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Measurement Conditions

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

DASY Version	DASY52	52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1750 MHz ±1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 ℃	40.1	1.37 mho/m
Measured Head TSL parameters	(22.0 ±0.2) ℃	41.3 ±6 %	1.41 mho/m ±6 %
Head TSL temperature change during test	<1.0 ℃	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.18 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**36.3 W/kg ±18.8 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	4.94 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**19.6 W/kg ±18.7 % (k=2)**

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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	47.9Ω- 0.71jΩ
Return Loss	- 32.8dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.120 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feed-point can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feed-point may be damaged.

Additional EUT Data

Manufactured by	SPEAG

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DASY5 Validation Report for Head TSL Date: 2022-08-22

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1152

Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium parameters used: f = 1750 MHz; σ = 1.408 S/m; ε_r = 41.28; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7464; ConvF(8.52, 8.52, 8.52) @ 1750 MHz; Calibrated: 2022-01-26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1556; Calibrated: 2022-01-12
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

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

Reference Value = 91.44 V/m; Power Drift = -0.05 dB

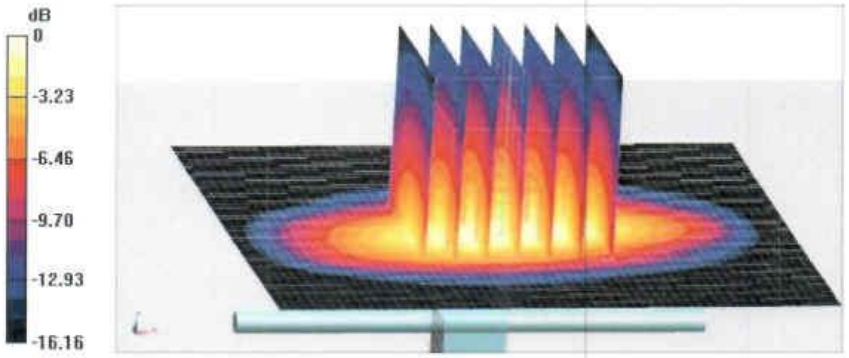
Peak SAR (extrapolated) = 16.5 W/kg

SAR(1 g) = 9.18 W/kg; SAR(10 g) = 4.94 W/kg

Smallest distance from peaks to all points 3 dB below = 10 mm

Ratio of SAR at M2 to SAR at M1 = 56.3%

Maximum value of SAR (measured) = 14.0 W/kg



0 dB = 14.0 W/kg = 11.46 dBW/kg

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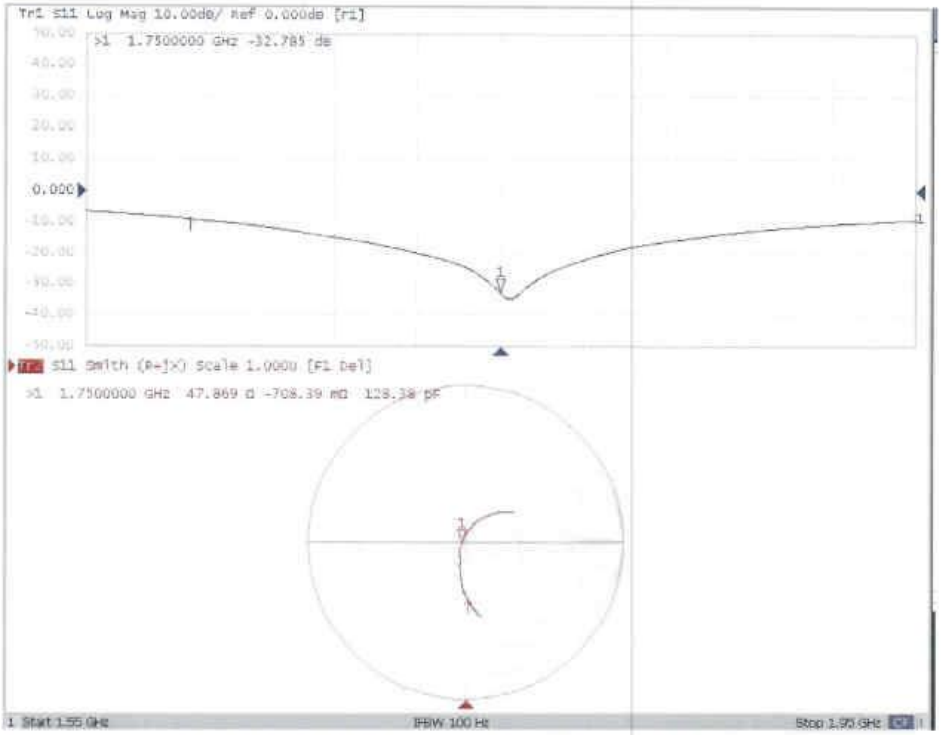
Impedance Measurement Plot for Head TSL



Certificate No: Z22-60335 Page 6 of 6

1900MHz Dipole (2021)

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Client SAICT Certificate No: Z21-60357

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 5d088
Calibration Procedure(s)	FF-Z11-003-01 Calibration Procedures for dipole validation kits
Calibration date:	October 18, 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
Power Meter NRP2	106277	24-Sep-21 (CTTL, No.J21X08326)	Sep-22
Power sensor NRP8S	104291	24-Sep-21 (CTTL, No.J21X08326)	Sep-22
Reference Probe EX3DV4	SN 7517	03-Feb-21(CTTL-SPEAG,No.Z21-60001)	Feb-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**
Signal Generator E4438C	MY49071430	01-Feb-21 (CTTL, No.J21X00593)	Jan-22
NetworkAnalyzer E5071C	MY46110673	14-Jan-21 (CTTL, No.J21X00232)	Jan-22

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

Issued: October 24, 2021

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

Certificate No: Z21-60357 Page 1 of 6

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lossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORMx,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
c) IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
d) KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.

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Measurement Conditions

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

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.9 ± 6 %	1.39 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.0 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**40.2 W/kg ± 18.8 % (*k*=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	5.10 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**20.5 W/kg ± 18.7 % (*k*=2)**

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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.7Ω+ 6.80jΩ
Return Loss	- 22.6dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.110 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG

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DASY5 Validation Report for Head TSL Date: 10.18.2021

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d088

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used: f = 1900 MHz; σ = 1.387 S/m; ε_r = 39.88; ρ = 1000 kg/m^3

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(7.81, 7.81, 7.81) @ 1900 MHz; Calibrated: 2021-02-03
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1556; Calibrated: 2021-01-15
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

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

Reference Value = 103.6 V/m; Power Drift = 0.00 dB

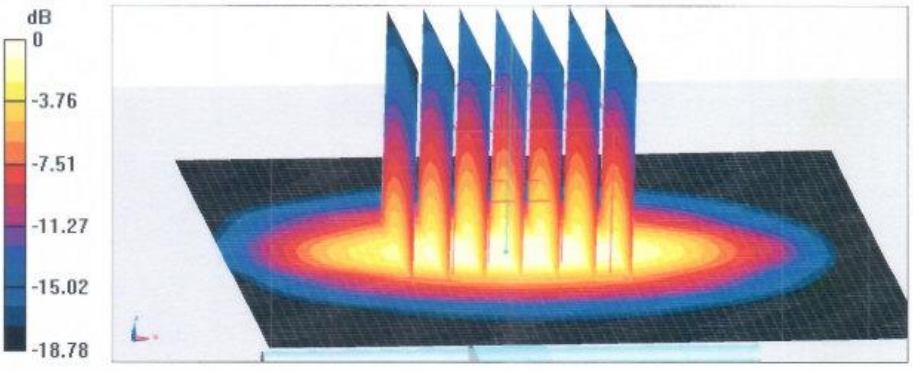
Peak SAR (extrapolated) = 19.2 W/kg

SAR(1 g) = 10 W/kg; SAR(10 g) = 5.1 W/kg

Smallest distance from peaks to all points 3 dB below = 10 mm

Ratio of SAR at M2 to SAR at M1 = 52.1%

Maximum value of SAR (measured) = 15.8 W/kg



0 dB = 15.8 W/kg = 11.99 dBW/kg

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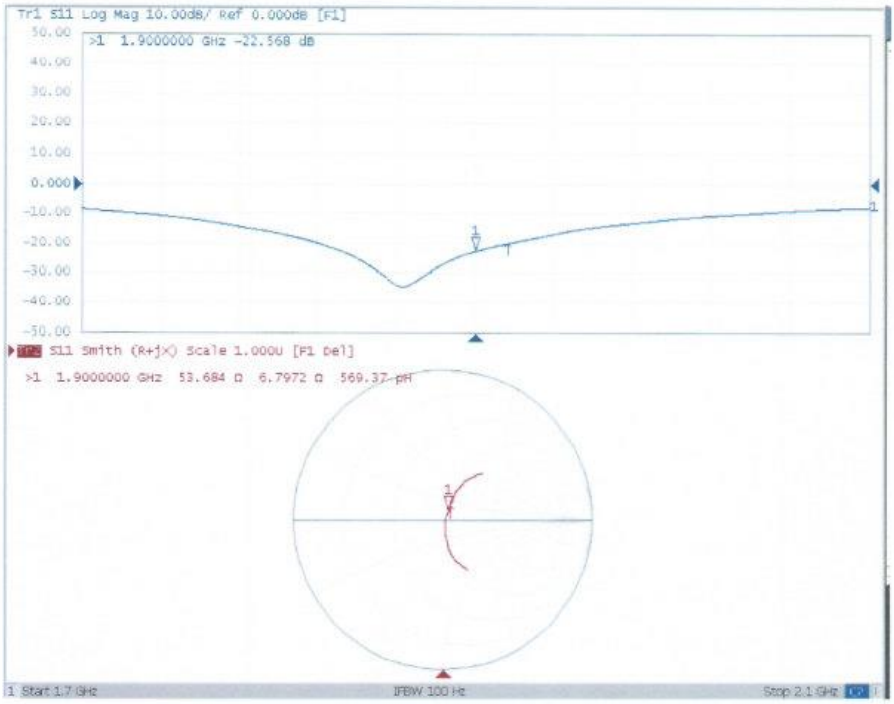
Impedance Measurement Plot for Head TSL



2300MHz Dipole (2021)

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Client CTTL(South Branch) Certificate No: Z21-60343

CALIBRATION CERTIFICATE

Object	D2300V2 - SN: 1059
Calibration Procedure(s)	FF-Z11-003-01 Calibration Procedures for dipole validation kits
Calibration date:	September 22, 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	106277	23-Sep-20 (CTTL, No.J20X08336)	Sep-21
Power sensor NRP8S	104291	23-Sep-20 (CTTL, No.J20X08336)	Sep-21
Reference Probe EX3DV4	SN 7517	03-Feb-21(CTTL-SPEAG,No.Z21-60001)	Feb-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**
Signal Generator E4438C	MY49071430	01-Feb-21 (CTTL, No.J21X00593)	Jan-22
NetworkAnalyzer E5071C	MY46110673	14-Jan-21 (CTTL, No.J21X00232)	Jan-22

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

Issued: September 27, 2021

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Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORMx,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
c) IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
d) KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.

