.964 W/kg

Right Tilt High 12@6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.82 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.70 W/kg
SAR(1 g) = 0.734 W/kg; SAR(10 g) = 0.300 W/kg
Maximum value of SAR (measured) = 1.19 W/kg

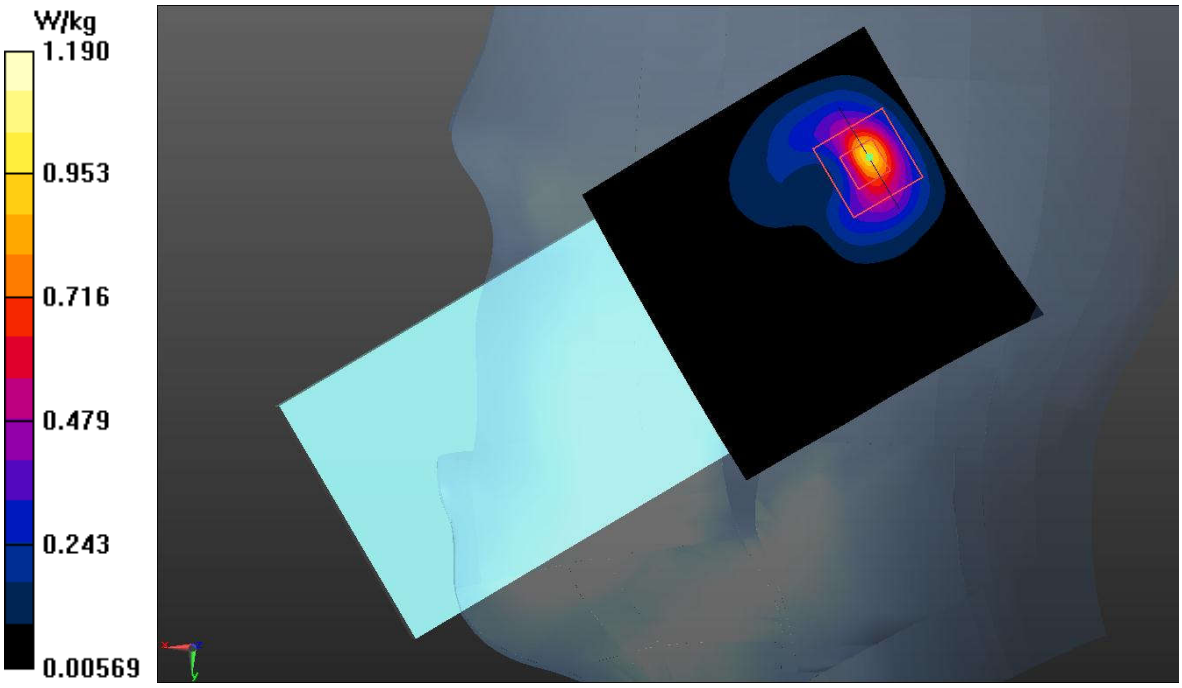


Fig.52 NR n38 Head

NR n38 Hotspot
Date: 2021-11-27
Electronics: DAE4 Sn786
Medium: Head 2550MHz
Medium parameters used: f = 2610 MHz; σ = 1.995 S/m; ε_r = 38.484; ρ = 1000 kg/m^3
Communication System: UID 0, nR (0) Frequency: 2610 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (4.39, 4.39, 4.39);

Top Side High 25@12/Area Scan (61x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.06 W/kg

Top Side High 25@12/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.31 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 1.64 W/kg
SAR(1 g) = 0.765 W/kg; SAR(10 g) = 0.330 W/kg
Maximum value of SAR (measured) = 1.19 W/kg

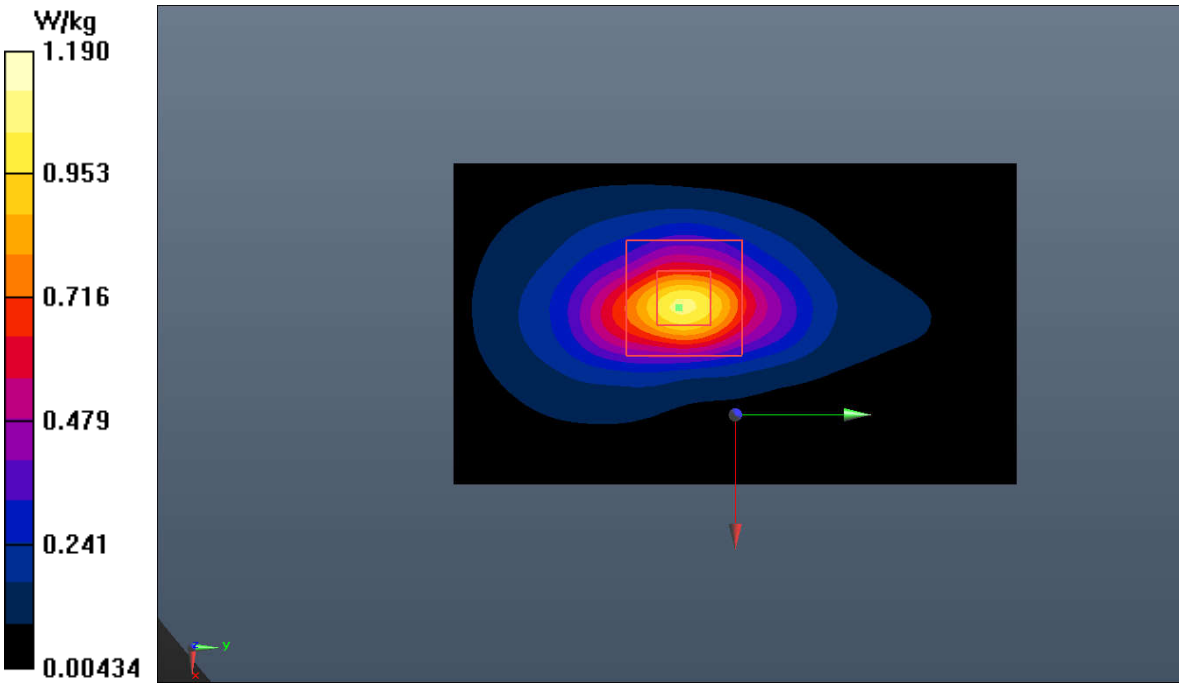


Fig.53 NR n38 Hotspot

NR n38 Body-worn
Date: 2021-11-27
Electronics: DAE4 Sn786
Medium: Head 2550MHz
Medium parameters used: f = 2610 MHz; σ = 1.995 S/m; ε_r = 38.484; ρ = 1000 kg/m^3
Communication System: UID 0, nR (0) Frequency: 2610 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (4.39, 4.39, 4.39);

Rear Side High 25@12/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.402 W/kg

Rear Side High 25@12/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.757 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.535 W/kg
SAR(1 g) = 0.279 W/kg; SAR(10 g) = 0.140 W/kg
Maximum value of SAR (measured) = 0.393 W/kg

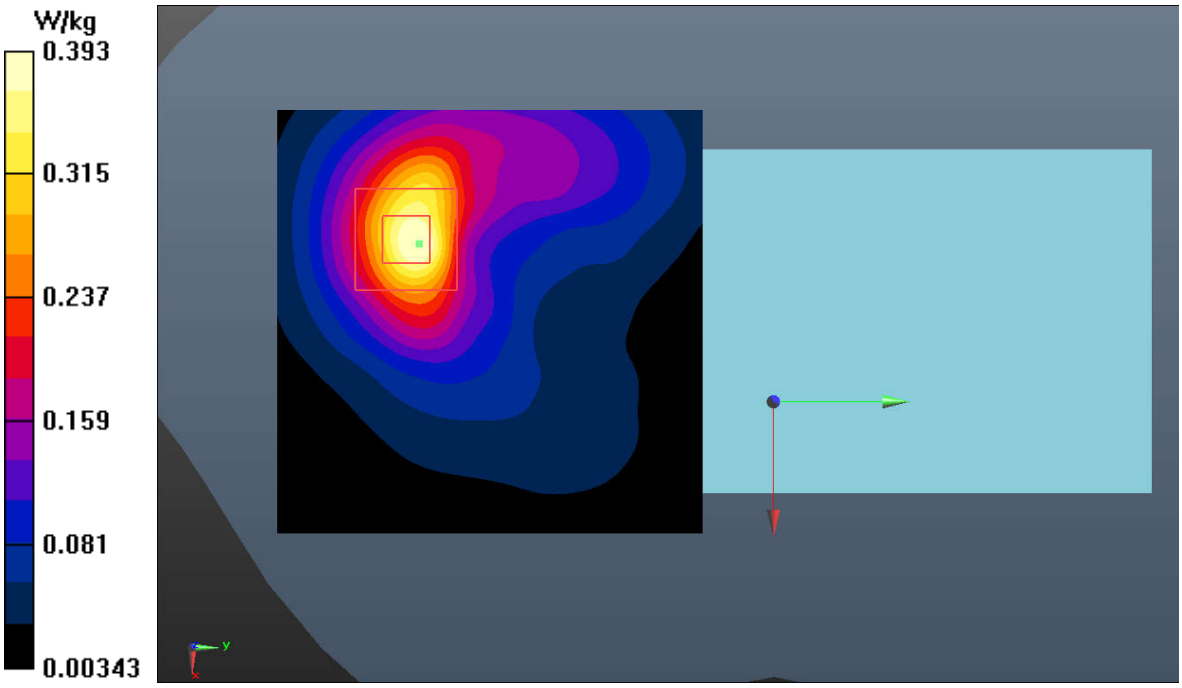


Fig.54 NR n38 Body-worn

NR n41 Head
Date: 2021-11-27
Electronics: DAE4 Sn786
Medium: Head 2550MHz
Medium parameters used: f = 2506 MHz; σ = 1.872 S/m; ε_r = 38.827; ρ = 1000 kg/m^3
Communication System: UID 0, nR (0) Frequency: 2506 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (4.58, 4.58, 4.58);

Right Tilt Low 25@12/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.11 W/kg

Right Tilt Low 25@12/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.681 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 1.88 W/kg
SAR(1 g) = 0.776 W/kg; SAR(10 g) = 0.304 W/kg
Maximum value of SAR (measured) = 1.14 W/kg

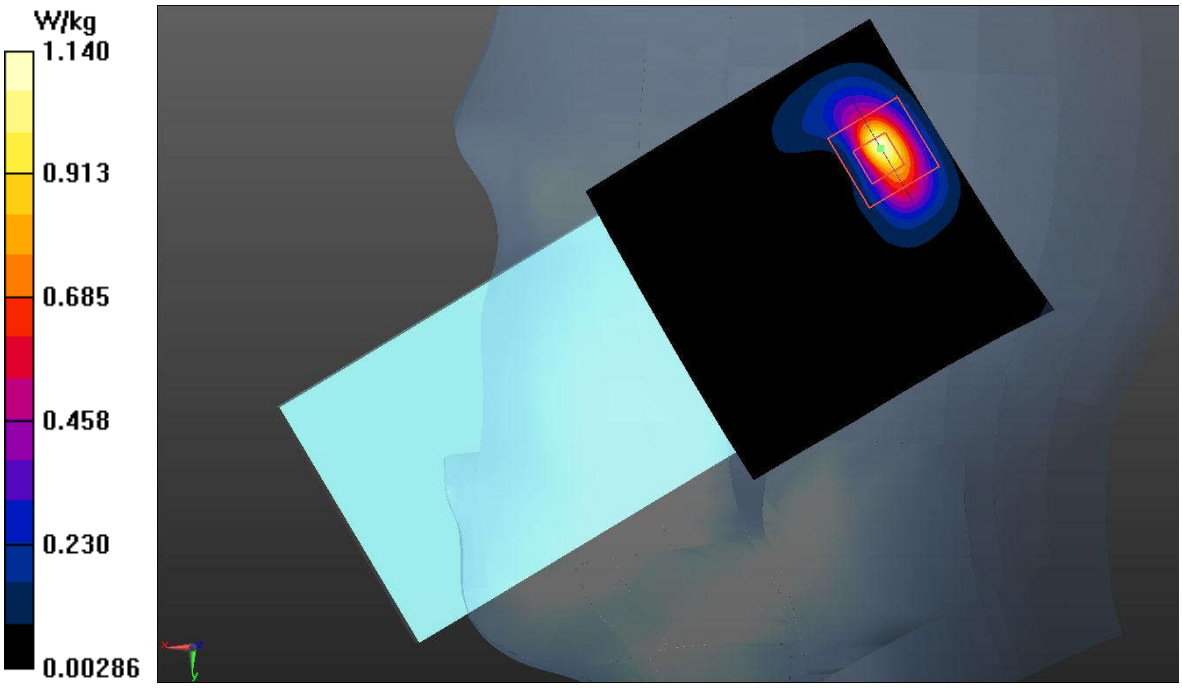


Fig.55 NR n41 Head

NR n41 Hotspot
Date: 2021-11-27
Electronics: DAE4 Sn786
Medium: Head 2550MHz
Medium parameters used: f = 2506 MHz; σ = 1.872 S/m; ε_r = 38.827; ρ = 1000 kg/m^3
Communication System: UID 0, nR (0) Frequency: 2506 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (4.58, 4.58, 4.58);

Top Side Low 25@12/Area Scan (61x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.20 W/kg

Top Side Low 25@12/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.74 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 1.67 W/kg
SAR(1 g) = 0.804 W/kg; SAR(10 g) = 0.350 W/kg
Maximum value of SAR (measured) = 1.25 W/kg

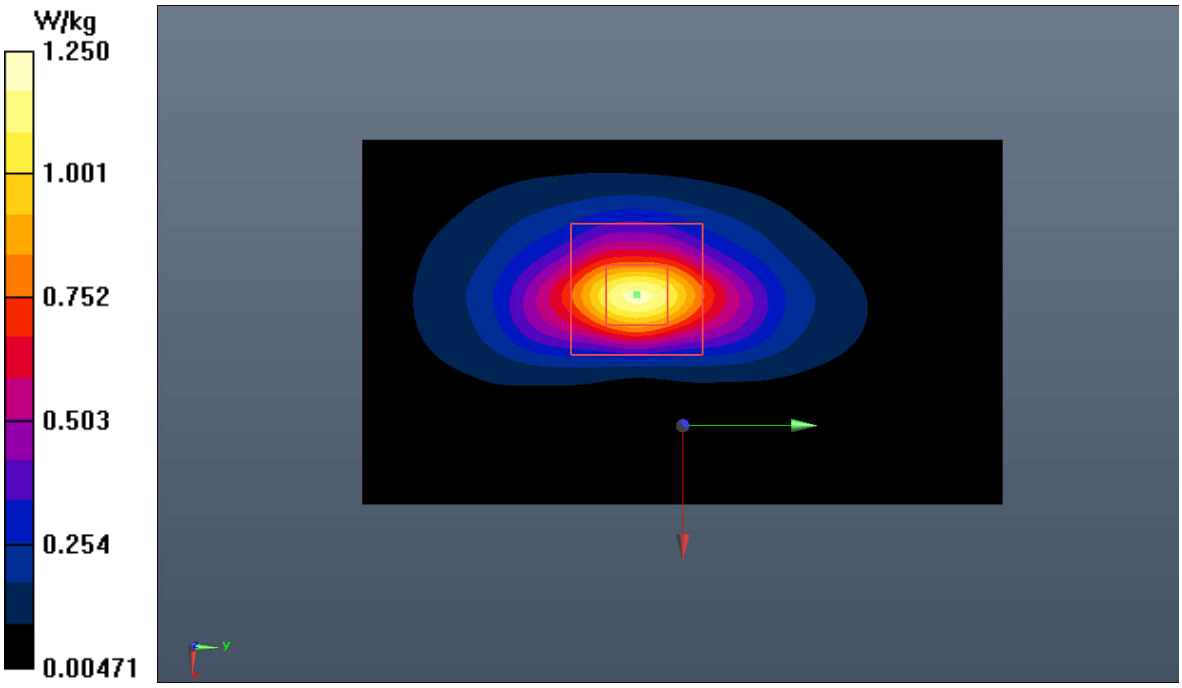


Fig.56 NR n41 Hotspot

NR n41 Body-worn
Date: 2021-11-27
Electronics: DAE4 Sn786
Medium: Head 2550MHz
Medium parameters used: f = 2506 MHz; σ = 1.872 S/m; ε_r = 38.827; ρ = 1000 kg/m^3
Communication System: UID 0, nR (0) Frequency: 2506 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (4.58, 4.58, 4.58);

Rear Side Low 25@12/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.412 W/kg

Rear Side Low 25@12/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.479 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.543 W/kg
SAR(1 g) = 0.291 W/kg; SAR(10 g) = 0.147 W/kg
Maximum value of SAR (measured) = 0.417 W/kg