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Measurement Conditions

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

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2300 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.5	1.67 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.9 ± 6 %	1.68 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	12.1 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**48.3 W/kg ± 18.8 % (*k*=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	5.67 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**22.7 W/kg ± 18.7 % (*k*=2)**

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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	48.6Ω- 4.46jΩ
Return Loss	- 26.5dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.077 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG

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DASY5 Validation Report for Head TSL Date: 09.22.2021

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 2300 MHz; Type: D2300V2; Serial: D2300V2 - SN: 1059

Communication System: UID 0, CW; Frequency: 2300 MHz; Duty Cycle: 1:1

Medium parameters used: f = 2300 MHz; σ = 1.683 S/m; ε_r = 39.91; ρ = 1000 kg/m^3

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(7.58, 7.58, 7.58) @ 2300 MHz; Calibrated: 2021-02-03
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1556; Calibrated: 2021-01-15
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

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

Reference Value = 104.8 V/m; Power Drift = -0.01 dB

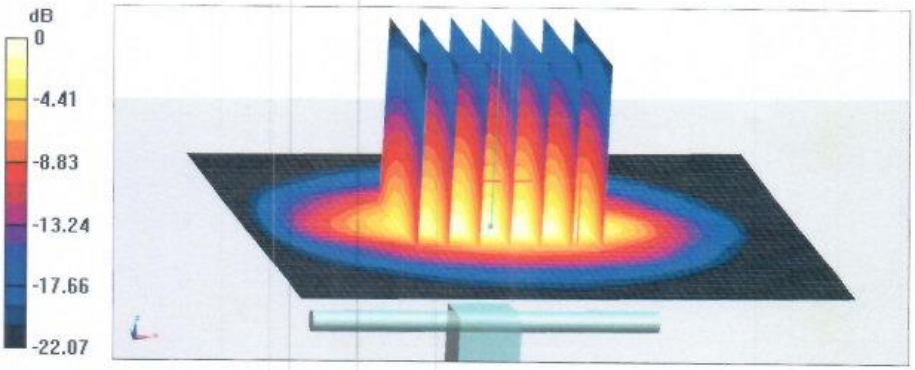
Peak SAR (extrapolated) = 25.1 W/kg

SAR(1 g) = 12.1 W/kg; SAR(10 g) = 5.67 W/kg

Smallest distance from peaks to all points 3 dB below = 9.5 mm

Ratio of SAR at M2 to SAR at M1 = 48.1%

Maximum value of SAR (measured) = 20.3 W/kg



0 dB = 20.3 W/kg = 13.07 dBW/kg

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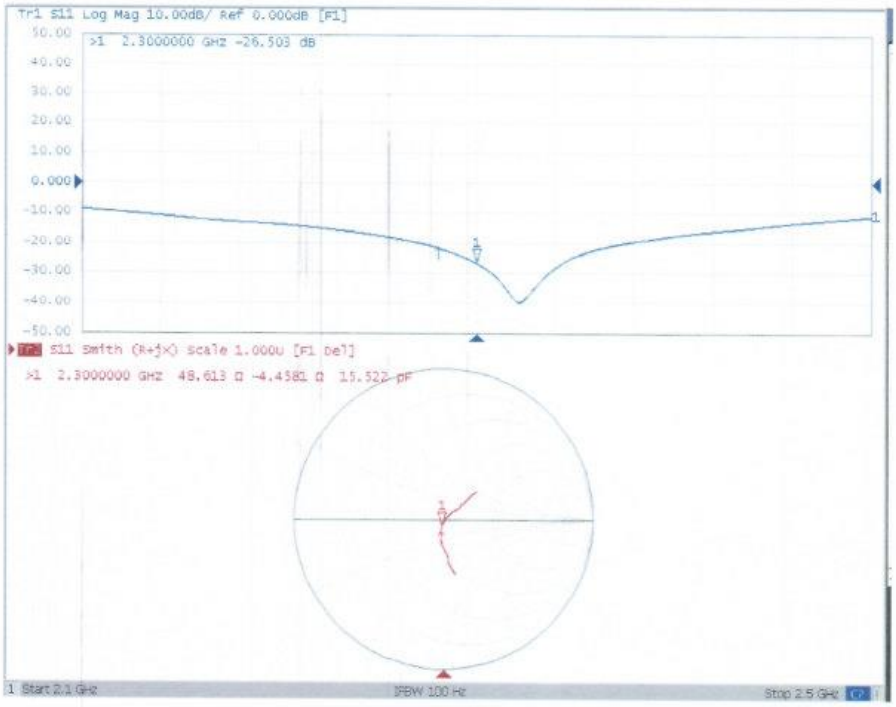
Impedance Measurement Plot for Head TSL



2450MHz Dipole (2021)

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Client SAICT Certificate No: Z21-60358

CALIBRATION CERTIFICATE

Object	D2450V2 - SN: 873
Calibration Procedure(s)	FF-Z11-003-01 Calibration Procedures for dipole validation kits
Calibration date:	October 21, 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	106277	24-Sep-21 (CTTL, No.J21X08326)	Sep-22
Power sensor NRP8S	104291	24-Sep-21 (CTTL, No.J21X08326)	Sep-22
Reference Probe EX3DV4	SN 7517	03-Feb-21(CTTL-SPEAG,No.Z21-60001)	Feb-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**
Signal Generator E4438C	MY49071430	01-Feb-21 (CTTL, No.J21X00593)	Jan-22
NetworkAnalyzer E5071C	MY46110673	14-Jan-21 (CTTL, No.J21X00232)	Jan-22

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

Issued: October 27, 2021

In Collaboration with
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CALIBRATION LABORATORY
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E-mail: cttl@chinattl.com http://www.chinattl.cn

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORMx,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
c) IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
d) KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.

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Measurement Conditions

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

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.5 ± 6 %	1.81 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.3 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**53.2 W/kg ± 18.8 % (*k*=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	6.05 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.2 W/kg ± 18.7 % (*k*=2)**

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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.6Ω+ 1.26jΩ
Return Loss	- 28.8dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.066 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG

In Collaboration with
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E-mail: cttl@chinattl.com http://www.chinattl.cn

DASY5 Validation Report for Head TSL Date: 10.21.2021

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 873

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used: f = 2450 MHz; σ = 1.809 S/m; ε_r = 39.51; ρ = 1000 kg/m^3

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(7.34, 7.34, 7.34) @ 2450 MHz; Calibrated: 2021-02-03
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1556; Calibrated: 2021-01-15
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

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

Reference Value = 108.0 V/m; Power Drift = -0.03 dB

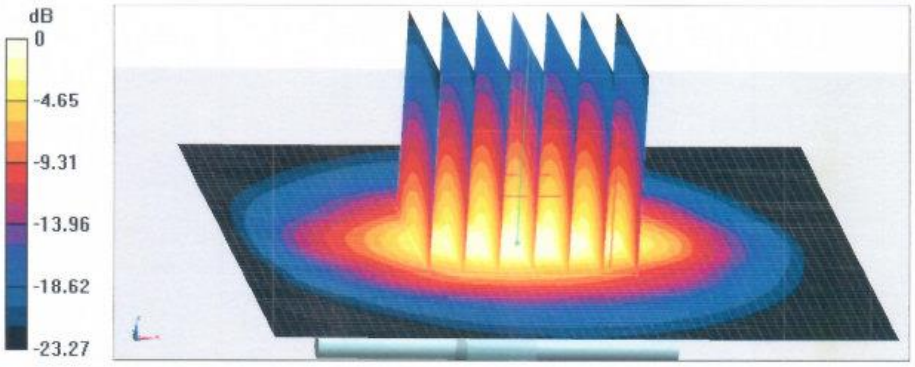
Peak SAR (extrapolated) = 28.0 W/kg

SAR(1 g) = 13.3 W/kg; SAR(10 g) = 6.05 W/kg

Smallest distance from peaks to all points 3 dB below = 9.2 mm

Ratio of SAR at M2 to SAR at M1 = 46.9%

Maximum value of SAR (measured) = 22.6 W/kg



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

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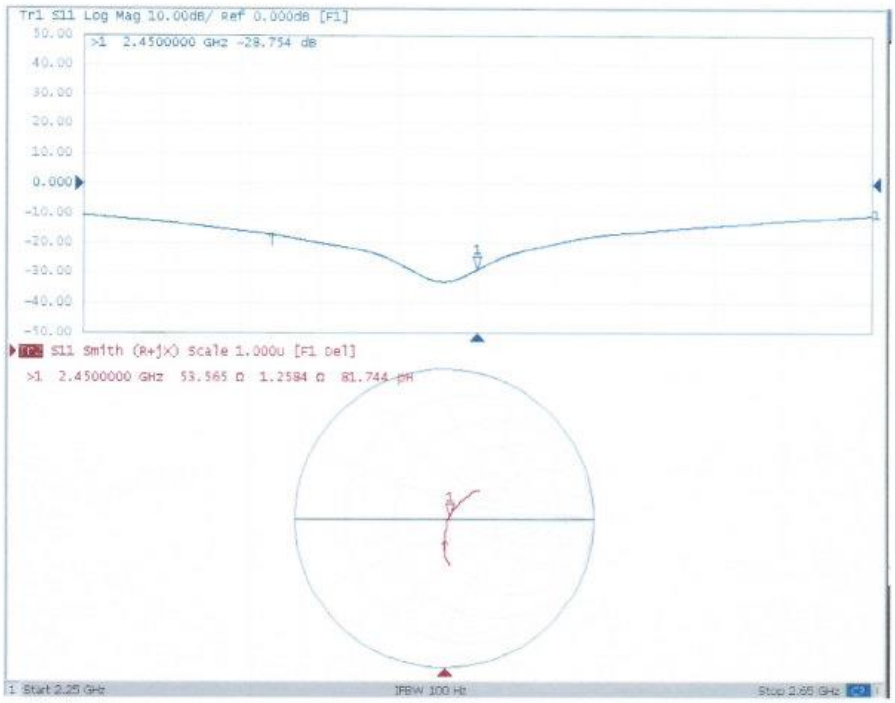
Impedance Measurement Plot for Head TSL