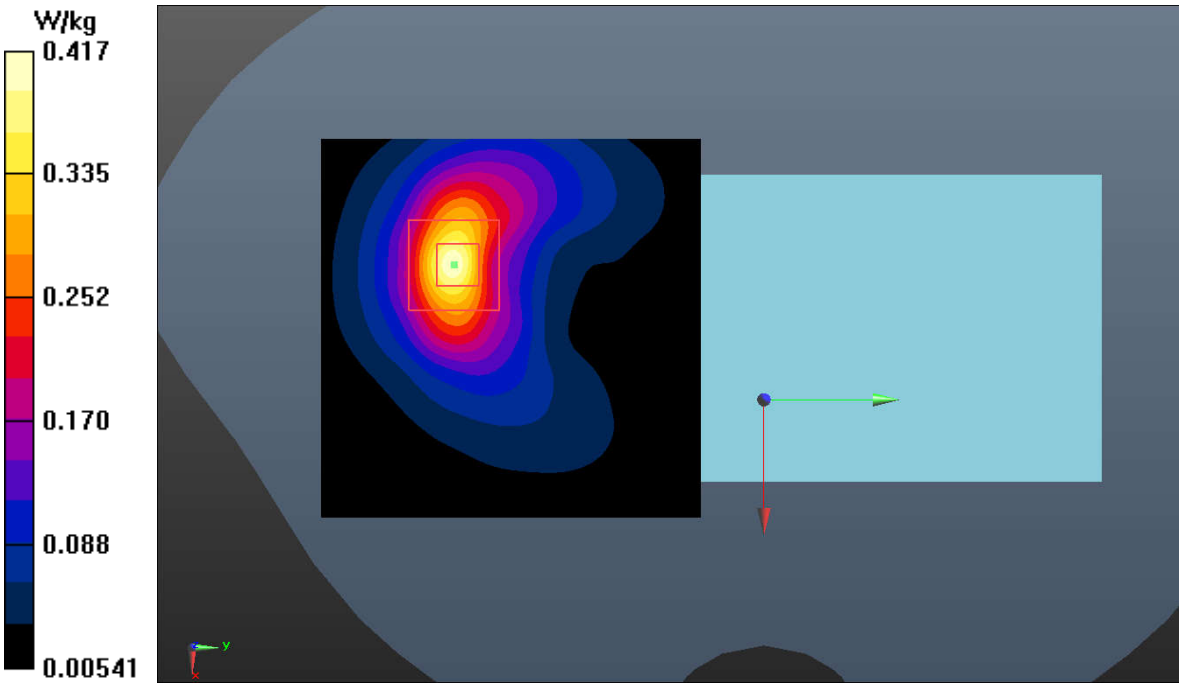


Fig.57 NR n41 Body-worn

NR n66 Head
Date: 2021-11-05
Electronics: DAE4 Sn786
Medium: Head 1750MHz
Medium parameters used (interpolated): f = 1777.5 MHz; σ = 1.401 S/m; ε_r = 39.224; ρ = 1000 kg/m^3
Communication System: UID 0, nR (0) Frequency: 1777.5 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (5.25, 5.25, 5.25);

Right Tilt High 12@6/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.10 W/kg

Right Tilt High 12@6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.71 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.46 W/kg
SAR(1 g) = 0.747 W/kg; SAR(10 g) = 0.360 W/kg
Maximum value of SAR (measured) = 1.14 W/kg

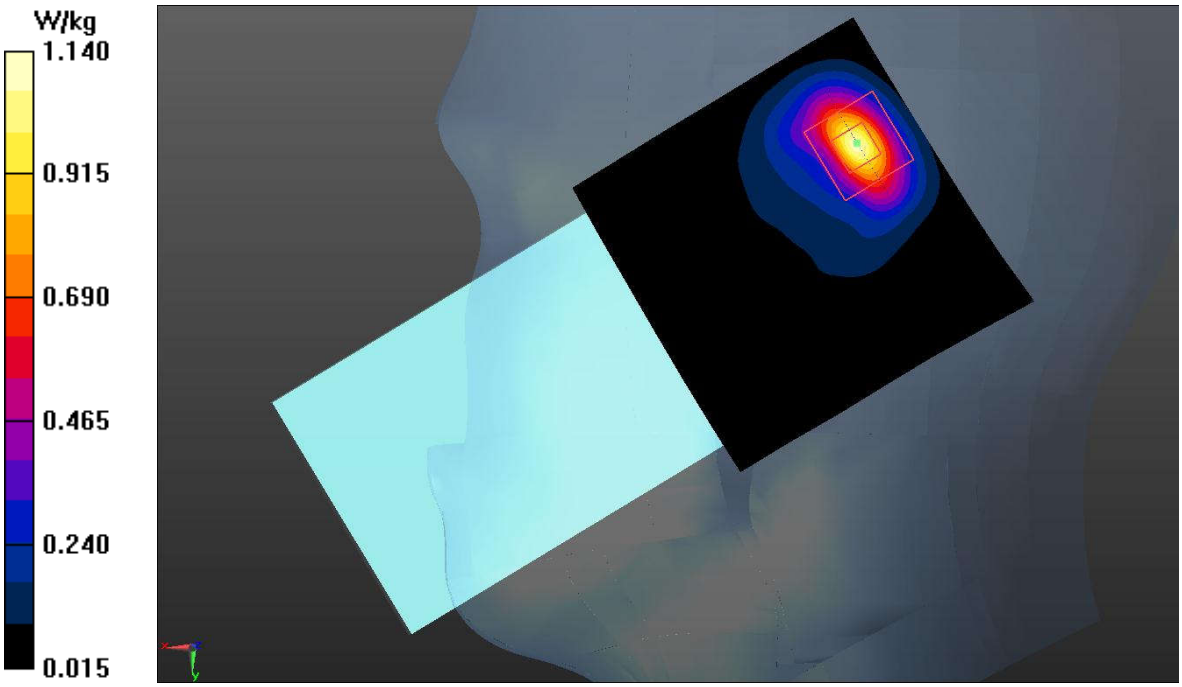


Fig.58 NR n66 Head

NR n66 Hotspot
Date: 2021-11-05
Electronics: DAE4 Sn786
Medium: Head 1750MHz
Medium parameters used (interpolated): f = 1712.5 MHz; σ = 1.344 S/m; ε_r = 39.477; ρ = 1000 kg/m^3
Communication System: UID 0, nR (0) Frequency: 1712.5 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (5.25, 5.25, 5.25);

Bottom Side Low 12@6/Area Scan (61x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.03 W/kg

Bottom Side Low 12@6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.72 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.23 W/kg
SAR(1 g) = 0.747 W/kg; SAR(10 g) = 0.428 W/kg
Maximum value of SAR (measured) = 1.01 W/kg

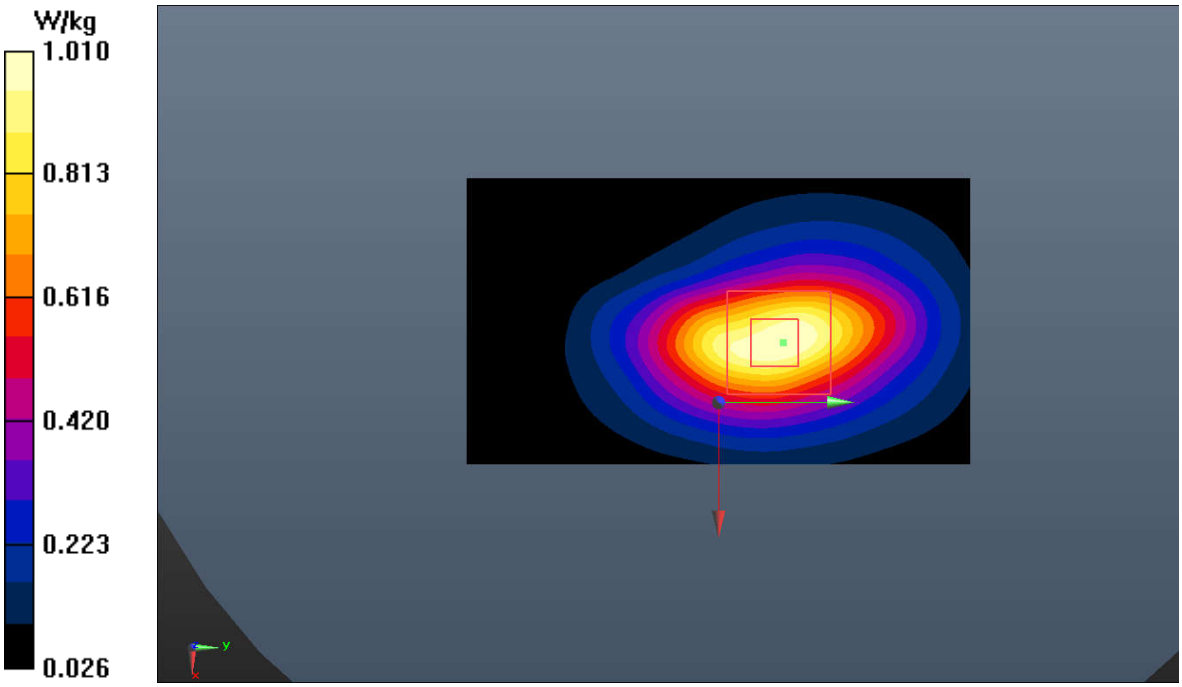


Fig.59 NR n41 Hotspot

NR n66 Body-worn
Date: 2021-11-05
Electronics: DAE4 Sn786
Medium: Head 1750MHz
Medium parameters used (interpolated): f = 1777.5 MHz; σ = 1.401 S/m; ε_r = 39.224; ρ = 1000 kg/m^3
Communication System: UID 0, nR (0) Frequency: 1777.5 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (5.25, 5.25, 5.25);

Rear Side High 25@12/Area Scan (111x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.435 W/kg

Rear Side High 25@12/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.316 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.682 W/kg
SAR(1 g) = 0.300 W/kg; SAR(10 g) = 0.190 W/kg
Maximum value of SAR (measured) = 0.412 W/kg

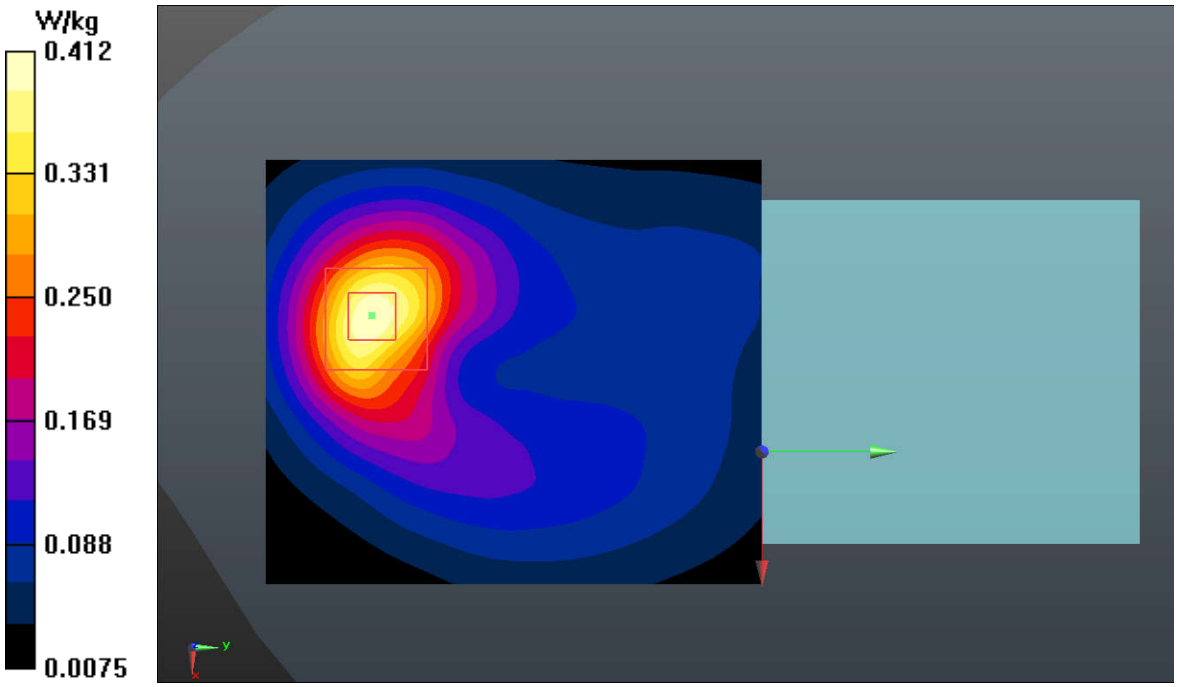


Fig.60 NR n66 Body-worn

Bluetooth Head
Date: 2021-12-1
Electronics: DAE4 Sn786
Medium: Head 2450MHz
Medium parameters used (interpolated): f = 2441 MHz; σ = 1.825 S/m; ε_r = 38.454; ρ = 1000 kg/m^3
Communication System: UID 0, BT (0) Frequency: 2441 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (4.58, 4.58, 4.58);

Left Cheek Middle/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.221 W/kg

Left Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.786 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.397 W/kg
SAR(1 g) = 0.135 W/kg; SAR(10 g) = 0.073 W/kg
Maximum value of SAR (measured) = 0.193 W/kg

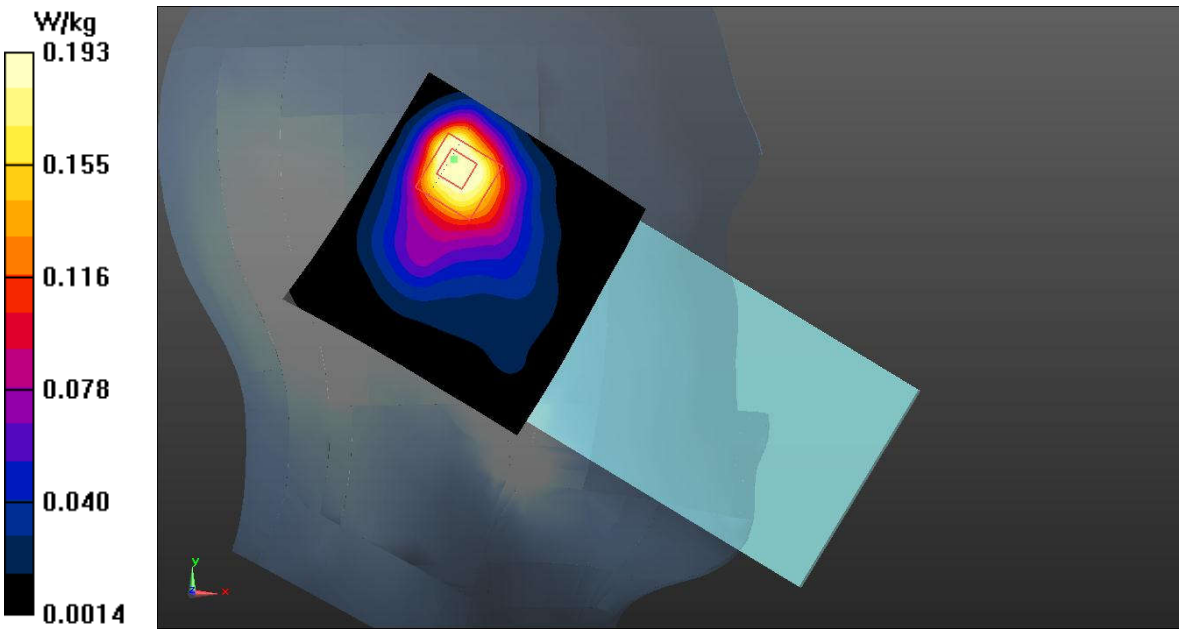


Fig.61 Bluetooth Head

Bluetooth Hotspot
Date: 2021-12-1
Electronics: DAE4 Sn786
Medium: Head 2450MHz
Medium parameters used (interpolated): f = 2441 MHz; σ = 1.825 S/m; ε_r = 38.454; ρ = 1000 kg/m^3
Communication System: UID 0, BT (0) Frequency: 2441 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (4.58, 4.58, 4.58);

Rear Side Middle/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.099 W/kg

Rear Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.126 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.201 W/kg
SAR(1 g) = 0.071 W/kg; SAR(10 g) = 0.038 W/kg
Maximum value of SAR (measured) = 0.082 W/kg