2550MHz Dipole (2021)

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

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

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

Accreditation No.: SCS 0108

Client TMC-SZ (Auden)

Certificate No: D2550V2-1010_May21

CALIBRATION CERTIFICATE

Object D2550V2 - SN:1010

Calibration procedure(s) QA CAL-05.v11
Calibration Procedure for SAR Validation Sources between 0.7-3 GHz

Calibration date: May 21, 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 (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	09-Apr-21 (No. 217-03291/03292)	Apr-22
Power sensor NRP-Z91	SN: 103244	09-Apr-21 (No. 217-03291)	Apr-22
Power sensor NRP-Z91	SN: 103245	09-Apr-21 (No. 217-03292)	Apr-22
Reference 20 dB Attenuator	SN: BH9394 (20k)	09-Apr-21 (No. 217-03343)	Apr-22
Type-N mismatch combination	SN: 310982 / 06327	09-Apr-21 (No. 217-03344)	Apr-22
Reference Probe EX3DV4	SN: 7349	28-Dec-20 (No. EX3-7349_Dec20)	Dec-21
DAE4	SN: 601	02-Nov-20 (No. DAE4-601_Nov20)	Nov-21

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-20)	In house check: Oct-22
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-21

	Name	Function	Signature
Calibrated by:	Jeffrey Katzman	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: May 21, 2021

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

Certificate No: D2550V2-1010_May21 Page 1 of 8

Calibration Laboratory of
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Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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

Accreditation No.: **SCS 0108**

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

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

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

DASY Version	DASY5	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2550 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.1	1.91 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.4 ± 6 %	1.99 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	14.4 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**55.9 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.42 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**25.2 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	52.6	2.09 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	50.8 ± 6 %	2.16 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.4 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**52.4 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.04 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**23.8 W/kg ± 16.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.8 Ω - 3.8 jΩ
Return Loss	- 26.8 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.3 Ω - 1.8 jΩ
Return Loss	- 34.3 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.153 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG

DASY5 Validation Report for Head TSL

Date: 21.05.2021

Test Laboratory: SPEAG, Zurich, Switzerland

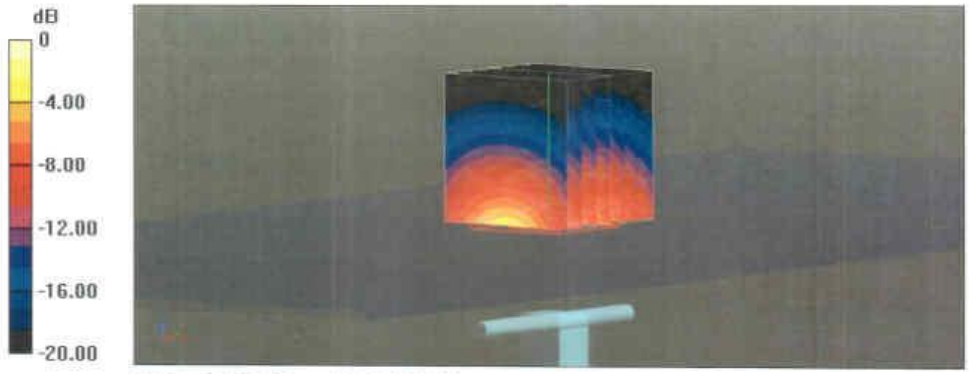
DUT: Dipole 2550 MHz; Type: D2550V2; Serial: D2550V2 - SN:1010

Communication System: UID 0 - CW; Frequency: 2550 MHz
Medium parameters used: f = 2550 MHz; σ = 1.99 S/m; ε_r = 37.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

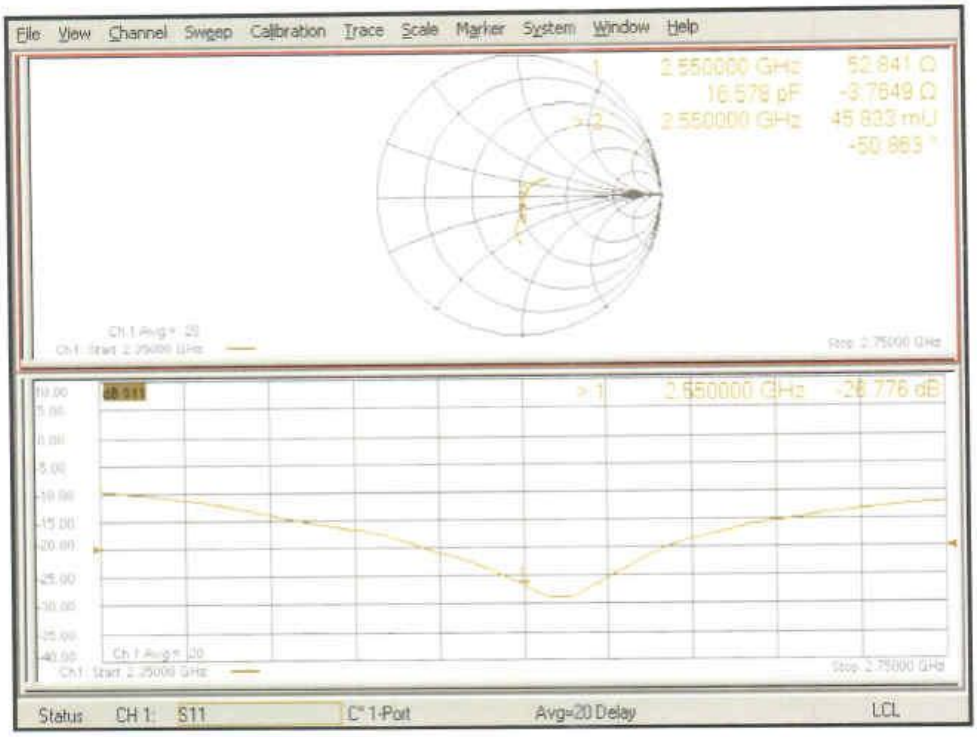
- Probe: EX3DV4 - SN7349; ConvF(7.85, 7.85, 7.85) @ 2550 MHz; Calibrated: 28.12.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.11.2020
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 119.0 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 29.6 W/kg
SAR(1 g) = 14.4 W/kg; SAR(10 g) = 6.42 W/kg
Smallest distance from peaks to all points 3 dB below = 8.9 mm
Ratio of SAR at M2 to SAR at M1 = 48.2%
Maximum value of SAR (measured) = 24.3 W/kg



0 dB = 24.3 W/kg = 13.86 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 21.05.2021

Test Laboratory: SPEAG, Zurich, Switzerland

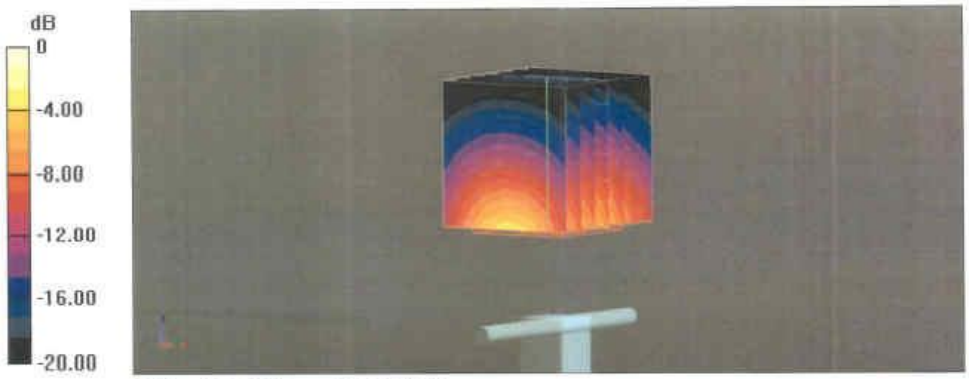
DUT: Dipole 2550 MHz; Type: D2550V2; Serial: D2550V2 - SN:1010

Communication System: UID 0 - CW; Frequency: 2550 MHz
Medium parameters used: f = 2550 MHz; σ = 2.16 S/m; ε_r = 50.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

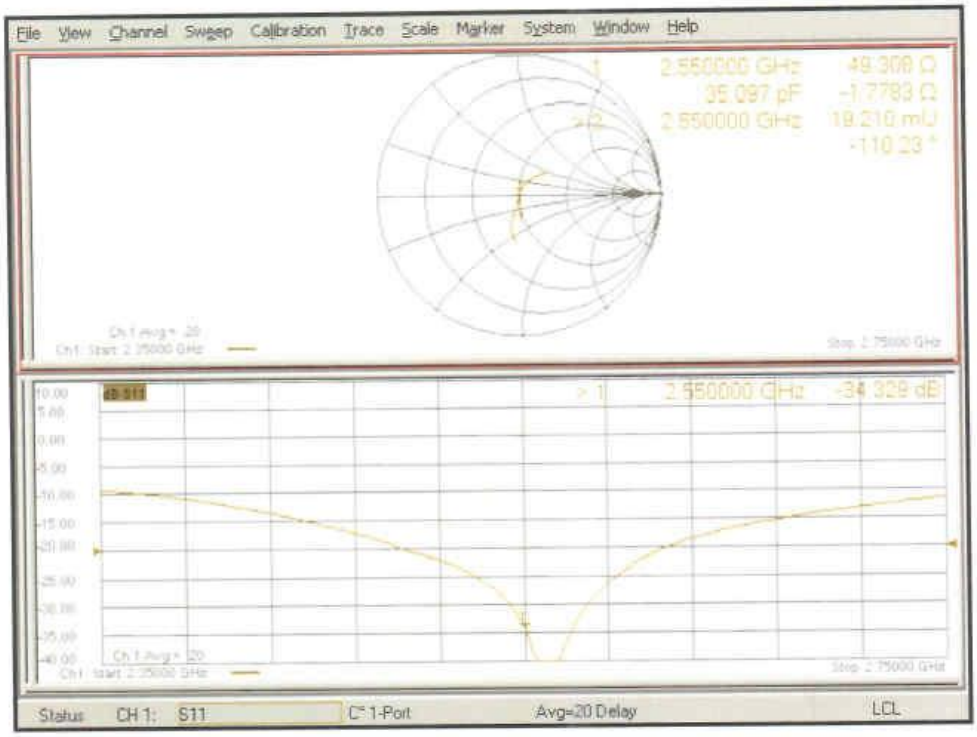
- Probe: EX3DV4 - SN7349; ConvF(7.98, 7.98, 7.98) @ 2550 MHz; Calibrated: 28.12.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.11.2020
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 110.2 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 26.1 W/kg
SAR(1 g) = 13.4 W/kg; SAR(10 g) = 6.04 W/kg
Smallest distance from peaks to all points 3 dB below = 8 mm
Ratio of SAR at M2 to SAR at M1 = 51.9%
Maximum value of SAR (measured) = 22.1 W/kg



0 dB = 22.1 W/kg = 13.44 dBW/kg

Impedance Measurement Plot for Body TSL



5GHz Dipole (2022)

In Collaboration with speag CALIBRATION LABORATORY

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Tel: +86-10-62304633-2117
E-mail: emf@caict.ac.cn http://www.caic.ac.cn

Client SAICT Certificate No: Z22-60336

CALIBRATION CERTIFICATE

Object	D5GHzV2 - SN: 1238
Calibration Procedure(s)	FF-Z11-003-01 Calibration Procedures for dipole validation kits
Calibration date:	August 17, 2022

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	106277	24-Sep-21 (CTTL, No.J21X08326)	Sep-22
Power sensor NRP8S	104291	24-Sep-21 (CTTL, No.J21X08326)	Sep-22
Reference Probe EX3DV4	SN 7464	26-Jan-22(SPEAG,No.EX3-7464_Jan22)	Jan-23
DAE4	SN 1556	12-Jan-22(CTTL-SPEAG,No.Z22-60007)	Jan-23
Secondary Standards	**ID #**	**Cal Date (Calibrated by, Certificate No.)**	**Scheduled Calibration**
Signal Generator E4438C	MY49071430	13-Jan-22 (CTTL, No. J22X00409)	Jan-23
Network Analyzer E5071C	MY46110673	14-Jan-22 (CTTL, No.J22X00406)	Jan-23

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

Issued: August 23, 2022

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Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORMx,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEC/IEEE 62209-1528, "Measurement Procedure for The Assessment of Specific Absorption Rate of Human Exposure to Radio Frequency Fields from Hand-held and Body-mounted Wireless Communication Devices- Part 1528: Human Models, Instrumentation and Procedures (Frequency range of 4 MHz to 10 GHz)", October 2020

b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

c) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.

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CALIBRATION LABORATORY

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Measurement Conditions

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

DASY Version	DASY52	52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5250 MHz ± 1 MHz 5600 MHz ± 1 MHz 5750 MHz ± 1 MHz	

Head TSL parameters at 5250MHz

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 ℃	35.9	4.71 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) ℃	36.3 ± 6 %	4.64 mho/m ± 6 %
Head TSL temperature change during test	<1.0 ℃	----	----

SAR result with Head TSL at 5250MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.95 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**79.7 W/kg ± 24.4 % (*k*=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.27 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**22.8 W/kg ± 24.2 % (*k*=2)**

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Head TSL parameters at 5600MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 ℃	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ±0.2) ℃	35.2 ±6 %	5.01 mho/m ±6 %
Head TSL temperature change during test	<1.0 ℃	—	—

SAR result with Head TSL at 5600MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.28 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**82.6 W/kg ±24.4 % (*k*=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.37 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.6 W/kg ±24.2 % (*k*=2)**

Head TSL parameters at 5750MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 ℃	35.4	5.22 mho/m
Measured Head TSL parameters	(22.0 ±0.2) ℃	35.0 ±6 %	5.18 mho/m ±6 %
Head TSL temperature change during test	<1.0 ℃	—	—

SAR result with Head TSL at 5750MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.87 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**78.5 W/kg ±24.4 % (*k*=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.22 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**22.1 W/kg ±24.2 % (*k*=2)**

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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL at 5250MHz

Impedance, transformed to feed point	48.4Ω- 3.36jΩ
Return Loss	- 28.5dB

Antenna Parameters with Head TSL at 5600MHz

Impedance, transformed to feed point	50.8Ω+ 2.69jΩ
Return Loss	- 31.1dB

Antenna Parameters with Head TSL at 5750MHz

Impedance, transformed to feed point	53.5Ω+ 2.34jΩ
Return Loss	- 27.9dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.098 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feed-point can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feed-point may be damaged.

Additional EUT Data

Manufactured by	SPEAG

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DASY5 Validation Report for Head TSL Date: 2022-08-17

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1238

Communication System: CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz Duty Cycle: 1:1

Medium parameters used: f = 5250 MHz; σ = 4.643 S/m; ε_r = 36.34; ρ = 1000 kg/m^3

Medium parameters used: f = 5600 MHz; σ = 5.006 S/m; ε_r = 35.17; ρ = 1000 kg/m^3

Medium parameters used: f = 5750 MHz; σ = 5.18 S/m; ε_r = 34.96; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7464; ConvF(5.43, 5.43, 5.43) @ 5250 MHz; ConvF(4.91, 4.91, 4.91) @ 5600 MHz; ConvF(4.85, 4.85, 4.85) @ 5750 MHz; Calibrated: 2022-01-26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1556; Calibrated: 2022-01-12
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration /Pin=100mW, d=10mm, f=5250 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 67.66 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 31.9 W/kg
SAR(1 g) = 7.95 W/kg; SAR(10 g) = 2.27 W/kg
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 65.1%
Maximum value of SAR (measured) = 18.8 W/kg

Dipole Calibration /Pin=100mW, d=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 68.44 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 35.2 W/kg
SAR(1 g) = 8.28 W/kg; SAR(10 g) = 2.37 W/kg
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 63.5%
Maximum value of SAR (measured) = 20.1 W/kg

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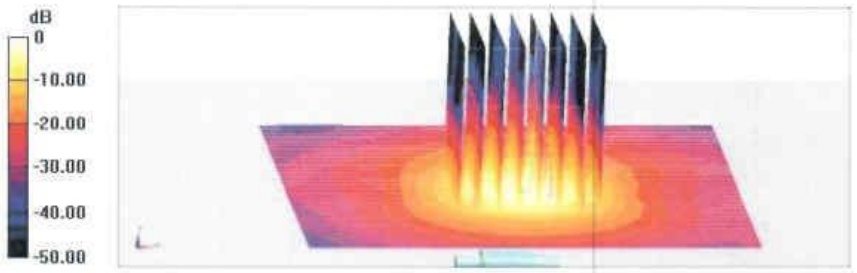
Dipole Calibration /Pin=100mW, d=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 65.17 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 35.8 W/kg
SAR(1 g) = 7.87 W/kg; SAR(10 g) = 2.22 W/kg
Smallest distance from peaks to all points 3 dB below = 7.4 mm
Ratio of SAR at M2 to SAR at M1 = 61.3%
Maximum value of SAR (measured) = 19.4 W/kg



0 dB = 19.4 W/kg = 12.88 dBW/kg

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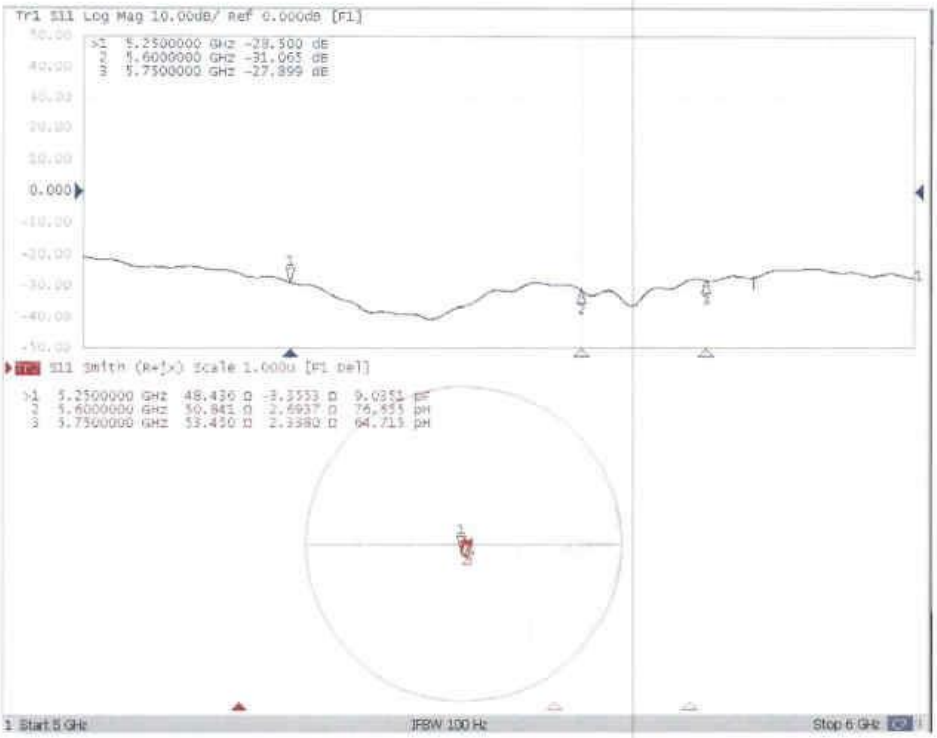
Impedance Measurement Plot for Head TSL