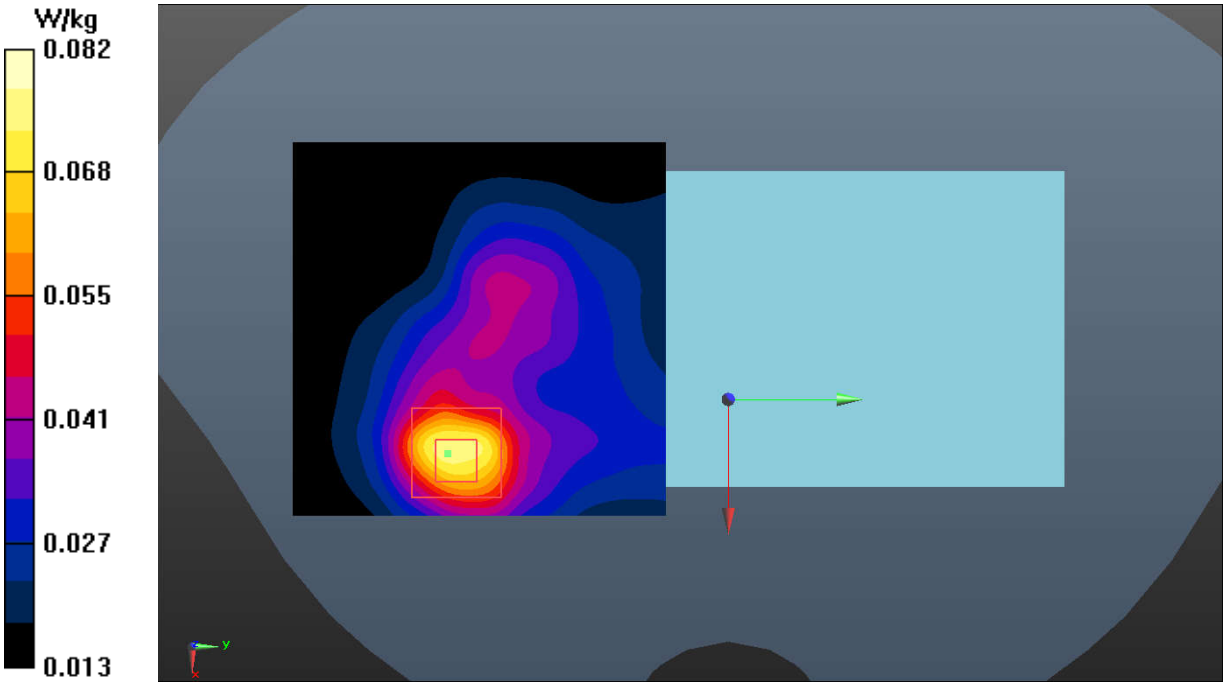


Fig.62 Bluetooth Hotspot

Bluetooth Body-worn
Date: 2021-12-1
Electronics: DAE4 Sn786
Medium: Head 2450MHz
Medium parameters used (interpolated): f = 2441 MHz; σ = 1.825 S/m; ε_r = 38.454; ρ = 1000 kg/m^3
Communication System: UID 0, BT (0) Frequency: 2441 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (4.58, 4.58, 4.58);

Rear Side Middle/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.068 W/kg

Rear Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.989 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.145 W/kg
SAR(1 g) = 0.045 W/kg; SAR(10 g) = 0.029 W/kg
Maximum value of SAR (measured) = 0.055 W/kg

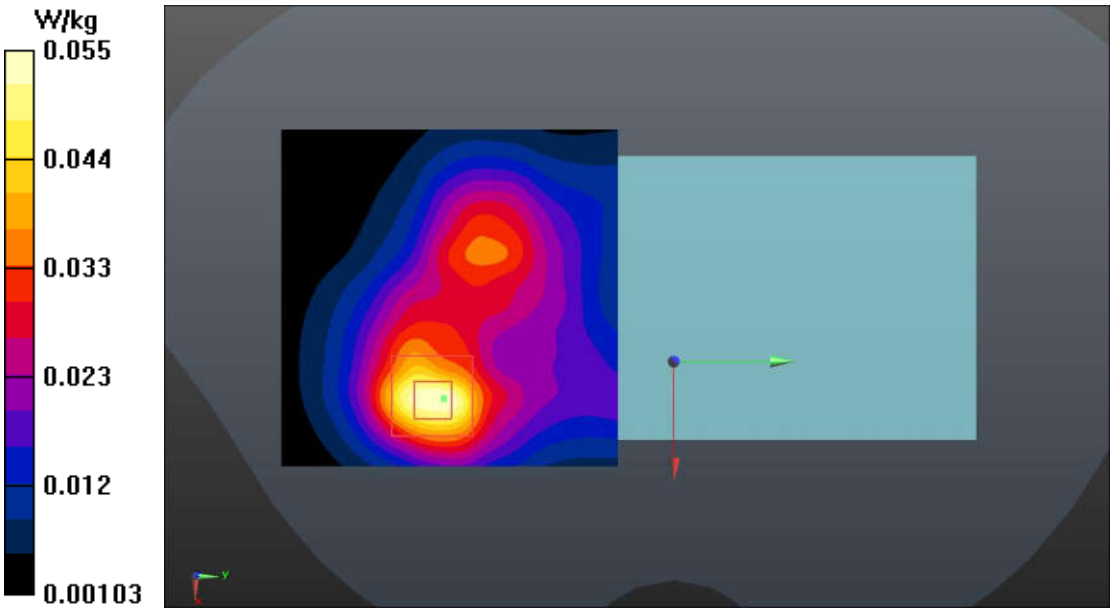


Fig.63 Bluetooth Body-worn

WLAN 2.4G Head
Date: 2021-12-1
Electronics: DAE4 Sn786
Medium: Head 2450MHz
Medium parameters used: f = 2462 MHz; σ = 1.85 S/m; ε_r = 38.384; ρ = 1000 kg/m^3
Communication System: UID 0, WiFi (0) Frequency: 2462 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (4.58, 4.58, 4.58);

Left Cheek High/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.51 W/kg

Left Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.288 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.95 W/kg
SAR(1 g) = 0.850 W/kg; SAR(10 g) = 0.391 W/kg
Maximum value of SAR (measured) = 0.921 W/kg

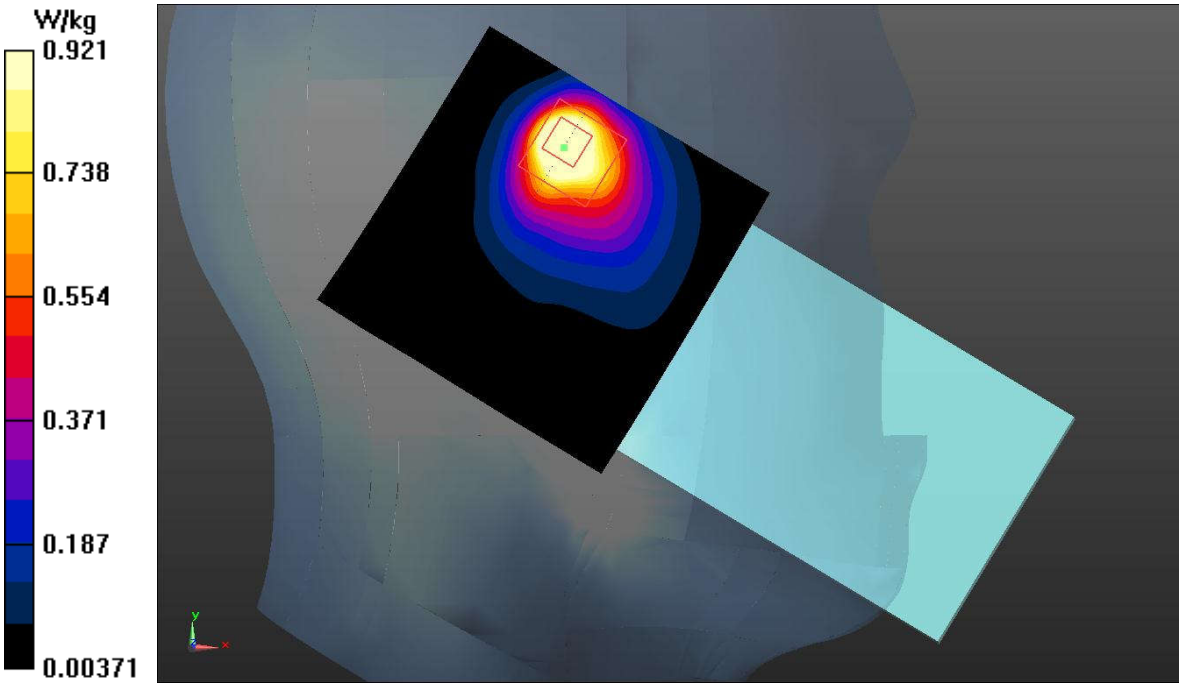


Fig.64 WLAN 2.4G Head

WLAN 2.4G Hotspot
Date: 2021-12-1
Electronics: DAE4 Sn786
Medium: Head 2450MHz
Medium parameters used: f = 2462 MHz; σ = 1.85 S/m; ε_r = 38.384; ρ = 1000 kg/m^3
Communication System: UID 0, WiFi (0) Frequency: 2462 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (4.58, 4.58, 4.58);

Rear Side High/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.344 W/kg

Rear Side High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.970 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.550 W/kg
SAR(1 g) = 0.263 W/kg; SAR(10 g) = 0.125 W/kg
Maximum value of SAR (measured) = 0.381 W/kg

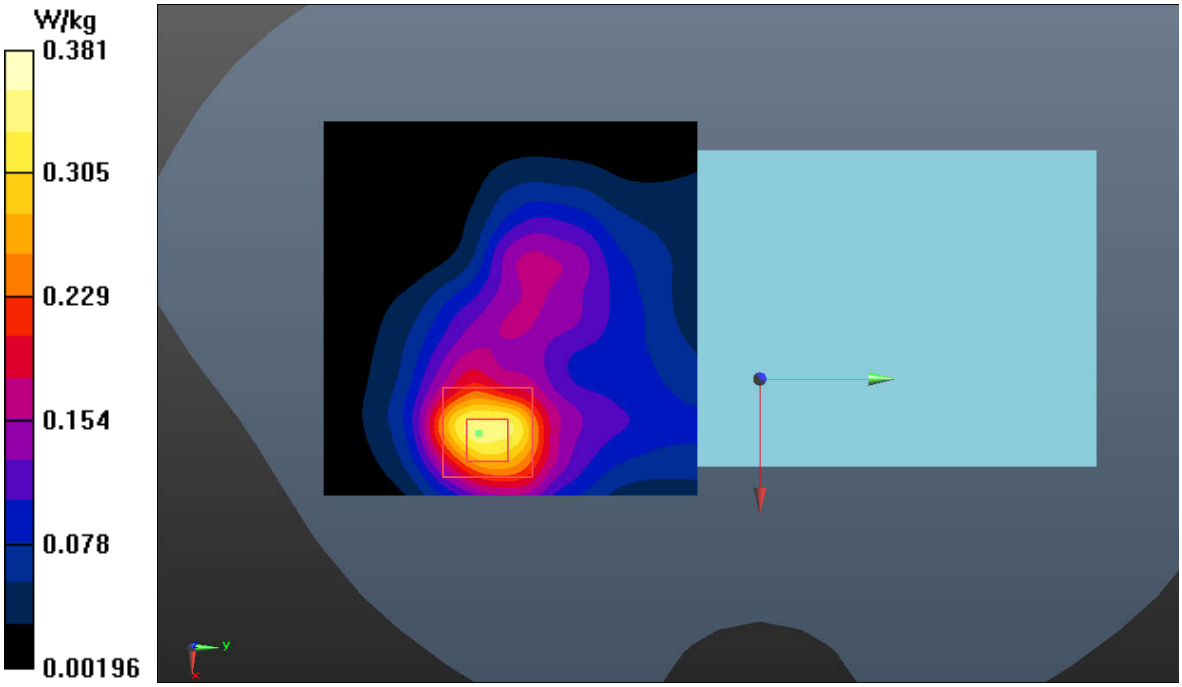


Fig.65 WLAN 2.4G Hotspot

WLAN 2.4G Body-worn
Date: 2021-12-1
Electronics: DAE4 Sn786
Medium: Head 2450MHz
Medium parameters used: f = 2462 MHz; σ = 1.85 S/m; ε_r = 38.384; ρ = 1000 kg/m^3
Communication System: UID 0, WiFi (0) Frequency: 2462 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (4.58, 4.58, 4.58);

Rear Side High/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.169 W/kg

Rear Side High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.282 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.285 W/kg
SAR(1 g) = 0.108 W/kg; SAR(10 g) = 0.055 W/kg
Maximum value of SAR (measured) = 0.156 W/kg

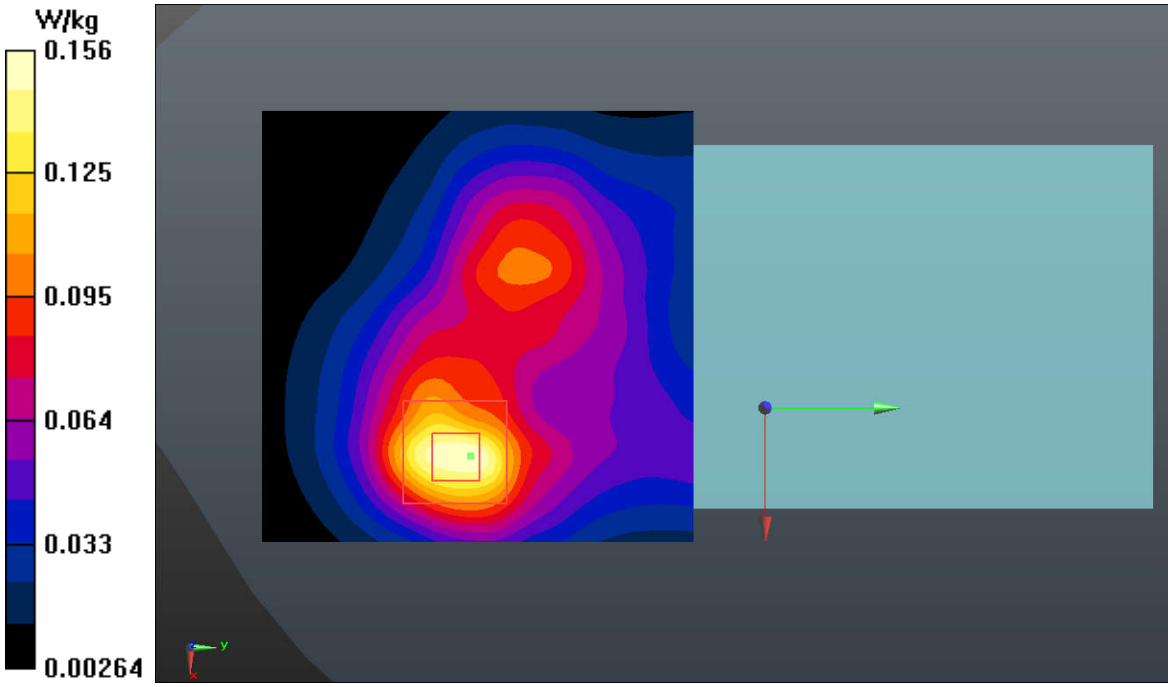


Fig.66 WLAN 2.4G Body-worn

WLAN 5G Head
Date: 2021-11-24
Electronics: DAE4 Sn786
Medium: Head 5750MHz
Medium parameters used (interpolated): f = 5745 MHz; σ = 5.107 S/m; ε_r = 36.092; ρ = 1000 kg/m^3
Communication System: UID 0, WiFi (0) Frequency: 5745 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7621 ConvF (5.38, 5.38, 5.38);

Left Cheek Ch.149/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.01 W/kg

Left Cheek Ch.149/Zoom Scan (8x8x21)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 1.077 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 2.00 W/kg
SAR(1 g) = 0.488 W/kg; SAR(10 g) = 0.146 W/kg
Maximum value of SAR (measured) = 1.23 W/kg