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ANNEX J: Extended Calibration SAR Dipole

Referring to KDB865664 D01, if dipoles are verified in return loss (<-20dBm, within 20% of prior calibration), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

Justification of Extended Calibration SAR Dipole D2550V2– serial no.1010 (2021)

Head						
Date of Measurement	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (johm)	Delta (johm)
2021-05-21	-26.8	/	52.8	/	-3.80	/
2022-05-20	-26.3	1.9	53.6	0.8	-3.64	0.16

The Return-Loss is <-20dB, and within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the value result should support extended cabration.

ANNEX K: Spot Check Test

As the test lab for M53A01 from i.safe MOBILE GmbH, we, Shenzhen Academy of Information and Communications Technology, declare on our sole responsibility that, according to "Justification Letter" provided by applicant, only the Spot check test should be performed. The test results are as below.

K.1. Internal Identification of EUT used during the spot check test

EUT ID*	IMEI	HW Version	SW Version	Receipt Date
UT02aa	358121105509015	V1.00	IS530_EEA_1.0.0.0.0_1_20200331	2022-09-01

K.2. Measurement results

GSM850 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
						Spot check data		Original data
Ch.	MHz					Measured SAR	Reported SAR	
251	848.8	Head	Right Cheek	31.17	31.5	0.588	**0.63**	**0.79**
251	848.8	Body	Front	31.17	31.5	0.686	**0.74**	**0.60**

GSM1900 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
						Spot check data		Original data
Ch.	MHz					Measured SAR	Reported SAR	
810	1909.8	Head	Right Cheek	26.44	27.0	0.285	**0.32**	**0.57**
810	1909.8	Body	Front	26.44	27.0	0.181	**0.21**	**0.38**

WCDMA Band 2 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
						Spot check data		Original data
Ch.	MHz					Measured SAR	Reported SAR	
9538	1908.0	Head	Right Cheek	22.91	23.5	0.608	**0.70**	**0.77**
9538	1908.0	Body	Front	22.91	23.5	0.283	**0.32**	**0.67**

WCDMA Band 4 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
						Spot check data		Original data
Ch.	MHz					Measured SAR	Reported SAR	
1312	1712.4	Head	Right Cheek	22.37	23.0	0.489	**0.57**	**0.60**
1312	1712.4	Body	Front	22.37	23.0	0.427	**0.49**	**0.75**

WCDMA Band 5 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
						Spot check data		Original data
Ch.	MHz					Measured SAR	Reported SAR	
4233	846.6	Head	Right Cheek	22.98	23.5	0.413	**0.47**	**0.48**
4233	846.6	Body	Front	22.98	23.5	0.333	**0.38**	**0.40**

LTE Band 5 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
						Spot check data		Original data
Ch.	MHz					Measured SAR	Reported SAR	
20525	836.5	Head	Right Cheek	23.31	24.0	0.452	**0.53**	**0.60**
20525	836.5	Body	Rear	23.31	24.0	0.184	**0.22**	**0.36**

LTE Band 7 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
						Spot check data		Original data
Ch.	MHz					Measured SAR	Reported SAR	
21100	2535.0	Head	Left Cheek	22.75	23.5	0.487	**0.58**	**0.49**
21100	2535.0	Body	Rear	22.75	23.5	0.510	**0.61**	**0.57**

LTE Band 12 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
						Spot check data		Original data
Ch.	MHz					Measured SAR	Reported SAR	
23095	707.5	Head	Right Cheek	23.34	24.0	0.258	**0.30**	**0.30**
23095	707.5	Body	Front	23.34	24.0	0.279	**0.32**	**0.30**

LTE Band 13 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
						Spot check data		Original data
Ch.	MHz					Measured SAR	Reported SAR	
23230	782.0	Head	Left Cheek	23.16	24.0	0.308	**0.37**	**0.47**
23230	782.0	Body	Front	23.16	24.0	0.342	**0.41**	**0.42**

LTE Band 14 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
						Spot check data		Original data
Ch.	MHz					Measured SAR	Reported SAR	
23330	793.0	Head	Left Cheek	23.13	24.0	0.495	**0.60**	**0.50**
23330	793.0	Body	Front	23.13	24.0	0.337	**0.41**	**0.50**

LTE Band 25 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
						Spot check data		Original data
Ch.	MHz					Measured SAR	Reported SAR	
26365	1882.5	Head	Right Cheek	22.66	23.5	0.590	**0.72**	**0.79**
26365	1882.5	Body	Rear	22.66	23.5	0.339	**0.41**	**0.34**

LTE Band 26 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
						Spot check data		Original data
Ch.	MHz					Measured SAR	Reported SAR	
26965	841.5	Head	Right Cheek	23.24	24.0	0.460	**0.55**	**0.55**
26965	841.5	Body	Front	23.24	24.0	0.379	**0.45**	**0.46**

LTE Band 30 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
						Spot check data		Original data
Ch.	MHz					Measured SAR	Reported SAR	
27710	2310.0	Head	Left Cheek	22.76	23.5	0.166	**0.20**	**0.49**
27710	2310.0	Body	Bottom	22.76	23.5	0.553	**0.66**	**0.74**

LTE Band 41 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
						Spot check data		Original data
Ch.	MHz					Measured SAR	Reported SAR	
41490	2680.0	Head	Right Cheek	22.89	23.5	0.179	**0.21**	**0.60**
41490	2680.0	Body	Rear	20.36	21.0	0.285	**0.33**	**0.57**

LTE Band 66 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
						Spot check data		Original data
Ch.	MHz					Measured SAR	Reported SAR	
132072	1720.0	Head	Right Cheek	22.32	23.0	0.460	**0.54**	**0.76**
132072	1720.0	Body	Front	22.32	23.0	0.370	**0.43**	**0.63**

WLAN 2.4GHz SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
						Spot check data		Original data
Ch.	MHz					Measured SAR	Reported SAR	
11	2462.0	Head	Left Cheek	16.11	16.5	0.502	**0.55**	**1.08**
1	2412.0	Body	Front	16.14	16.5	0.125	**0.14**	**0.29**

WLAN 5GHz SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
						Spot check data		Original data
Ch.	MHz					Measured SAR	Reported SAR	
151	5755.0	Head	Left Tilt	14.50	15.0	0.535	**0.60**	**0.61**
102	5510.0	Body	Right	15.22	16.0	0.288	**0.34**	**0.34**

K.3. Graph Results for Spot Check

GSM850 Head

Date: 2022-9-10

Electronics: DAE4 Sn1527

Medium: Head 835MHz

Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.93 S/m; ε_r = 40.985; ρ = 1000 kg/m^3

Communication System: UID 0, GPRS 2Txslot (0) Frequency: 848.8 MHz Duty Cycle: 1:4

Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

Right Cheek High/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.677 W/kg

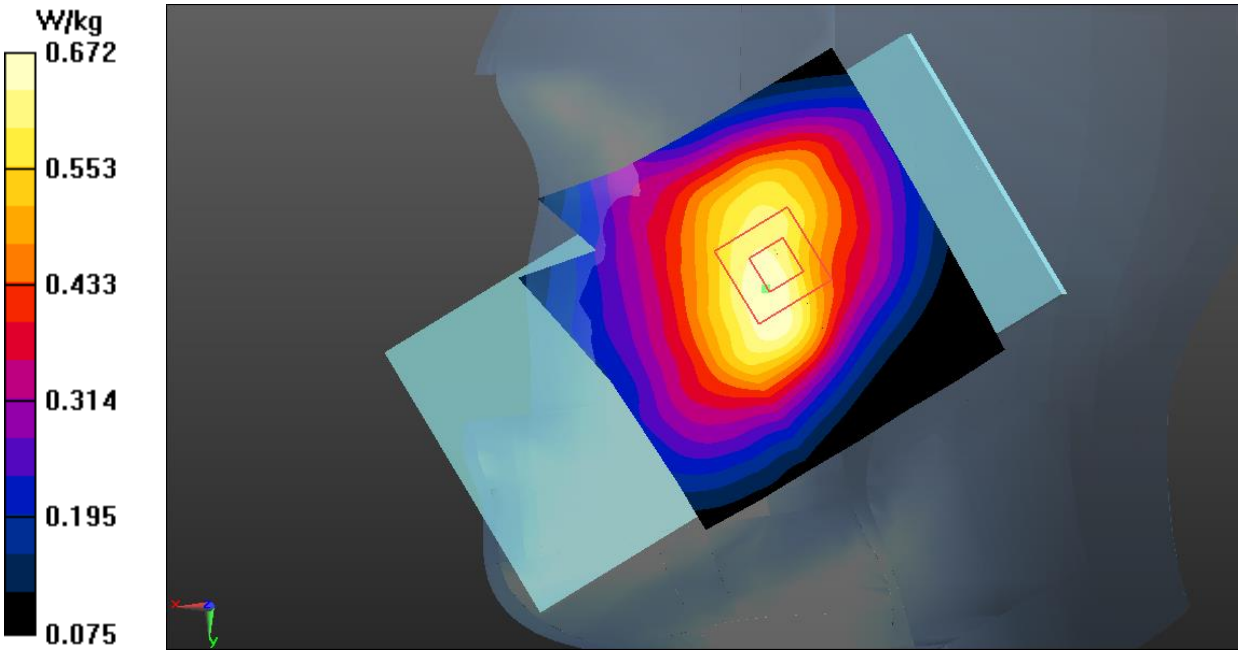
Right Cheek High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.785 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.738 W/kg

SAR(1 g) = 0.588 W/kg; SAR(10 g) = 0.440 W/kg

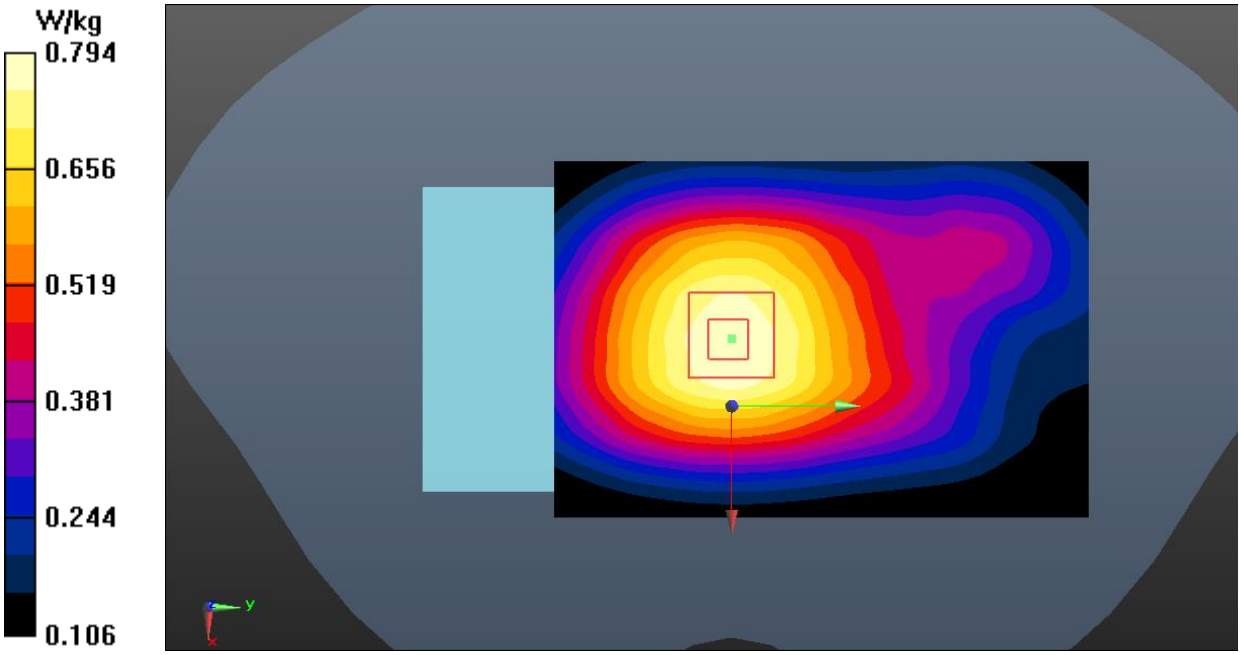
Maximum value of SAR (measured) = 0.672 W/kg



GSM850 Body
Date: 2022-9-10
Electronics: DAE4 Sn1527
Medium: Head 835MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.93 S/m; ε_r = 40.985; ρ = 1000 kg/m^3
Communication System: UID 0, GPRS 2Txslot (0) Frequency: 848.8 MHz Duty Cycle: 1:4
Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

Front Side High/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.797 W/kg

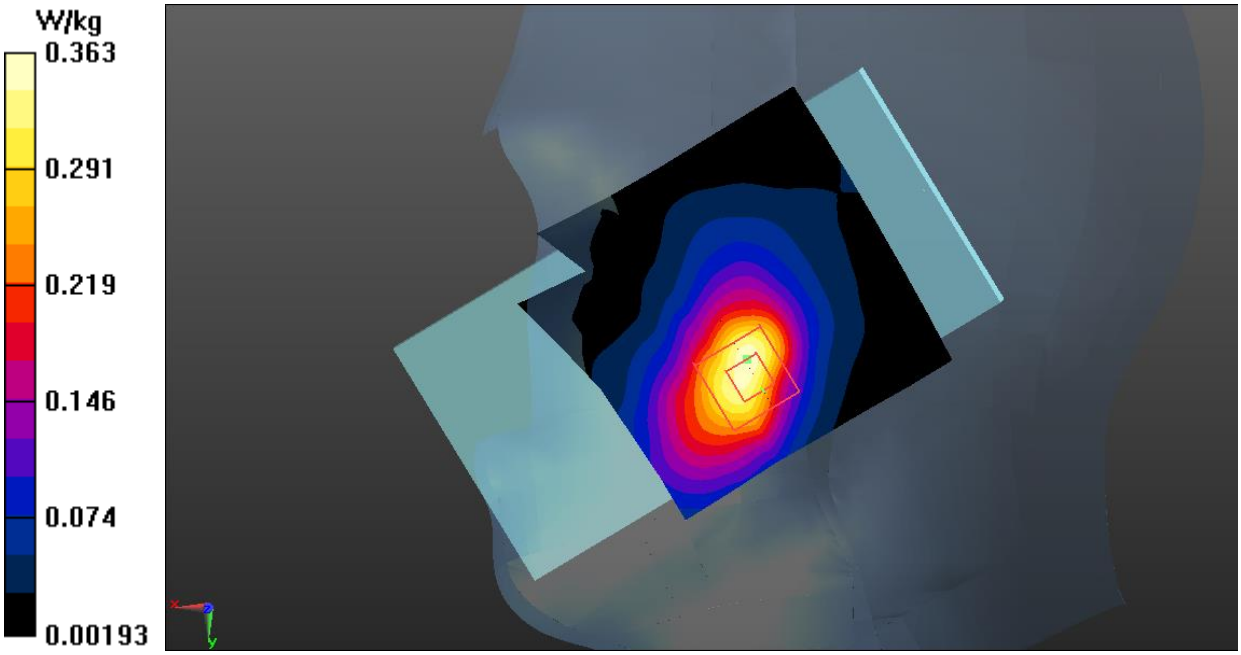
Front Side High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.46 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.871 W/kg
SAR(1 g) = 0.686 W/kg; SAR(10 g) = 0.512 W/kg
Maximum value of SAR (measured) = 0.794 W/kg



GSM1900 Head
Date: 2022-9-15
Electronics: DAE4 Sn1527
Medium: Head 1900MHz
Medium parameters used: f = 1910 MHz; σ = 1.423 S/m; ε_r = 39.019; ρ = 1000 kg/m^3
Communication System: UID 0, GPRS 3Txslot (0) Frequency: 1909.8 MHz Duty Cycle: 1:2.67
Probe: EX3DV4 - SN7621 ConvF (8.90, 8.90, 8.90)

Right Cheek High/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.358 W/kg

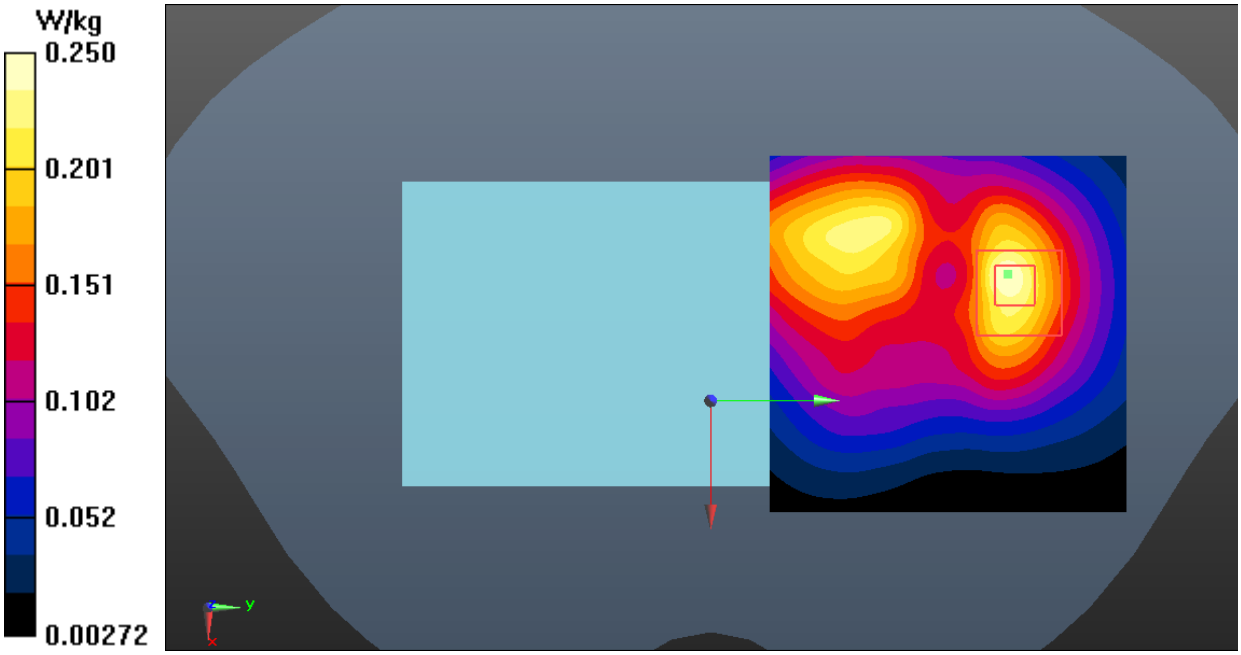
Right Cheek High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.940 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.471 W/kg
SAR(1 g) = 0.285 W/kg; SAR(10 g) = 0.163 W/kg
Maximum value of SAR (measured) = 0.363 W/kg