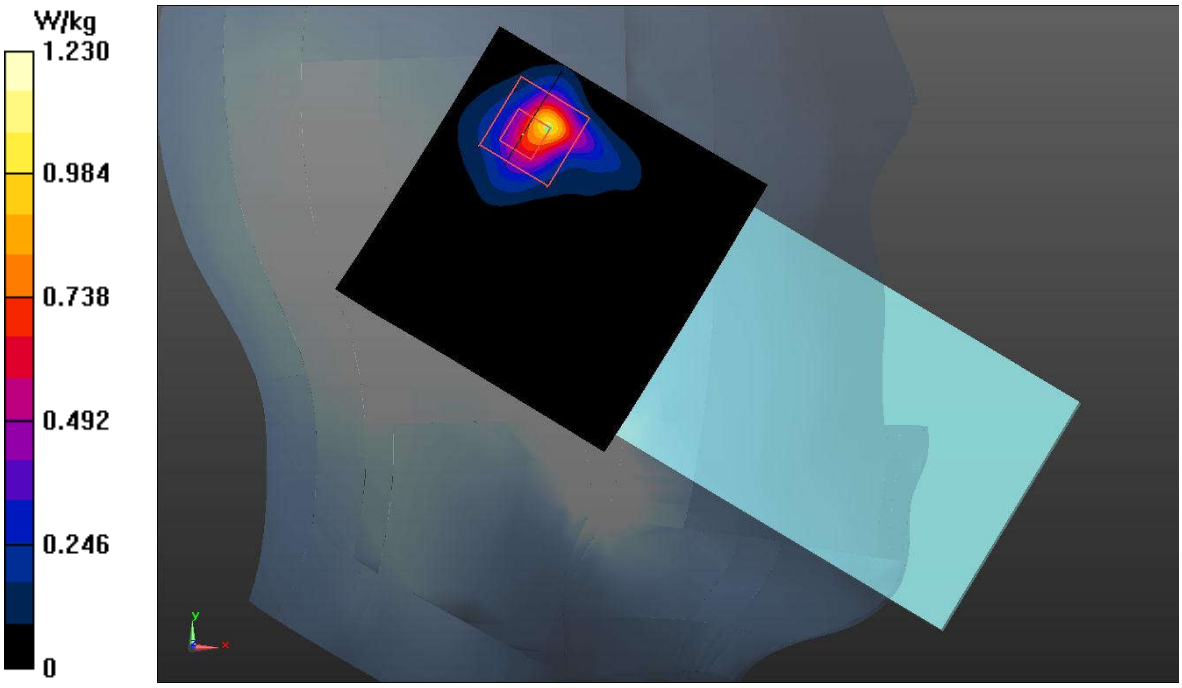


Fig.67 WLAN 5G Head

WLAN 5G Hotspot
Date: 2021-11-24
Electronics: DAE4 Sn786
Medium: Head 5750MHz
Medium parameters used (interpolated): f = 5745 MHz; σ = 5.107 S/m; ε_r = 36.092; ρ = 1000 kg/m^3
Communication System: UID 0, WiFi (0) Frequency: 5745 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7621 ConvF (5.38, 5.38, 5.38);

Top Side Ch.149/Area Scan (61x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.328 W/kg

Top Side Ch.149/Zoom Scan (8x8x21)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.919 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.519 W/kg
SAR(1 g) = 0.162 W/kg; SAR(10 g) = 0.055 W/kg
Maximum value of SAR (measured) = 0.316 W/kg

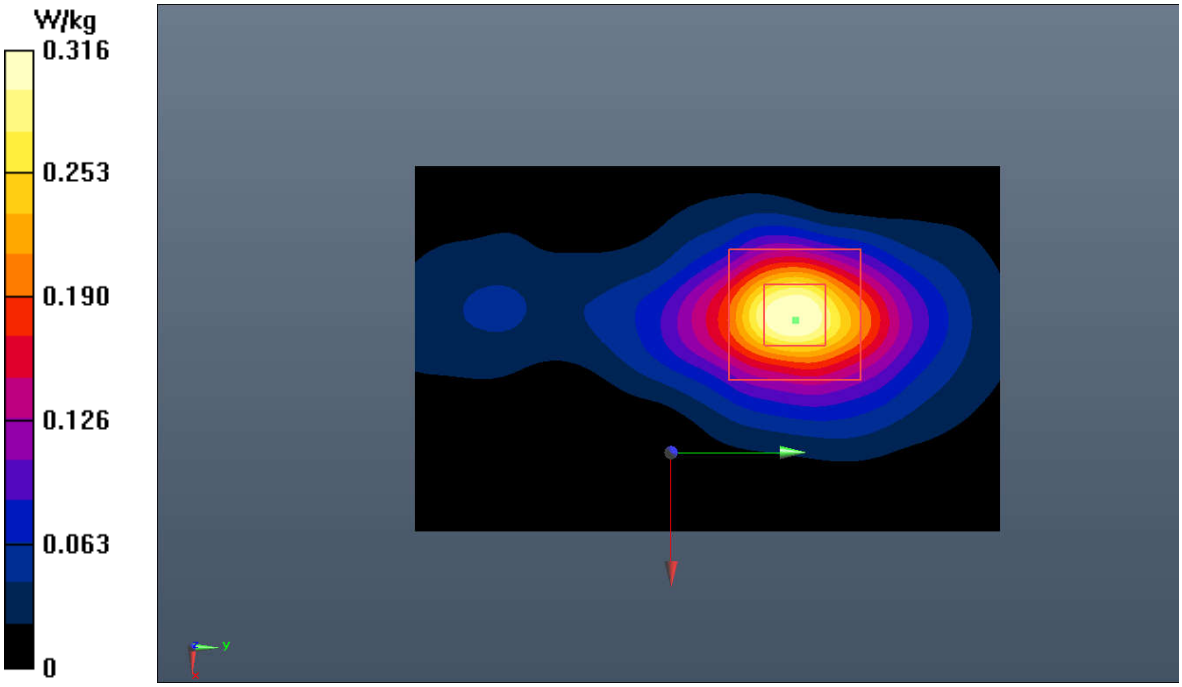


Fig.68 WLAN 5G Hotspot

WLAN 5G Body-worn
Date: 2021-11-24
Electronics: DAE4 Sn786
Medium: Head 5750MHz
Medium parameters used (interpolated): f = 5785 MHz; σ = 5.161 S/m; ε_r = 35.984; ρ = 1000 kg/m^3
Communication System: UID 0, WiFi (0) Frequency: 5785 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7621 ConvF (5.38, 5.38, 5.38);

Rear Side Ch.149/Area Scan (71x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.101 W/kg

Rear Side Ch.149/Zoom Scan (8x8x21)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 0.734 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.173 W/kg
SAR(1 g) = 0.076 W/kg; SAR(10 g) = 0.0.043 W/kg
Maximum value of SAR (measured) = 0.091 W/kg

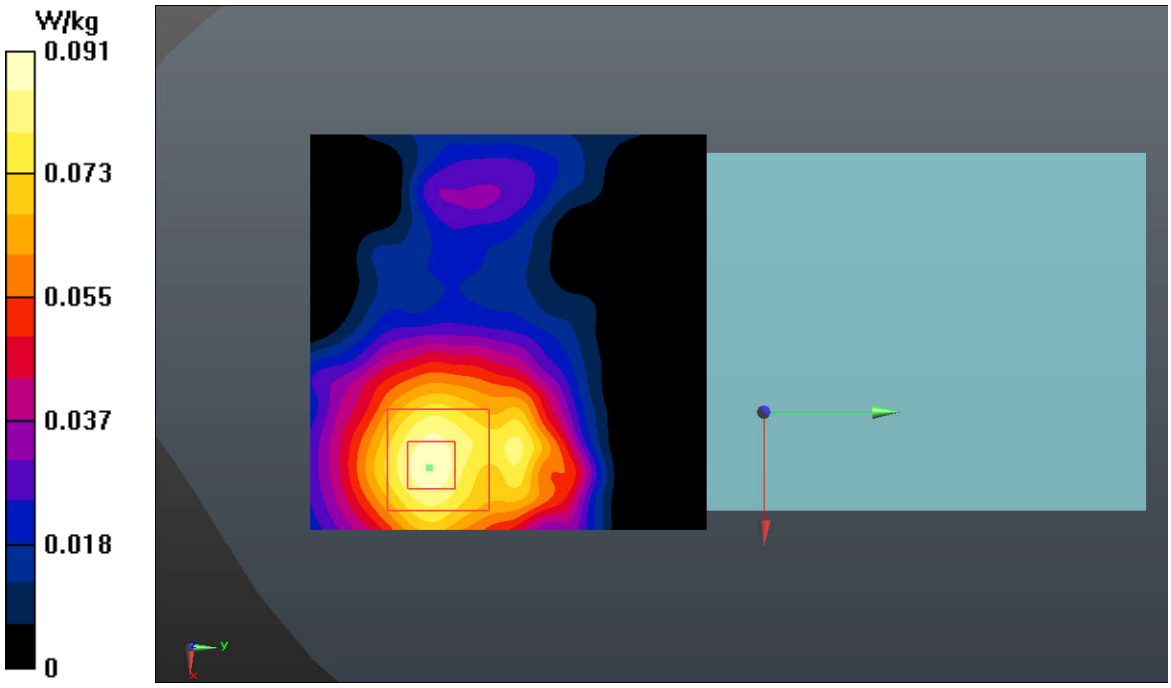


Fig.69 WLAN 5G Body-worn

WLAN 5G Body (0mm)
Date: 2021-11-24
Electronics: DAE4 Sn786
Medium: Head 5250MHz
Medium parameters used: f = 5280 MHz; σ = 4.669 S/m; ε_r = 36.663; ρ = 1000 kg/m^3
Communication System: UID 0, WiFi (0) Frequency: 5280 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7621 ConvF (5.97, 5.97, 5.97);

Top Side Ch.140/Area Scan (61x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.61 W/kg

Top Side Ch.140/Zoom Scan (8x8x21)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 0.6340 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 9.69 W/kg
SAR(1 g) = 1.44 W/kg; SAR(10 g) = 0.339 W/kg
Maximum value of SAR (measured) = 4.08 W/kg

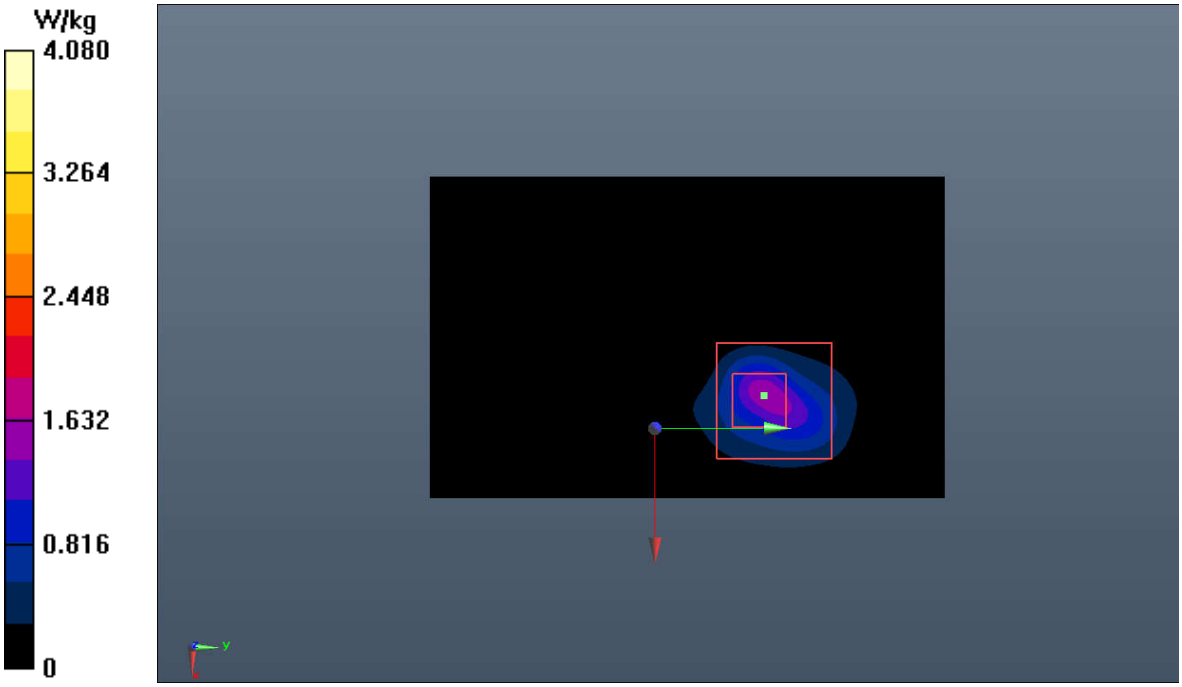


Fig.70 WLAN 5G Body(0mm)

ANNEX B: SystemVerification Results

750MHz

Date: 2021-11-01

Electronics: DAE4 Sn786

Medium: Head 750MHz

Medium parameters used: f = 750 MHz; σ = 0.916 S/m; ε_r = 40.884; ρ = 1000 kg/m^3

Communication System: CW_TMC Frequency: 750 MHz Duty Cycle: 1:1

Probe: ES3DV3 – SN3151 ConvF (6.40, 6.40, 6.40);

System Validation /Area Scan (81x161x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 62.355 V/m; Power Drift = 0.10 dB

SAR(1 g) = 2.16 W/kg; SAR(10 g) = 1.44 W/kg

Maximum value of SAR (interpolated) = 2.84 W/kg

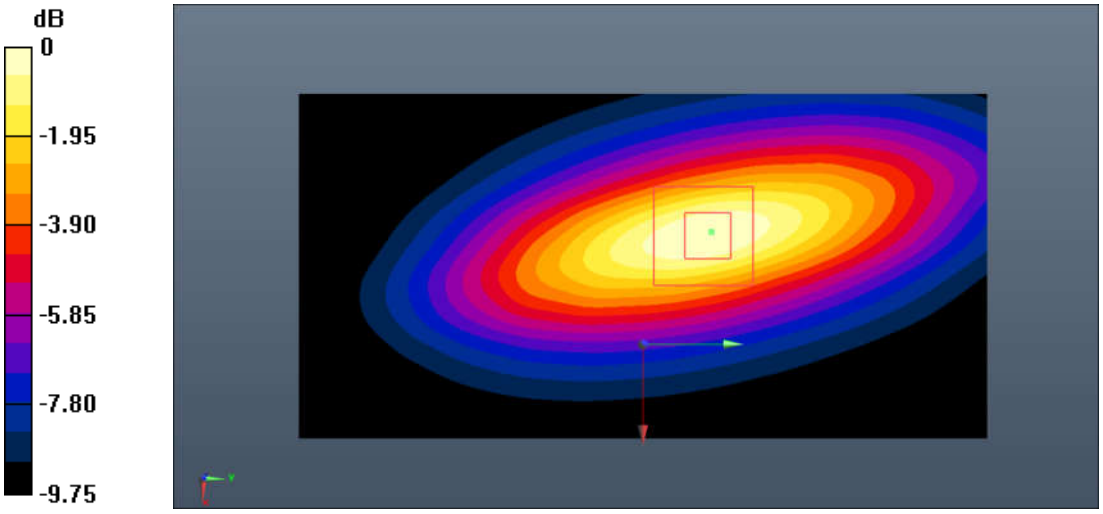
System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 62.355 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 3.41 W/kg

SAR(1 g) = 2.23 W/kg; SAR(10 g) = 1.47 W/kg

Maximum value of SAR (measured) = 2.88 W/kg



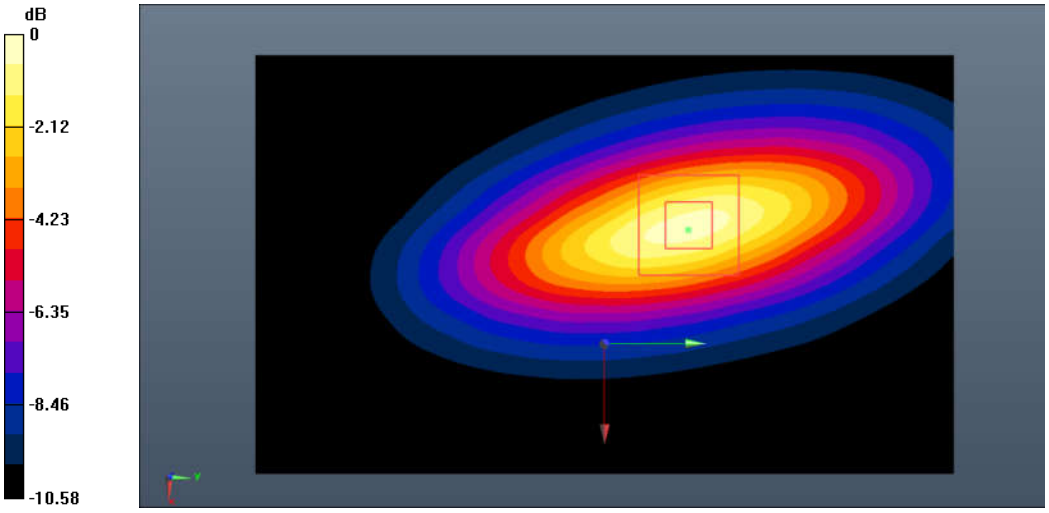
0 dB = 2.88 W/kg = 4.59 dB W/kg

Fig.B.1. Validation 750MHz 250mW

835MHz
Date: 2021-11-16
Electronics: DAE4 Sn786
Medium: Head 835MHz
Medium parameters used: f = 835 MHz; σ = 0.924 S/m; εr = 40.602; ρ = 1000 kg/m^3
Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (6.40, 6.40, 6.40);

System Validation /Area Scan (81x151x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 65.349 V/m; Power Drift = 0.10 dB
SAR(1 g) = 2.44 W/kg; SAR(10 g) = 1.58 W/kg
Maximum value of SAR (interpolated) = 3.35 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 65.349 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 3.74 W/kg
SAR(1 g) = 2.49 W/kg; SAR(10 g) = 1.61 W/kg
Maximum value of SAR (measured) = 3.39 W/kg



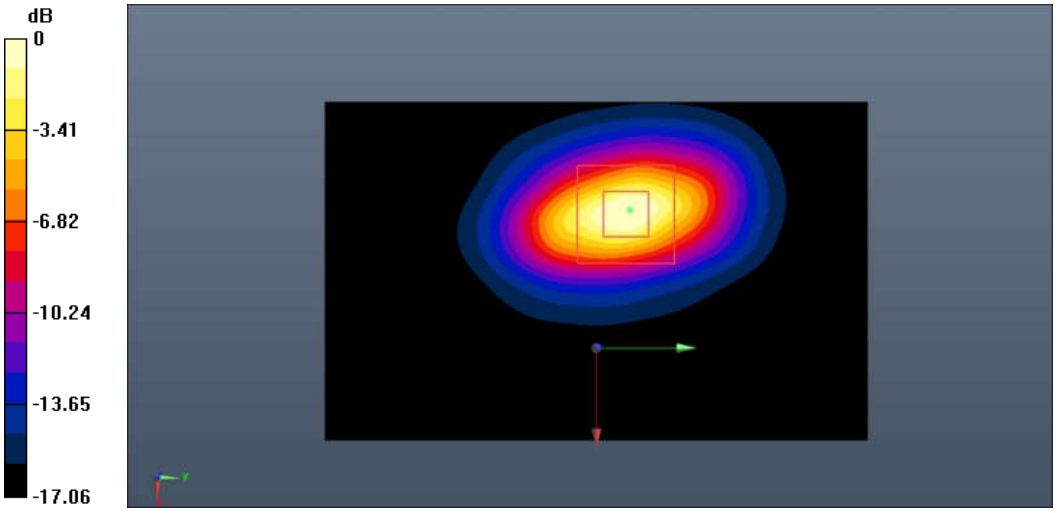
0 dB = 3.39 W/kg = 5.30 dB W/kg

Fig.B.2. Validation 835MHz 250mW

1750MHz
Date: 2021-10-29
Electronics: DAE4 Sn786
Medium: Head 1750MHz
Medium parameters used: f = 1750 MHz; σ = 1.382 S/m; ε_r = 39.556; ρ = 1000 kg/m^3
Communication System: CW_TMC Frequency: 1750 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (5.25, 5.25, 5.25);

System Validation /Area Scan (81x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 79.245 V/m; Power Drift = 0.02 dB
SAR(1 g) = 9.17 W/kg; SAR(10 g) = 4.83 W/kg
Maximum value of SAR (interpolated) = 11.3 W/kg

System Validation /Zoom Scan (7x7x7)/Cube0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 79.245 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 21.8 W/kg
SAR(1 g) = 9.35 W/kg; SAR(10 g) = 4.91 W/kg
Maximum value of SAR (measured) = 11.4 W/kg



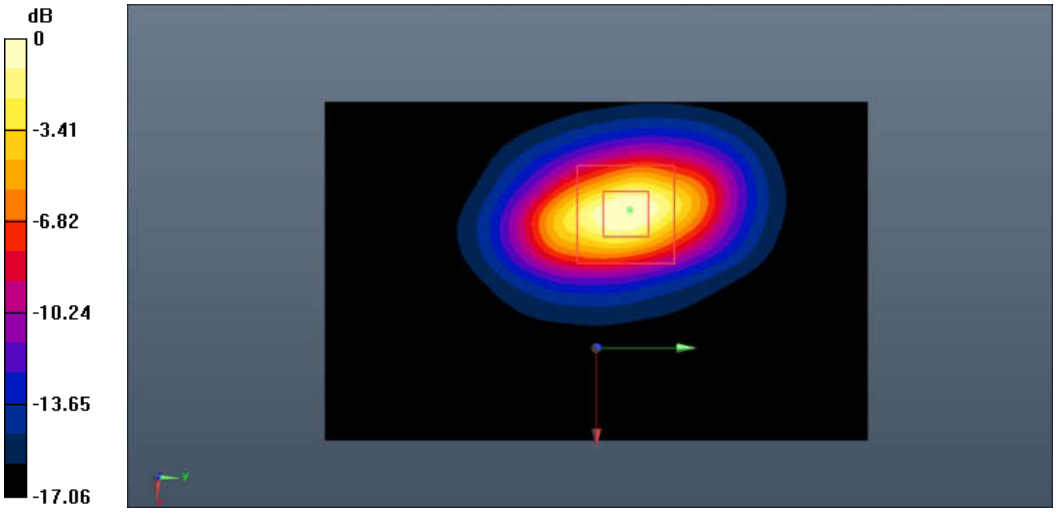
0 dB = 11.4 W/kg = 10.57 dB W/kg

Fig.B.3. Validation 1750MHz 250mW

1750MHz
Date: 2021-11-05
Electronics: DAE4 Sn786
Medium: Head 1750MHz
Medium parameters used: f = 1750 MHz; σ = 1.377 S/m; ε_r = 39.331; ρ = 1000 kg/m^3
Communication System: CW_TMC Frequency: 1750 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (5.25, 5.25, 5.25);

System Validation /Area Scan (81x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 78.744 V/m; Power Drift = 0.12 dB
SAR(1 g) = 9.08 W/kg; SAR(10 g) = 4.80 W/kg
Maximum value of SAR (interpolated) = 11.1 W/kg

System Validation /Zoom Scan (7x7x7)/Cube0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 78.744 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 21.3 W/kg
SAR(1 g) = 9.28 W/kg; SAR(10 g) = 4.87 W/kg
Maximum value of SAR (measured) = 11.3 W/kg



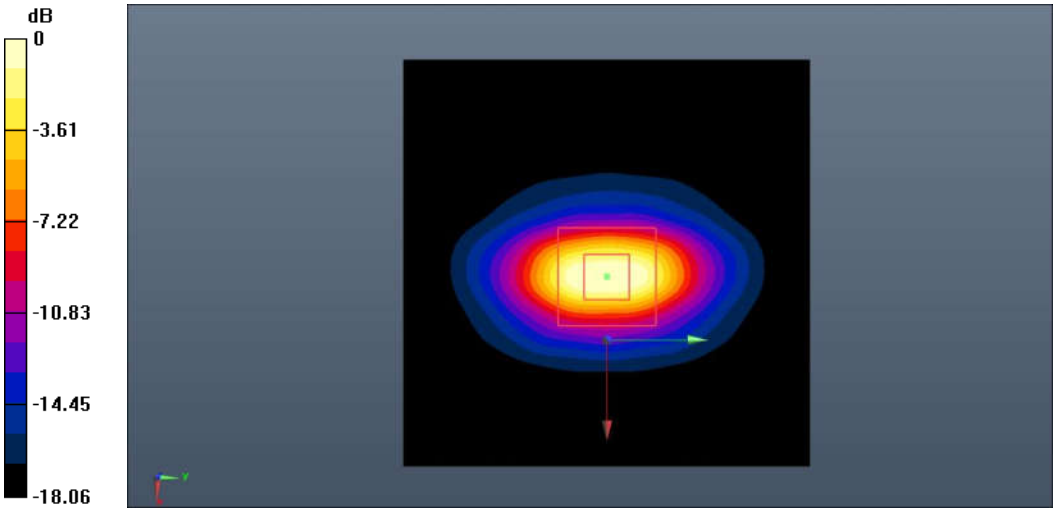
0 dB = 11.3 W/kg = 10.53 dB W/kg

Fig.B.4. Validation 1750MHz 250mW

1900MHz
Date: 2021-10-20
Electronics: DAE4 Sn786
Medium: Head 1900MHz
Medium parameters used: f = 1900 MHz; σ = 1.378 S/m; ε_r = 40.774; ρ = 1000 kg/m^3
Communication System: CW_TMC Frequency: 1900 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (5.09, 5.09, 5.09);

System Validation /Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 80.913 V/m; Power Drift = -0.09 dB
SAR(1 g) = 9.84 W/kg; SAR(10 g) = 5.12 W/kg
Maximum value of SAR (interpolated) = 11.9 W/kg

System Validation /Zoom Scan (7x7x7)/Cube0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 80.913 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 23.6 W/kg
SAR(1 g) = 9.65 W/kg; SAR(10 g) = 5.01 W/kg
Maximum value of SAR (measured) = 11.7 W/kg



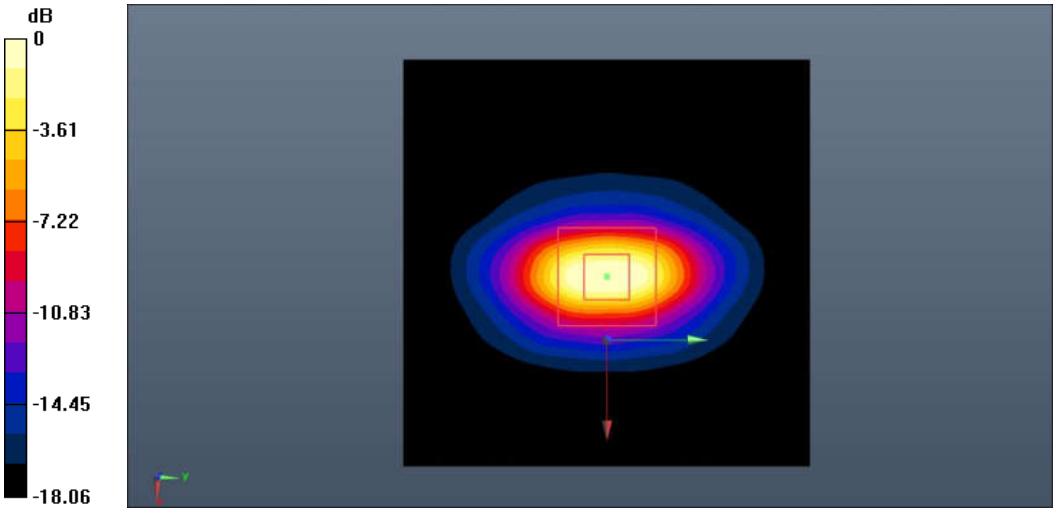
0 dB = 11.7 W/kg = 10.68 dB W/kg

Fig.B.5. Validation 1900MHz 250mW

1900MHz
Date: 2021-10-22
Electronics: DAE4 Sn786
Medium: Head 1900MHz
Medium parameters used: f = 1900 MHz; σ = 1.389 S/m; ε_r = 40.845; ρ = 1000 kg/m^3
Communication System: CW_TMC Frequency: 1900 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (5.09, 5.09, 5.09);

System Validation /Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 81.518 V/m; Power Drift = -0.11 dB
SAR(1 g) = 9.94 W/kg; SAR(10 g) = 5.18 W/kg
Maximum value of SAR (interpolated) = 12.2 W/kg

System Validation /Zoom Scan (7x7x7)/Cube0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 81.518 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 24.5 W/kg
SAR(1 g) = 9.87 W/kg; SAR(10 g) = 5.08 W/kg
Maximum value of SAR (measured) = 12.0 W/kg



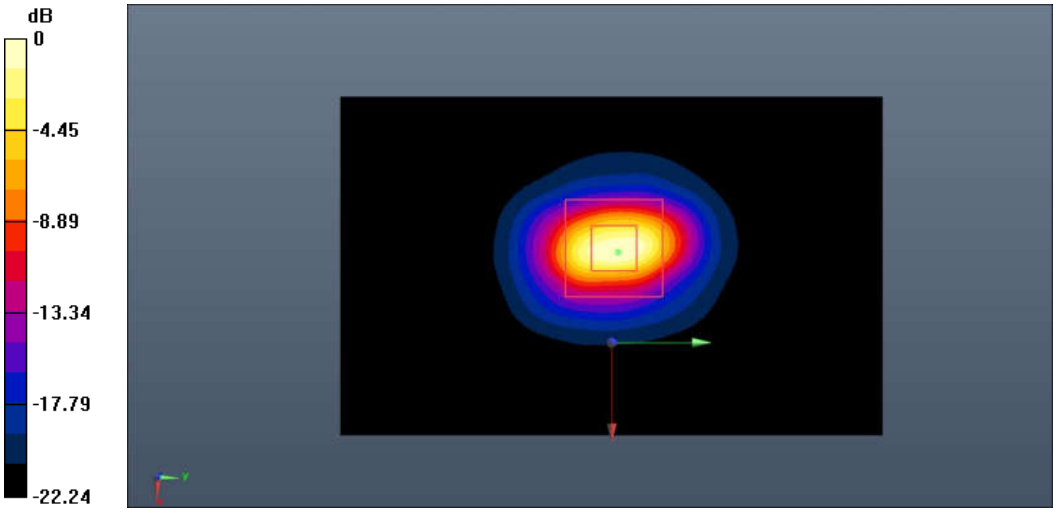
0 dB = 11.9 W/kg = 10.79 dB W/kg

Fig.B.6. Validation 1900MHz 250mW

2450MHz
Date: 2021-12-1
Electronics: DAE4 Sn786
Medium: Head 2450MHz
Medium parameters used: f = 2450 MHz; σ = 1.836 S/m; ε_r = 38.424; ρ = 1000 kg/m^3
Communication System: CW_TMC Frequency: 2450 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (4.58, 4.58, 4.58);

System Validation /Area Scan (81x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 92.014 V/m; Power Drift = 0.07 dB
SAR(1 g) = 13.4 W/kg; SAR(10 g) = 6.08 W/kg
Maximum value of SAR (interpolated) = 15.3 W/kg

System Validation /Zoom Scan (7x7x7)/Cube0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 92.014 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 33.9 W/kg
SAR(1 g) = 13.7 W/kg; SAR(10 g) = 6.15 W/kg
Maximum value of SAR (measured) = 15.6 W/kg



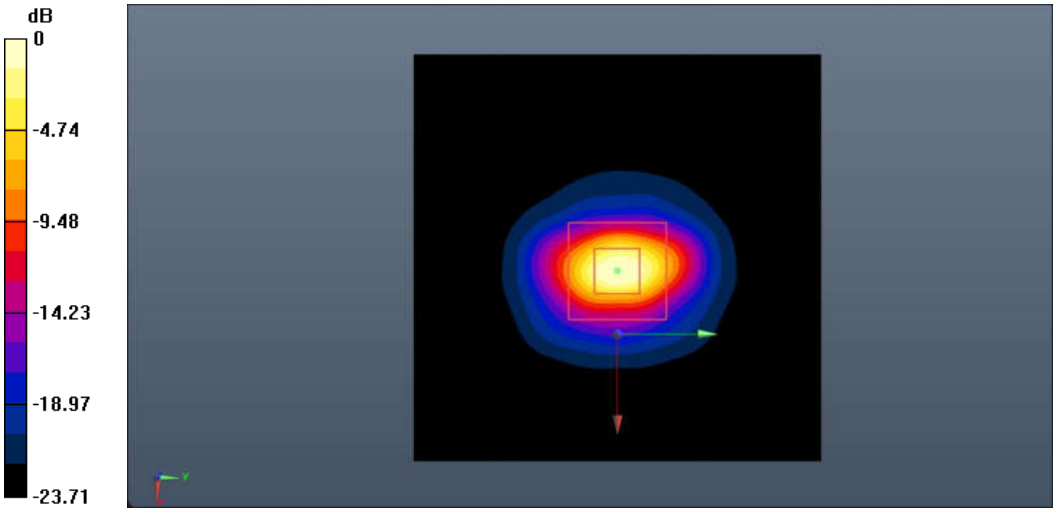
0 dB = 15.6 W/kg = 11.93 dB W/kg

Fig.B.7. Validation 2450MHz 250mW

2550MHz
Date: 2021-10-25
Electronics: DAE4 Sn786
Medium: Head 2550MHz
Medium parameters used: f = 2550 MHz; σ = 1.939 S/m; ε_r = 38.507; ρ = 1000 kg/m^3
Communication System: CW_TMC Frequency: 2550 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (4.58, 4.58, 4.58);

System Validation /Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 93.745 V/m; Power Drift = 0.10 dB
SAR(1 g) = 14.2 W/kg; SAR(10 g) = 6.33 W/kg
Maximum value of SAR (interpolated) = 16.1 W/kg

System Validation /Zoom Scan (7x7x7)/Cube0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 93.745 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 37.6 W/kg
SAR(1 g) = 14.4 W/kg; SAR(10 g) = 6.42 W/kg
Maximum value of SAR (measured) = 16.3 W/kg