GSM1900 Body
Date: 2022-9-15
Electronics: DAE4 Sn1527
Medium: Head 1900MHz
Medium parameters used: f = 1910 MHz; σ = 1.423 S/m; ε_r = 39.019; ρ = 1000 kg/m^3
Communication System: UID 0, GPRS 3Txslot (0) Frequency: 1909.8 MHz Duty Cycle: 1:2.67
Probe: EX3DV4 - SN7621 ConvF (8.90, 8.90, 8.90)

Front Side High/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.250 W/kg

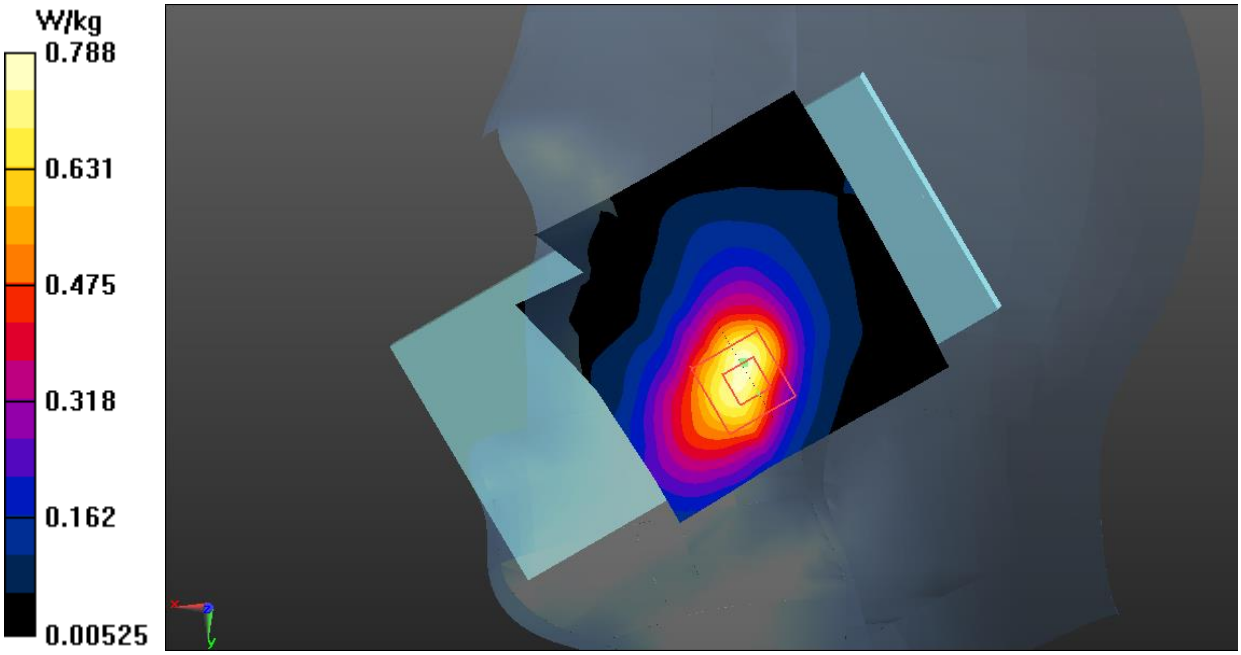
Front Side High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.371 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.317 W/kg
SAR(1 g) = 0.181 W/kg; SAR(10 g) = 0.102 W/kg
Maximum value of SAR (measured) = 0.250 W/kg



WCDMA Band 2 Head
Date: 2022-9-15
Electronics: DAE4 Sn1527
Medium: Head 1900MHz
Medium parameters used: f = 1908 MHz; σ = 1.421 S/m; ε_r = 39.027; ρ = 1000 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 1907.6 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (8.90, 8.90, 8.90)

Right Cheek High/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.768 W/kg

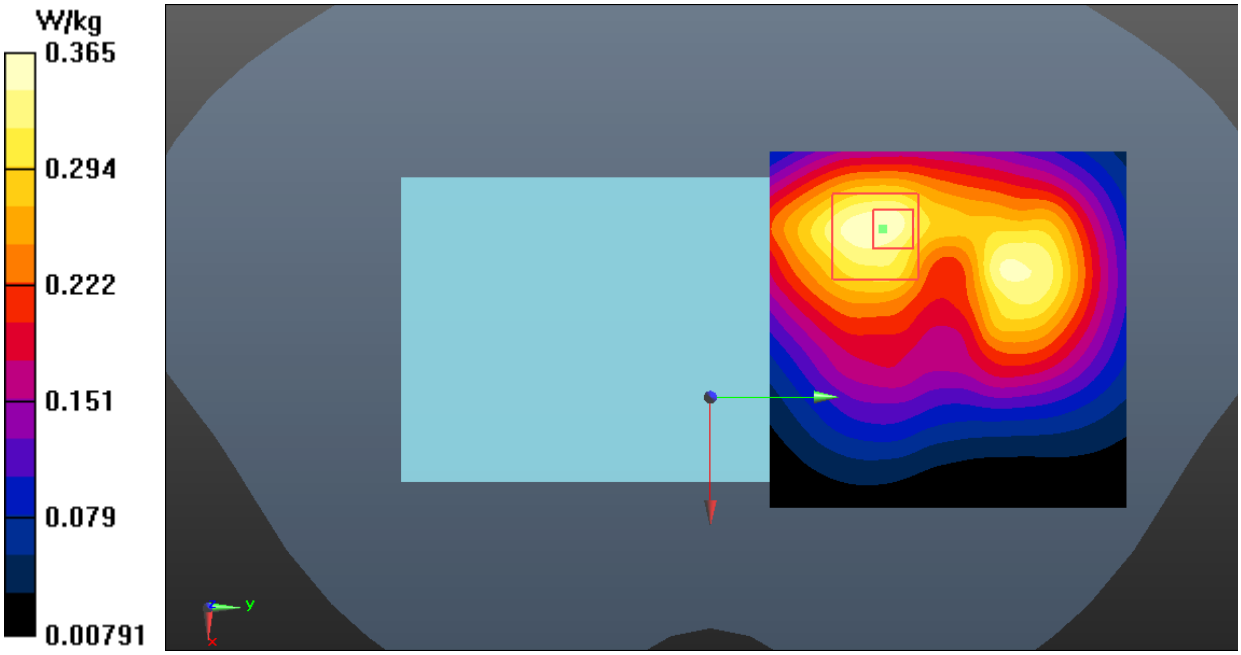
Right Cheek High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.288 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.608 W/kg; SAR(10 g) = 0.348 W/kg
Maximum value of SAR (measured) = 0.788 W/kg



WCDMA Band 2 Body
Date: 2022-9-15
Electronics: DAE4 Sn1527
Medium: Head 1900MHz
Medium parameters used: f = 1908 MHz; σ = 1.421 S/m; ε_r = 39.027; ρ = 1000 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 1907.6 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (8.90, 8.90, 8.90)

Front Side High/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.362 W/kg

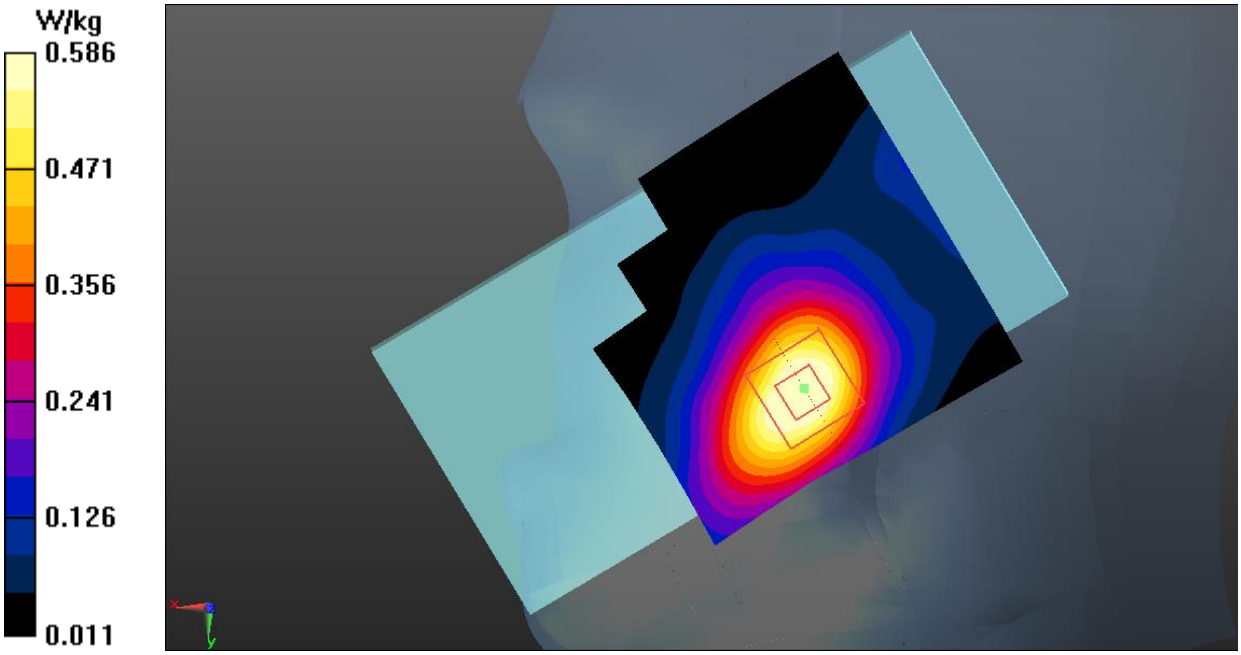
Front Side High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.202 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.452 W/kg
SAR(1 g) = 0.283 W/kg; SAR(10 g) = 0.174 W/kg
Maximum value of SAR (measured) = 0.365 W/kg