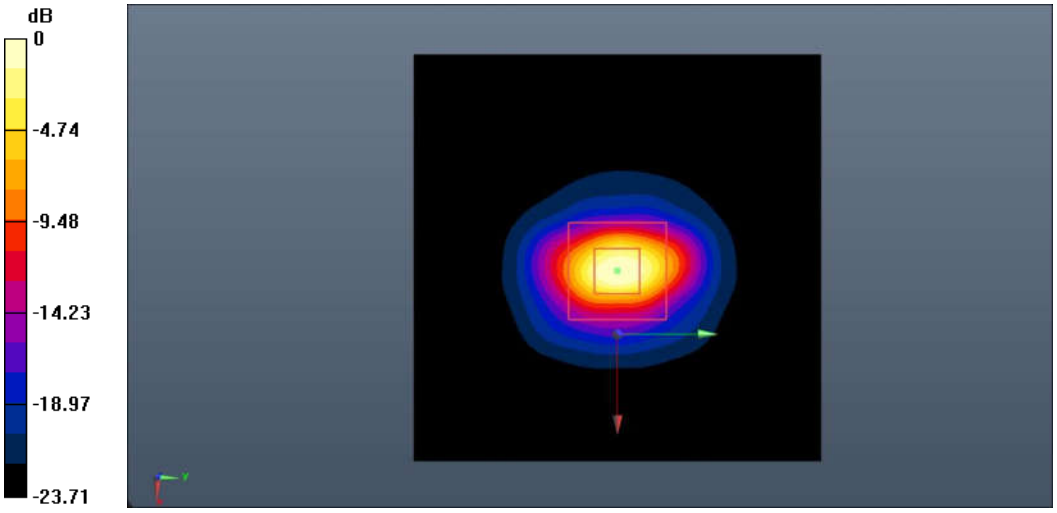
0 dB = 16.3 W/kg = 12.12 dB W/kg

Fig.B.8. Validation 2550MHz 250mW

2550MHz
Date: 2021-10-26
Electronics: DAE4 Sn786
Medium: Head 2550MHz
Medium parameters used: f = 2550 MHz; σ = 1.945 S/m; ε_r = 38.026; ρ = 1000 kg/m^3
Communication System: CW_TMC Frequency: 2550 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (4.58, 4.58, 4.58);

System Validation /Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 94.248 V/m; Power Drift = 0.05 dB
SAR(1 g) = 14.4 W/kg; SAR(10 g) = 6.38 W/kg
Maximum value of SAR (interpolated) = 16.5 W/kg

System Validation /Zoom Scan (7x7x7)/Cube0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.248 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 38.3 W/kg
SAR(1 g) = 14.6 W/kg; SAR(10 g) = 6.49 W/kg
Maximum value of SAR (measured) = 16.8 W/kg



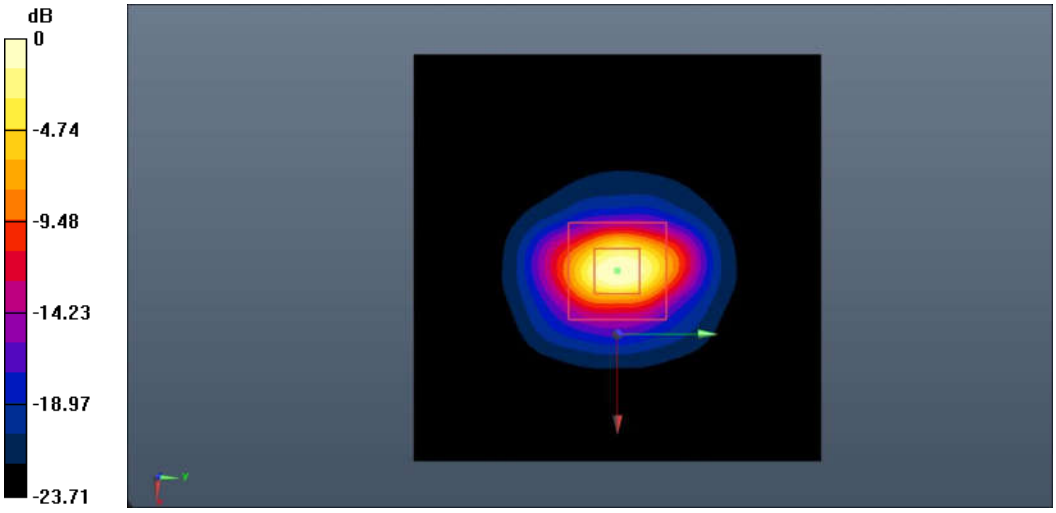
0 dB = 16.8 W/kg = 12.25 dB W/kg

Fig.B.9. Validation 2550MHz 250mW

2550MHz
Date: 2021-11-26
Electronics: DAE4 Sn786
Medium: Head 2550MHz
Medium parameters used: f = 2550 MHz; σ = 1.931 S/m; ε_r = 38.268; ρ = 1000 kg/m^3
Communication System: CW_TMC Frequency: 2550 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (4.58, 4.58, 4.58);

System Validation /Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 93.322 V/m; Power Drift = 0.03 dB
SAR(1 g) = 14.1 W/kg; SAR(10 g) = 6.29 W/kg
Maximum value of SAR (interpolated) = 15.9 W/kg

System Validation /Zoom Scan (7x7x7)/Cube0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 93.322 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 36.9 W/kg
SAR(1 g) = 14.3 W/kg; SAR(10 g) = 6.37 W/kg
Maximum value of SAR (measured) = 16.2 W/kg



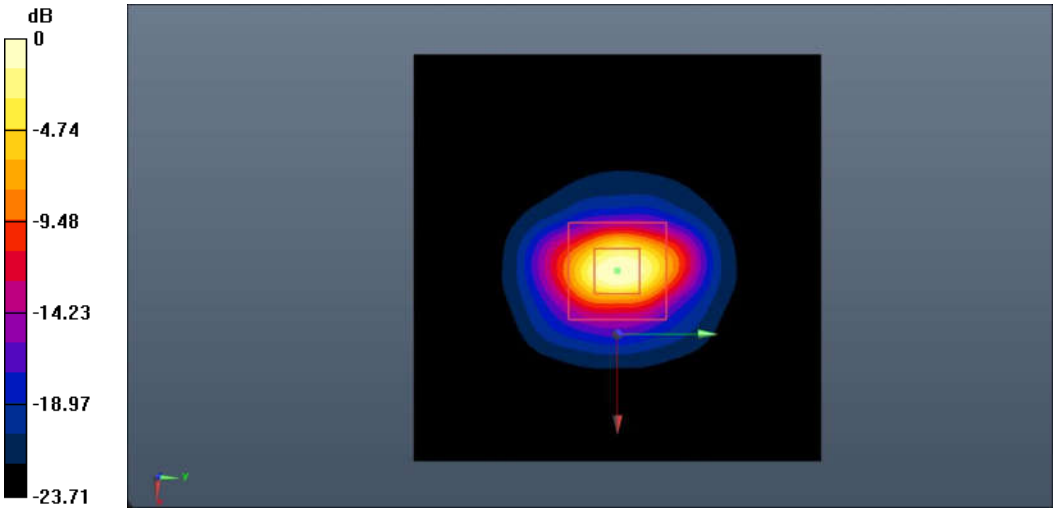
0 dB = 16.2 W/kg = 12.10 dB W/kg

Fig.B.10. Validation 2550MHz 250mW

2550MHz
Date: 2021-11-27
Electronics: DAE4 Sn786
Medium: Head 2550MHz
Medium parameters used: f = 2550 MHz; σ = 1.924 S/m; ε_r = 38.682; ρ = 1000 kg/m^3
Communication System: CW_TMC Frequency: 2550 MHz Duty Cycle: 1:1
Probe: ES3DV3 – SN3151 ConvF (4.58, 4.58, 4.58);

System Validation /Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 92.855 V/m; Power Drift = 0.13 dB
SAR(1 g) = 13.9 W/kg; SAR(10 g) = 6.22 W/kg
Maximum value of SAR (interpolated) = 15.8 W/kg

System Validation /Zoom Scan (7x7x7)/Cube0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 92.855 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 36.1 W/kg
SAR(1 g) = 14.2 W/kg; SAR(10 g) = 6.34 W/kg
Maximum value of SAR (measured) = 16.1 W/kg



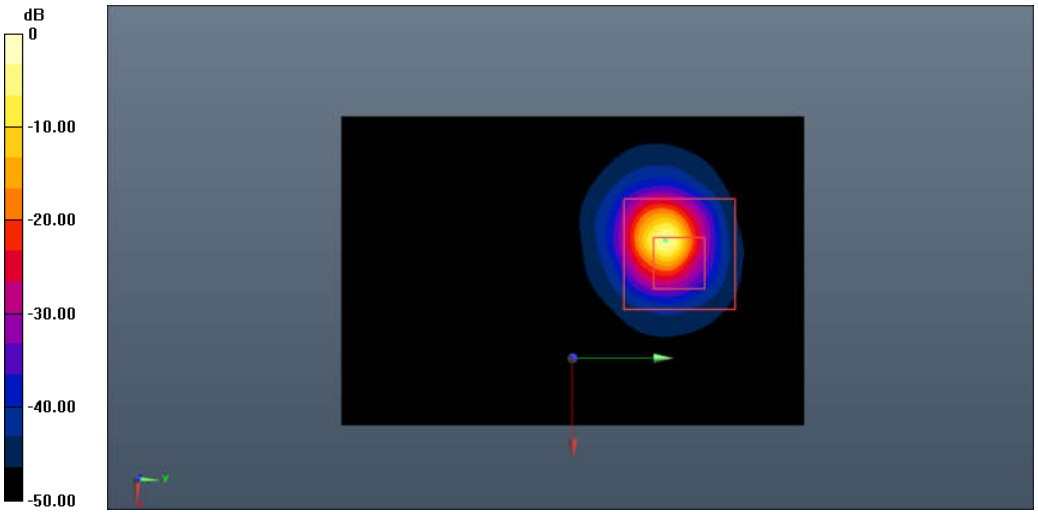
0 dB = 16.1 W/kg = 12.07 dB W/kg

Fig.B.11. Validation 2550MHz 250mW

5250MHz
Date: 2021-11-24
Electronics: DAE4 Sn786
Medium: Head 5250MHz
Medium parameters used: f = 5250 MHz; σ = 4.658 S/m; ε_r = 36.744; ρ = 1000 kg/m^3
Communication System: CW Frequency: 5250 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7621 ConvF (5.97, 5.97, 5.97);

System Validation /Area Scan (61x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 64.112 V/m; Power Drift = -0.08 dB
SAR(1 g) = 7.76 W/kg; SAR(10 g) = 2.22 W/kg
Maximum value of SAR (interpolated) = 9.86 W/kg

System Validation /Zoom Scan (8x8x21)/Cube0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 64.112 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 23.4 W/kg
SAR(1 g) = 7.64 W/kg; SAR(10 g) = 2.20 W/kg
Maximum value of SAR (measured) = 9.79 W/kg



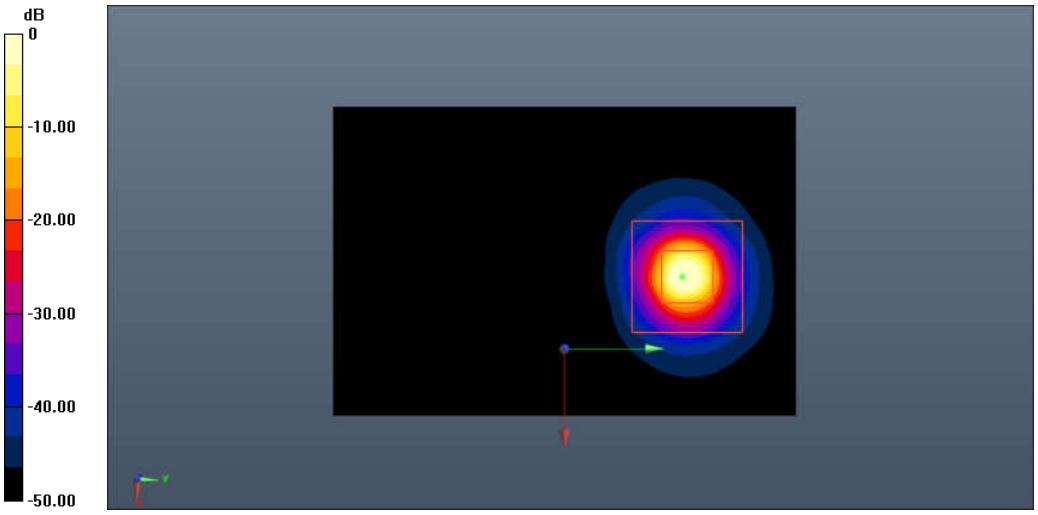
0 dB = 9.79 W/kg = 9.91 dB W/kg

Fig.B.12. Validation 5250MHz 100mW

5600MHz
Date: 2021-11-24
Electronics: DAE4 Sn786
Medium: Head 5600MHz
Medium parameters used: f = 5600 MHz; σ = 5.175 S/m; ε_r = 34.633; ρ = 1000 kg/m^3
Communication System: CW Frequency: 5600 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7621 ConvF (5.43, 5.43, 5.43);

System Validation /Area Scan (61x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 67.114 V/m; Power Drift = 0.02 dB
SAR(1 g) = 8.13 W/kg; SAR(10 g) = 2.29 W/kg
Maximum value of SAR (interpolated) = 10.2 W/kg

System Validation /Zoom Scan (8x8x21)/Cube0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 67.114 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 27.1 W/kg
SAR(1 g) = 8.30 W/kg; SAR(10 g) = 2.34 W/kg
Maximum value of SAR (measured) = 10.4 W/kg



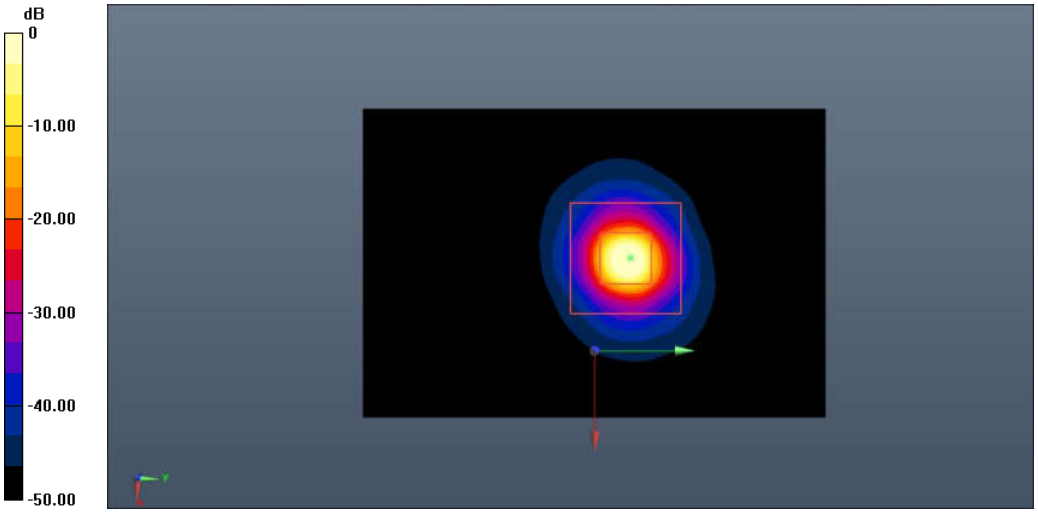
0 dB = 10.4 W/kg = 10.17 dB W/kg

Fig.B.13. Validation 5600MHz 100mW

5750MHz
Date: 2021-11-24
Electronics: DAE4 Sn786
Medium: Head 5750 MHz
Medium parameters used: f = 5750 MHz; σ = 5.114 S/m; ε_r = 36.078; ρ = 1000 kg/m^3
Communication System: CW Frequency: 5750 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7621 ConvF (5.38, 5.38, 5.38);

System Validation /Area Scan (61x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 63.711 V/m; Power Drift = -0.04 dB
SAR(1 g) = 7.69 W/kg; SAR(10 g) = 2.21 W/kg
Maximum value of SAR (interpolated) = 9.72 W/kg

System Validation /Zoom Scan (8x8x21)/Cube0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 63.711 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 22.6 W/kg
SAR(1 g) = 7.56 W/kg; SAR(10 g) = 2.18 W/kg
Maximum value of SAR (measured) = 9.66 W/kg



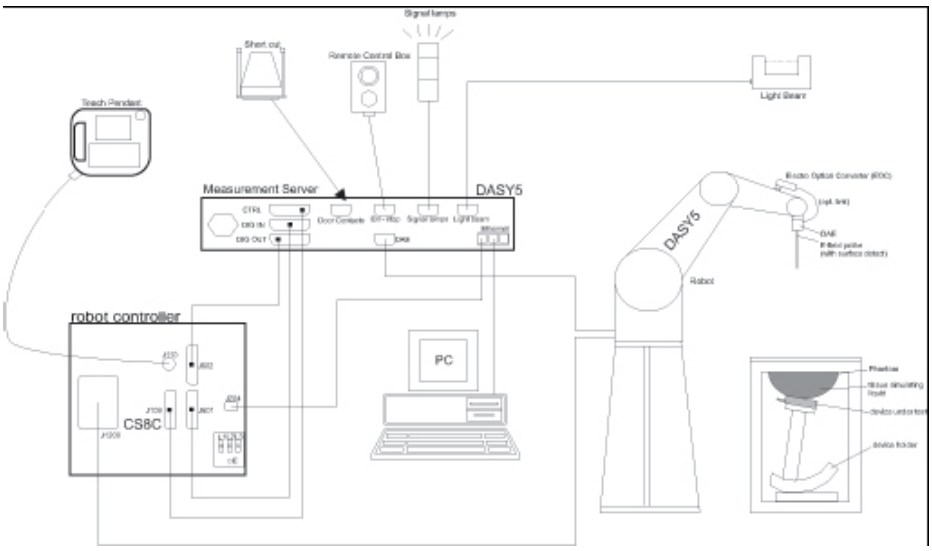
0 dB = 9.66 W/kg = 9.85 dB W/kg

Fig.B.14. Validation 5750MHz 100mW

ANNEX C: SAR Measurement Setup

C.1. Measurement Set-up

DASY5 system for performing compliance tests is illustrated above graphically. This system consists of the following items:



Picture C.1 SAR Lab Test Measurement Set-up

- A standard high precision 6-axis robot (Stäubli TX=RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as
- warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

C.2. DASY5 E-field Probe System

The SAR measurements were conducted with the dosimetric probe designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe is constructed using the thick film technique; with printed resistive lines on ceramic substrates. The probe is equipped with an optical multifiber line ending at the front of the probe tip. It is connected to the EOC box on the robot arm and provides an automatic detection of the phantom surface. Half of the fibers are connected to a pulsed infrared transmitter, the other half to a synchronized receiver. As the probe approaches the surface, the reflection from the surface produces a coupling from the transmitting to the receiving fibers. This reflection increases first during the approach, reaches maximum and then decreases. If the probe is flatly touching the surface, the coupling is zero. The distance of the coupling maximum to the surface is independent of the surface reflectivity and largely independent of the surface to probe angle. The DASY5 software reads the reflection durning a software approach and looks for the maximum using 2ndord curve fitting. The approach is stopped at reaching the maximum.

Probe Specifications:

Model:	**ES3DV3, EX3DV4**
Frequency	**10MHz — 6.0GHz(EX3DV4)**
Range:	**10MHz — 4GHz(ES3DV3)**
Calibration:	**In head and body simulating tissue at Frequencies from 835 up to 5800MHz**
Linearity:	**± 0.2 dB(30 MHz to 6 GHz) for EX3DV4**
	± 0.2 dB(30 MHz to 4 GHz) for ES3DV3
Dynamic Range:	**10 mW/kg — 100W/kg**
Probe Length:	**330 mm**
Probe Tip Length:	**20 mm**
Body Diameter:	**12 mm**
Tip Diameter:	**2.5 mm (3.9 mm for ES3DV3)**
Tip-Center:	**1 mm (2.0mm for ES3DV3)**
Application:	**SAR Dosimetry Testing**
	Compliance tests of mobile phones
	Dosimetry in strong gradient fields

Picture C.2 Near-field Probe

Picture C.3 E-field Probe

C.3. E-field Probe Calibration

Each E-Probe/Probe Amplifier combination has unique calibration parameters. A TEM cell calibration procedure is conducted to determine the proper amplifier settings to enter in the probe parameters. The amplifier settings are determined for a given frequency by subjecting the probe to a known E-field density (1 mW/cm^2) using an RF Signal generator, TEM cell, and RF Power Meter.

The free space E-field from amplified probe outputs is determined in a test chamber. This calibration can be performed in a TEM cell if the frequency is below 1 GHz and inn a waveguide or other methodologies above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees until the three channels show the maximum reading. The power density readings equates to 1 mW/ cm^2.

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The E-field in the medium correlates with the temperature rise in the dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

$$SAR = C\frac{\Delta T}{\Delta t}$$

Where:

Δt = Exposure time (30 seconds),

C = Heat capacity of tissue (brain or muscle),

ΔT = Temperature increase due to RF exposure.

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

Where:

σ = Simulated tissue conductivity,

ρ = Tissue density (kg/m^3).

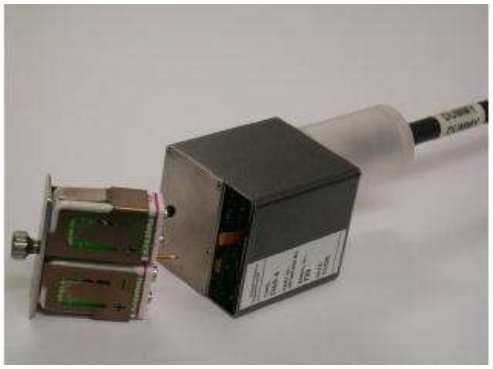
C.4. Other Test Equipment

C.4.1. Data Acquisition Electronics (DAE)

The data acquisition electronics consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information, as well as an optical uplink for commands and the clock.

The mechanical probe mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection.

The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.



PictureC.4: DAE

C.4.2. Robot

The SPEAG DASY system uses the high precision robots (DASY5: RX160L) type from Stäubli SA (France). For the 6-axis controller system, the robot controller version from Stäubli is used. The Stäubli robot series have many features that are important for our application:

- High precision (repeatability 0.02mm)
- High reliability (industrial design)
- Low maintenance costs (virtually maintenance free due to direct drive gears; no belt drives)
- Jerk-free straight movements (brushless synchron motors; no stepper motors)
- Low ELF interference (motor control fields shielded via the closed metallic construction shields)

Picture C.5 DASY 5

C.4.3. Measurement Server

The Measurement server is based on a PC/104 CPU broad with CPU (DASY5: 400 MHz, Intel Celeron), chipdisk (DASY5:128MB), RAM (DASY5:128MB). The necessary circuits for communication with the DAE electronic box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY I/O broad, which is directly connected to the PC/104 bus of the CPU broad.

The measurement server performs all real-time data evaluation of field measurements and surface detection, controls robot movements and handles safety operation. The PC operating system cannot interfere with these time critical processes. All connections are supervised by a watchdog, and disconnection of any of the cables to the measurement server will automatically disarm the robot and disable all program-controlled robot movements. Furthermore, the measurement server is equipped with an expansion port which is reserved for future applications. Please note that this expansion port does not have a standardized pinout, and therefore only devices provided by SPEAG can be connected. Devices from any other supplier could seriously damage the measurement server.

Picture C.6 Server for DASY 5

C.4.4. Device Holder for Phantom

The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source at 5mm distance, a positioning uncertainty of ±0.5mm would produce a SAR uncertainty of ±20%. Accurate device positioning is therefore crucial for accurate and repeatable measurements. The positions in which the devices must be measured are defined by the standards.

The DASY device holder is designed to cope with the different positions given in the standard. It has two scales for device rotation (with respect to the body axis) and device inclination (with respect to the line between the ear reference points). The rotation centers for both scales is the ear reference point (ERP). Thus the device needs no repositioning when changing the angles.

The DASY device holder is constructed of low-loss

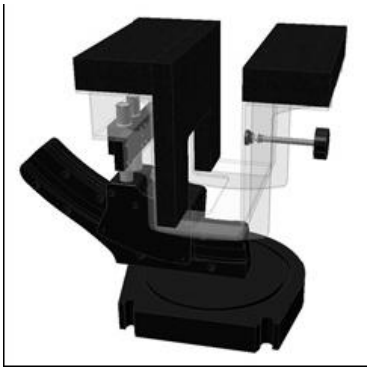
POM material having the following dielectric

parameters: relative permittivity ε =3 and loss tangent δ =0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

<Laptop Extension Kit>

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the Mounting Device in place of the phone positioner. The extension is fully compatible with the Twin-SAM and ELI phantoms.

Picture C.7-1: Device Holder



Picture C.7-2: Laptop Extension Kit

C.4.5. Phantom

The SAM Twin Phantom V4.0 is constructed of a fiberglass shell integrated in a table. The shape of the shell is based on data from an anatomical study designed to

Represent the 90th percentile of the population. The phantom enables the dissymmetric evaluation of SAR for both left and right handed handset usage, as well as body-worn usage using the flat phantom region. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot. The shell phantom has a 2mm shell thickness (except the ear region where shell thickness increases to 6 mm).

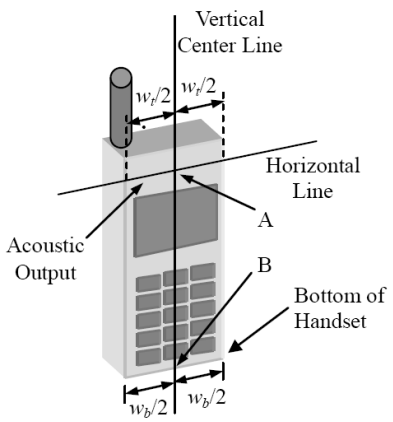
Shell Thickness: 2 ± 0. 2 mm
Filling Volume: Approx. 25 liters
Dimensions: 810 x l000 x 500 mm (H x L x W)
Available: Special

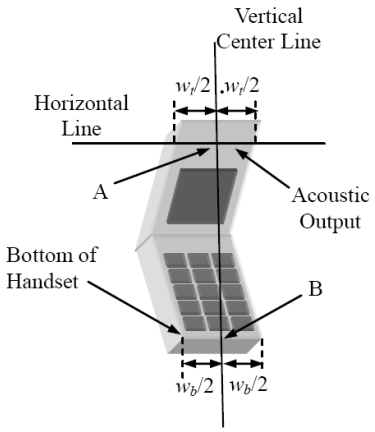
Picture C.8: SAM Twin Phantom

ANNEX D: Position of the wireless device in relation to the phantom

D.1. General Considerations

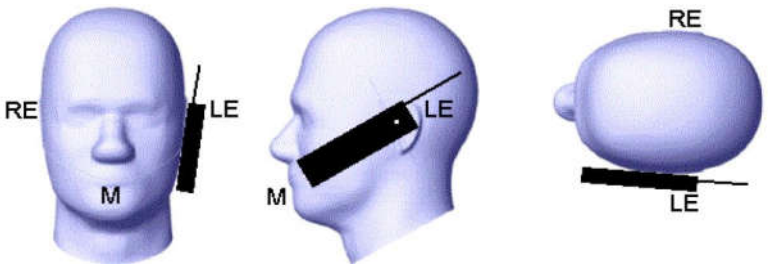
This standard specifies two handset test positions against the head phantom – the “cheek” position and the “tilt” position.



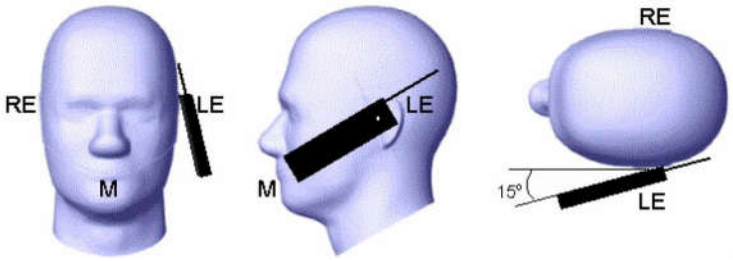


w_t	Width of the handset at the level of the acoustic
w_b	Width of the bottom of the handset
A	Midpoint of the width w_t of the handset at the level of the acoustic output
B	Midpoint of the width w_b of the bottom of the handset

Picture D.1-a Typical “fixed” case handset **Picture D.1-b Typical “clam-shell” case handset**



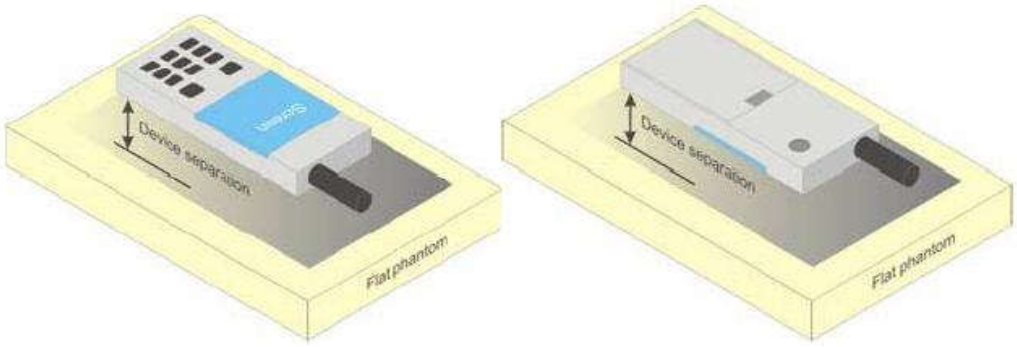
Picture D.2 Cheek position of the wireless device on the left side of SAM



Picture D.3 Tilt position of the wireless device on the left side of SAM

D.2. Body-worn device

A typical example of a body-worn device is a mobile phone, wireless enabled PDA or other battery operated wireless device with the ability to transmit while mounted on a person's body using a carry accessory approved by the wireless device manufacturer.

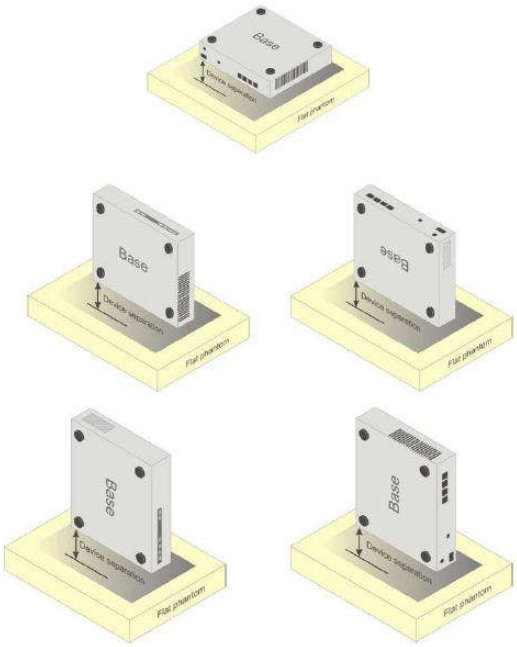


Picture D.4 Test positions for body-worn devices

D.3. Desktop device

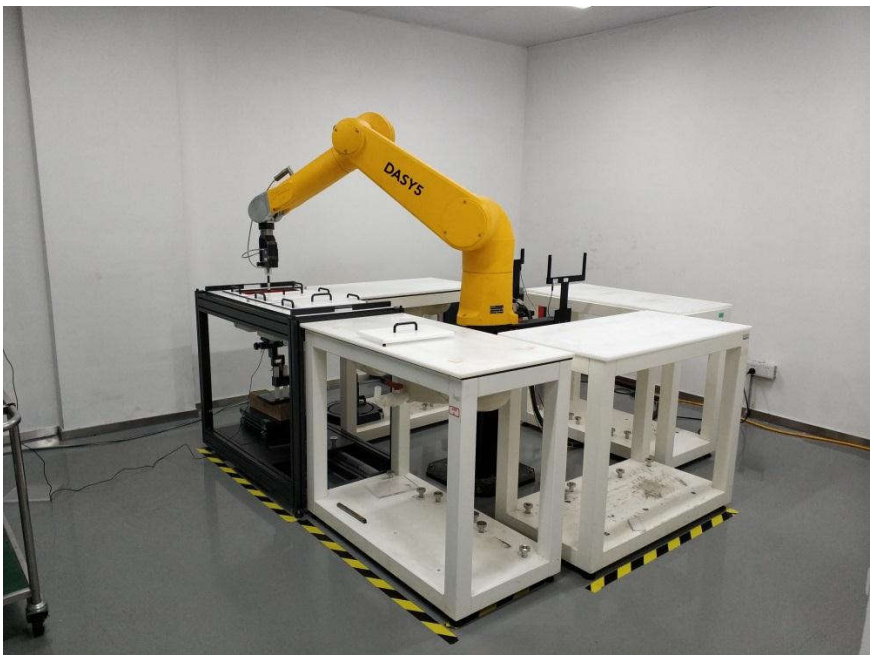
A typical example of a desktop device is a wireless enabled desktop computer placed on a table or desk when used.

The DUT shall be positioned at the distance and in the orientation to the phantom that corresponds to the intended use as specified by the manufacturer in the user instructions. For devices that employ an external antenna with variable positions, tests shall be performed for all antenna positions specified. Picture 8.5 show positions for desktop device SAR tests. If the intended use is not specified, the device shall be tested directly against the flat phantom.



Picture D.5 Test positions for desktop devices

D.4. DUT Setup Photos



Picture D.6

ANNEX E: Equivalent Media Recipes

The liquid used for the frequency range of 700-6000 MHz consisted of water, sugar, salt, preventol, glycol monobutyl and Cellulose. The liquid has been previously proven to be suited for worst-case. The Table E.1 shows the detail solution. It's satisfying the latest tissue dielectric parameters requirements proposed by the IEEE 1528 and IEC 62209.

Table E.1: Composition of the Tissue Equivalent Matter

Frequency (MHz)	835	1750	1900	2450	2600	5200	5800
Water	41.45	55.242	55.242	58.79	58.79	65.53	66.10
Sugar	56.0	/	/	/	/	/	/
Salt	1.45	0.306	0.306	0.06	0.06		
Preventol	0.1	/	/	/	/	17.24	16.95
Cellulose	1.0	/	/	/	/	17.24	16.95
Glycol Monobutyl	/	44.452	44.452	41.15	41.15	/	/
Diethylenglycol monohexylether	/	/	/	/	/	/	/
Triton X-100	/	/	/	/	/	/	/
Dielectric Parameters Target Value	ε=41.5 σ=0.90	ε=40.08 σ=1.37	ε=40.0 σ=1.40	ε=39.20 σ=1.80	ε=39.01 σ=1.96	ε=35.99 σ=4.66	ε=35.30 σ=5.27

Note: There is a little adjustment respectively for 750, 5300 and 5600, based on the recipe of closest frequency in table E.1

ANNEX F: System Validation

The SAR system must be validated against its performance specifications before it is deployed. When SAR probes, system components or software are changed, upgraded or recalibrated, these must be validated with the SAR system(s) that operates with such components.

Table F.1: System Validation

Probe SN.	Liquid name	Validation date	Frequency point	Status (OK or Not)
3151	Head 750MHz	2021-04-29	750 MHz	OK
3151	Head 835MHz	2021-04-29	835 MHz	OK
3151	Head 1750MHz	2021-04-29	1750 MHz	OK
3151	Head 1900MHz	2021-04-29	1900 MHz	OK
3151	Head 2450MHz	2021-04-30	2450 MHz	OK
3151	Head 2550MHz	2021-04-30	2550 MHz	OK
7621	Head 5200MHz	2020-12-04	5250 MHz	OK
7621	Head 5600MHz	2020-12-04	5600 MHz	OK
7621	Head 5750MHz	2020-12-04	5750 MHz	OK

ANNEX G: DAE Calibration Certificate

In Collaboration with
s p e a g
CALIBRATION LABORATORY
Add: No.52 HuaYuanBei 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

Client : CTTL(South Branch) Certificate No: Z21-60093

CALIBRATION CERTIFICATE

Object	DAE4 - SN: 786
Calibration Procedure(s)	FF-Z11-002-01 Calibration Procedure for the Data Acquisition Electronics (DAEx)
Calibration date:	April 09, 2021

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(Calibrated by, Certificate No.)	Scheduled Calibration
Process Calibrator 753	1971018	16-Jun-20 (CTTL, No.J20X04342)	Jun-21

	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: April 11, 2021

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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.

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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	404.112 ± 0.15% (k=2)	404.269 ± 0.15% (k=2)	404.666 ± 0.15% (k=2)
Low Range	3.97192 ± 0.7% (k=2)	3.97396 ± 0.7% (k=2)	3.95762 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	229° ± 1 °

ANNEX H: Probe Calibration Certificate

Probe ES3DV3-SN: 3151 Calibration Certificate (2021-04-26)

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中国认可
国际互认
校准
CALIBRATION
CNAS L0570

Client CTTL(South Branch) Certificate No: Z21-60094

CALIBRATION CERTIFICATE

Object	ES3DV3 - SN : 3151
Calibration Procedure(s)	FF-Z11-004-02 Calibration Procedures for Dosimetric E-field Probes
Calibration date:	April 26, 2021

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
Power Meter NRP2	101919	16-Jun-20(CTTL, No.J20X04344)	Jun-21
Power sensor NRP-Z91	101547	16-Jun-20(CTTL, No.J20X04344)	Jun-21
Power sensor NRP-Z91	101548	16-Jun-20(CTTL, No.J20X04344)	Jun-21
Reference 10dBAttenuator	18N50W-10dB	10-Feb-20(CTTL, No.J20X00525)	Feb-22
Reference 20dBAttenuator	18N50W-20dB	10-Feb-20(CTTL, No.J20X00526)	Feb-22
Reference Probe EX3DV4	SN 3617	27-Jan-21(SPEAG, No.EX3-3617_Jan21)	Jan-22
DAE4	SN 1556	15-Jan-21(SPEAG, No.DAE4-1556_Jan21)	Jan-22

Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
SignalGenerator MG3700A	6201052605	23-Jun-20(CTTL, No.J20X04343)	Jun-21
Network Analyzer E5071C	MY46110673	21-Jan-21(CTTL, No.J20X00515)	Jan-22

	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: April 28, 2021

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Certificate No: Z21-60094 Page 1 of 9

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Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A,B,C,D	modulation dependent linearization parameters
Polarization Φ	Φ rotation around probe axis
Polarization θ	θ rotation around an axis that is in the plane normal to probe axis (at measurement center), i θ=0 is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

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"

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization θ=0 (f≤900MHz in TEM-cell; f>1800MHz: waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below ConvF).
- *NORM(f)x,y,z = NORMx,y,z* frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics.
- *Ax,y,z; Bx,y,z; Cx,y,z;VRx,y,z:*A,B,C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f≤800MHz) and inside waveguide using analytical field distributions based on power measurements for f >800MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty valued are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORMx,y,z* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from±50MHz to±100MHz.
- *Spherical isotropy (3D deviation from isotropy):* in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset:* The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle:* The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

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DASY/EASY – Parameters of Probe: ES3DV3 – SN:3151

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (*k*=2)
Norm(μV/(V/m)²)[A]	1.17	1.25	1.20	±10.0%
DCP(mV)[B]	105.1	105.5	103.7	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (*k*=2)
0	CW	X	0.0	0.0	1.0	0.00	277.8	±2.2%
		Y	0.0	0.0	1.0		288.5	
		Z	0.0	0.0	1.0		279.6	

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%.

[A] The uncertainties of Norm X, Y, Z do not affect the E²-field uncertainty inside TSL (see Page 4).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainly is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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DASY/EASY – Parameters of Probe: ES3DV3 – SN:3151

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz][C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha[G]	Depth[G] (mm)	Unct. (k=2)
750	41.9	0.89	6.40	6.40	6.40	0.40	1.40	±12.1%
900	41.5	0.97	6.19	6.19	6.19	0.37	1.57	±12.1%
1450	40.5	1.20	5.48	5.48	5.48	0.31	1.61	±12.1%
1750	40.1	1.37	5.25	5.25	5.25	0.61	1.27	±12.1%
1900	40.0	1.40	5.09	5.09	5.09	0.65	1.25	±12.1%
2000	40.0	1.40	5.07	5.07	5.07	0.63	1.29	±12.1%
2300	39.5	1.67	4.83	4.83	4.83	0.60	1.36	±12.1%
2450	39.2	1.80	4.58	4.58	4.58	0.60	1.45	±12.1%
2600	39.0	1.96	4.39	4.39	4.39	0.70	1.33	±12.1%

[C] Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequency below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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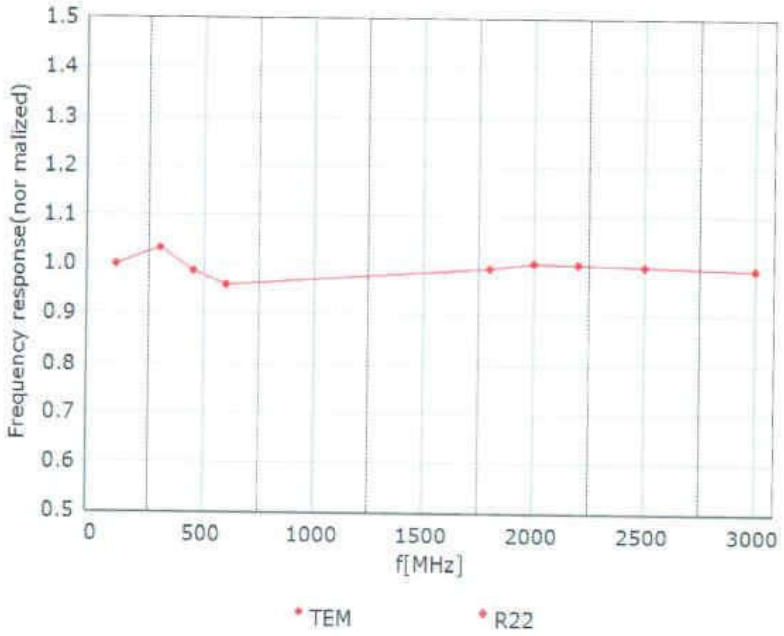
Frequency Response of E-Field
(TEM-Cell: ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: ±7.4% (*k*=2)

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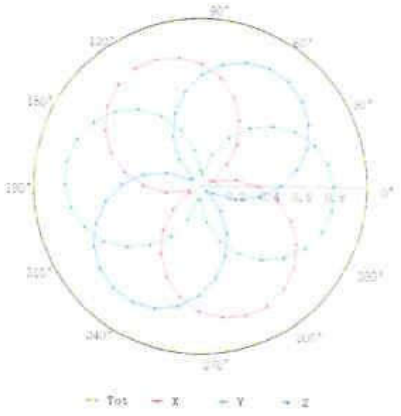
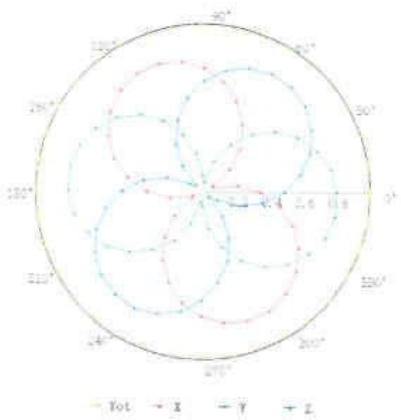
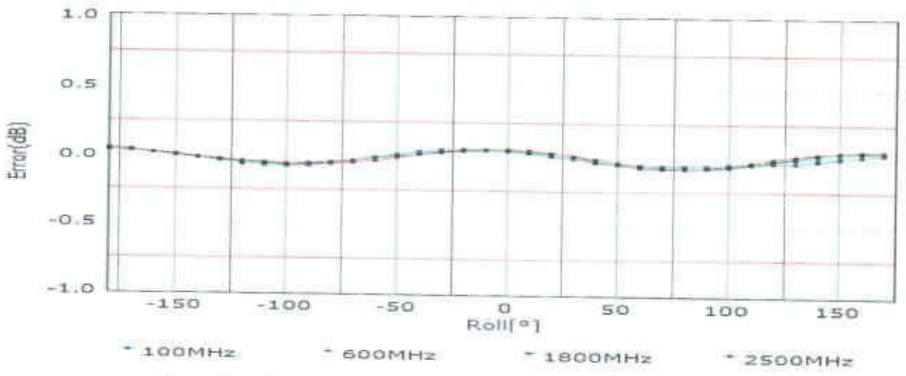
Receiving Pattern (Φ), θ=0°

f=600 MHz, TEM **f=1800 MHz, R22**







Uncertainty of Axial Isotropy Assessment: ±1.2% (*k*=2)

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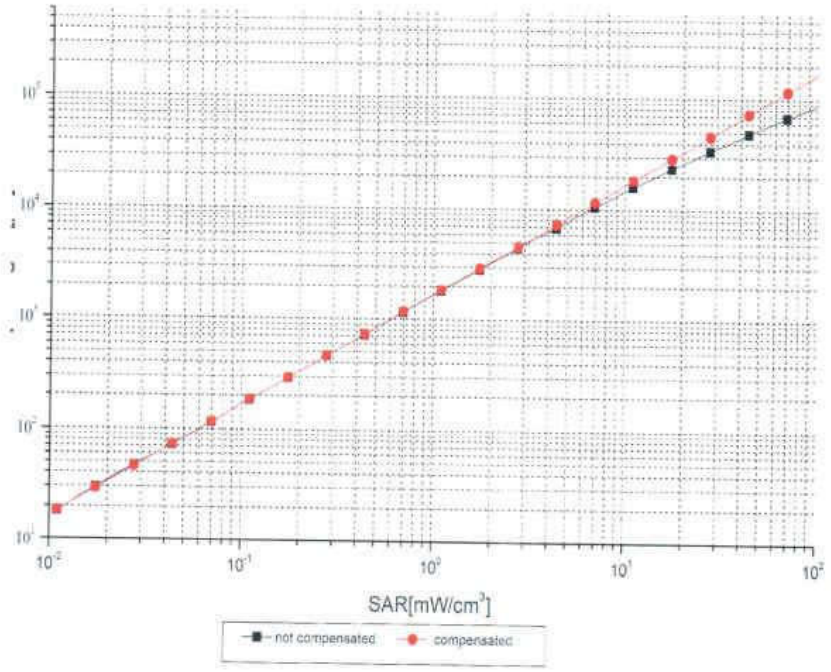
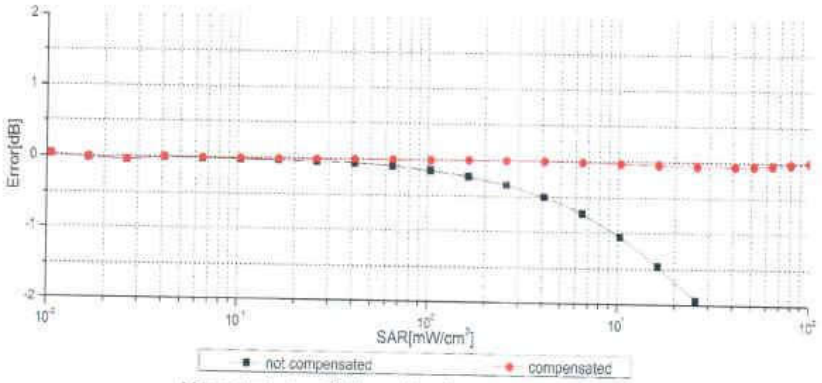
Dynamic Range f(SAR_{head})
(TEM cell, f = 900 MHz)





Uncertainty of Linearity Assessment: ±0.9% (*k*=2)

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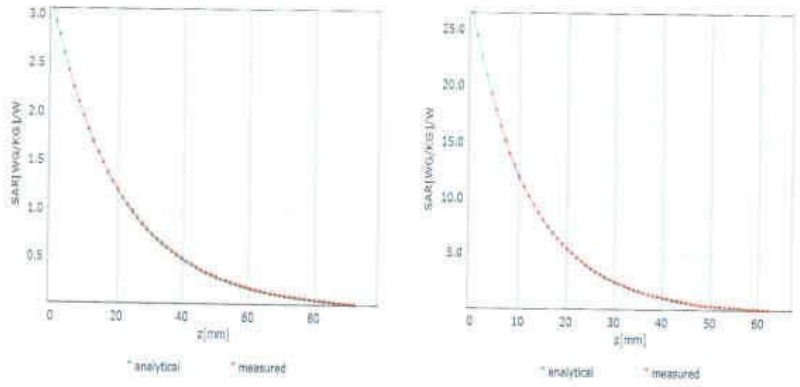
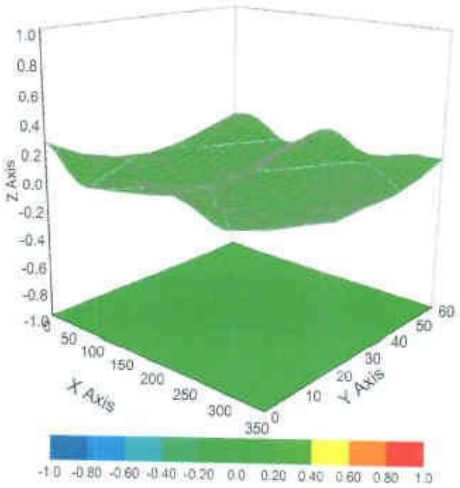
Conversion Factor Assessment

f=750 MHz,WGLS R9(H_convF) f=1750 MHz,WGLS R22(H_convF)



Deviation from Isotropy in Liquid



Uncertainty of Spherical Isotropy Assessment: ±3.2% (k=2)

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DASY/EASY – Parameters of Probe: ES3DV3 – SN:3151

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	87.5
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disable
Probe Overall Length	337mm
Probe Body Diameter	10mm
Tip Length	10mm
Tip Diameter	4mm
Probe Tip to Sensor X Calibration Point	2mm
Probe Tip to Sensor Y Calibration Point	2mm
Probe Tip to Sensor Z Calibration Point	2mm
Recommended Measurement Distance from Surface	3mm