WCDMA Band 4 Head
Date: 2022-9-15
Electronics: DAE4 Sn1527
Medium: Head 1750MHz
Medium parameters used (interpolated): f = 1712.4 MHz; σ = 1.355 S/m; ε_r = 39.57; ρ = 1000 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 1712.4 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (9.22, 9.22, 9.22)

Right Cheek Low/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.652 W/kg

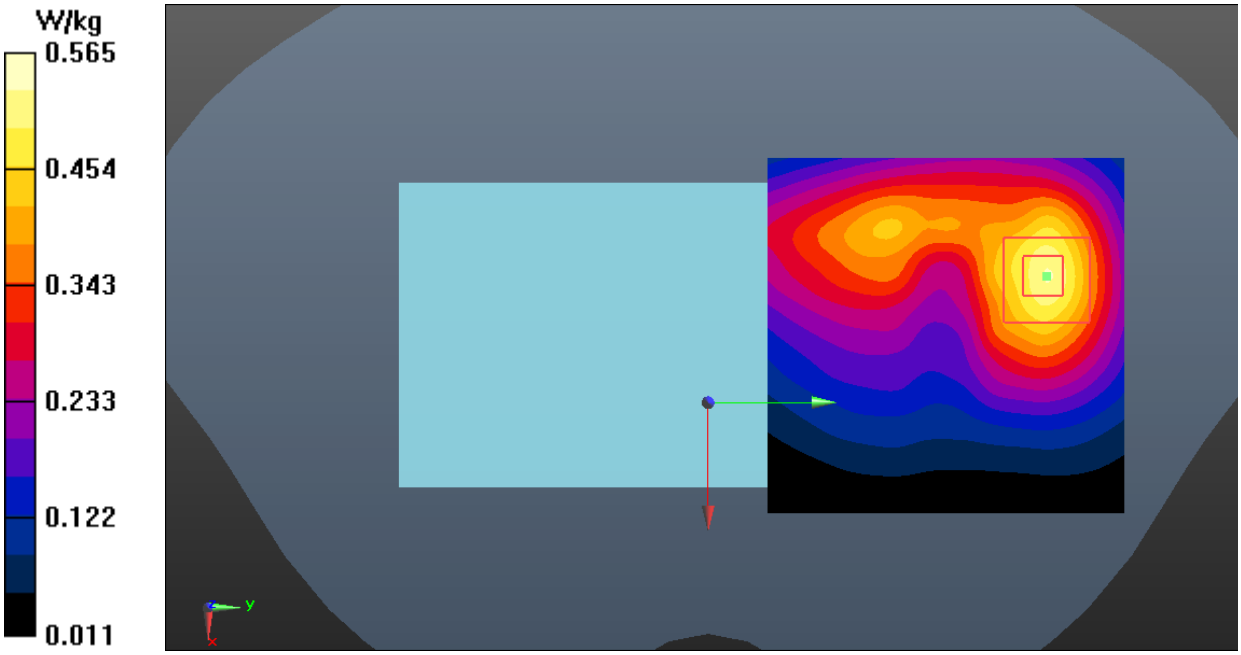
Right Cheek Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.600 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.755 W/kg
SAR(1 g) = 0.489 W/kg; SAR(10 g) = 0.304 W/kg
Maximum value of SAR (measured) = 0.586 W/kg



WCDMA Band 4 Body
Date: 2022-9-15
Electronics: DAE4 Sn1527
Medium: Head 1750MHz
Medium parameters used (interpolated): f = 1712.4 MHz; σ = 1.355 S/m; ε_r = 39.57; ρ = 1000 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 1712.4 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (9.22, 9.22, 9.22)

Front Side Low/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.532 W/kg

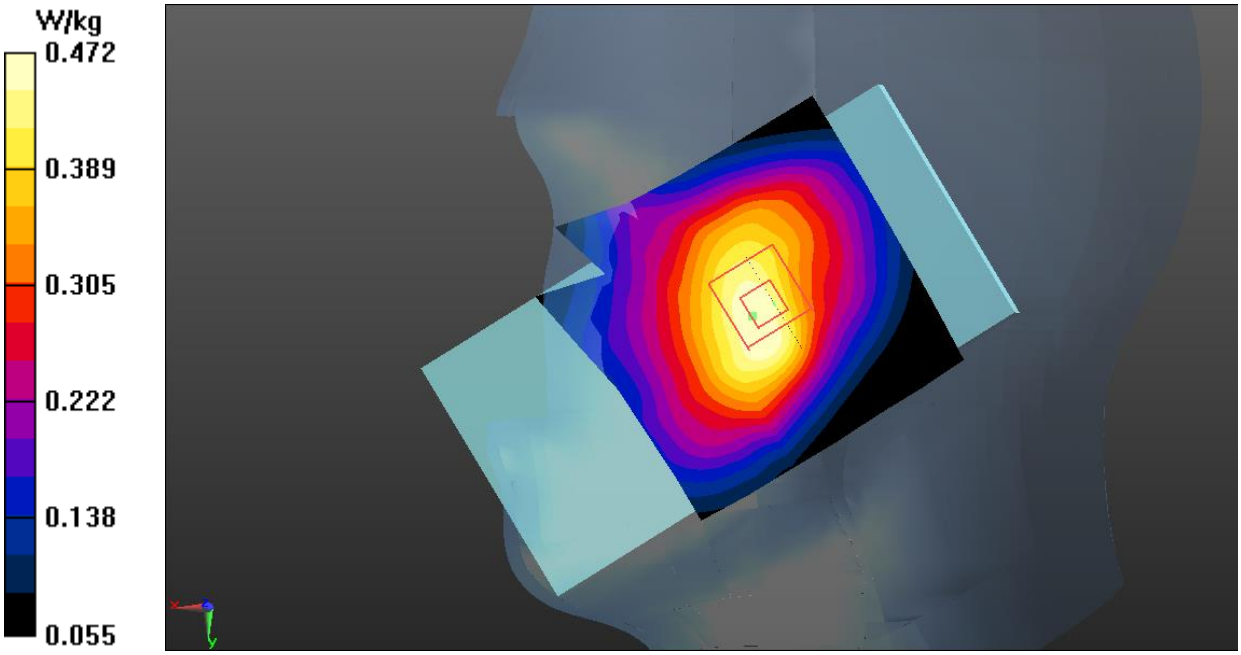
Front Side Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.032 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.717 W/kg
SAR(1 g) = 0.427 W/kg; SAR(10 g) = 0.248 W/kg
Maximum value of SAR (measured) = 0.565 W/kg



WCDMA Band 5 Head
Date: 2022-9-10
Electronics: DAE4 Sn1527
Medium: Head 835MHz
Medium parameters used (interpolated): f = 846.6 MHz; σ = 0.928 S/m; ε_r = 41.012; ρ = 1000 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 846.6 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

Right Cheek High/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.477 W/kg

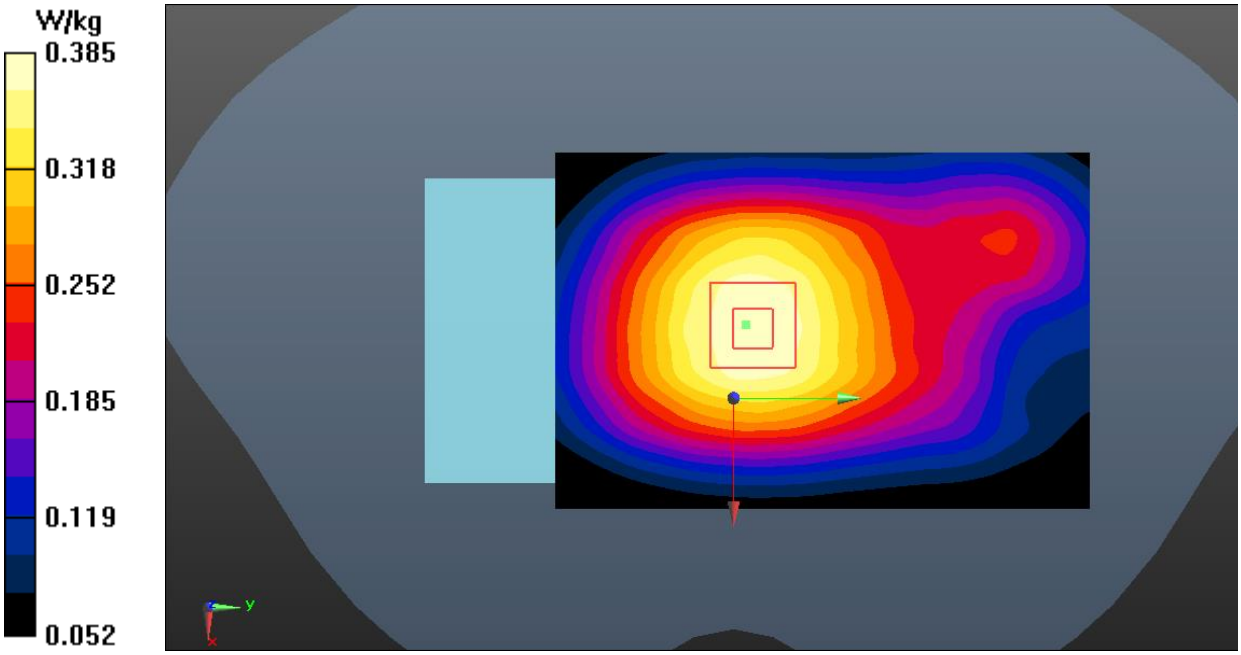
Right Cheek High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.536 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.525 W/kg
SAR(1 g) = 0.413 W/kg; SAR(10 g) = 0.308 W/kg
Maximum value of SAR (measured) = 0.472 W/kg



WCDMA Band 5 Body
Date: 2022-9-10
Electronics: DAE4 Sn1527
Medium: Head 835MHz
Medium parameters used (interpolated): f = 846.6 MHz; σ = 0.928 S/m; ε_r = 41.012; ρ = 1000 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 846.6 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

Front Side High/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.385 W/kg

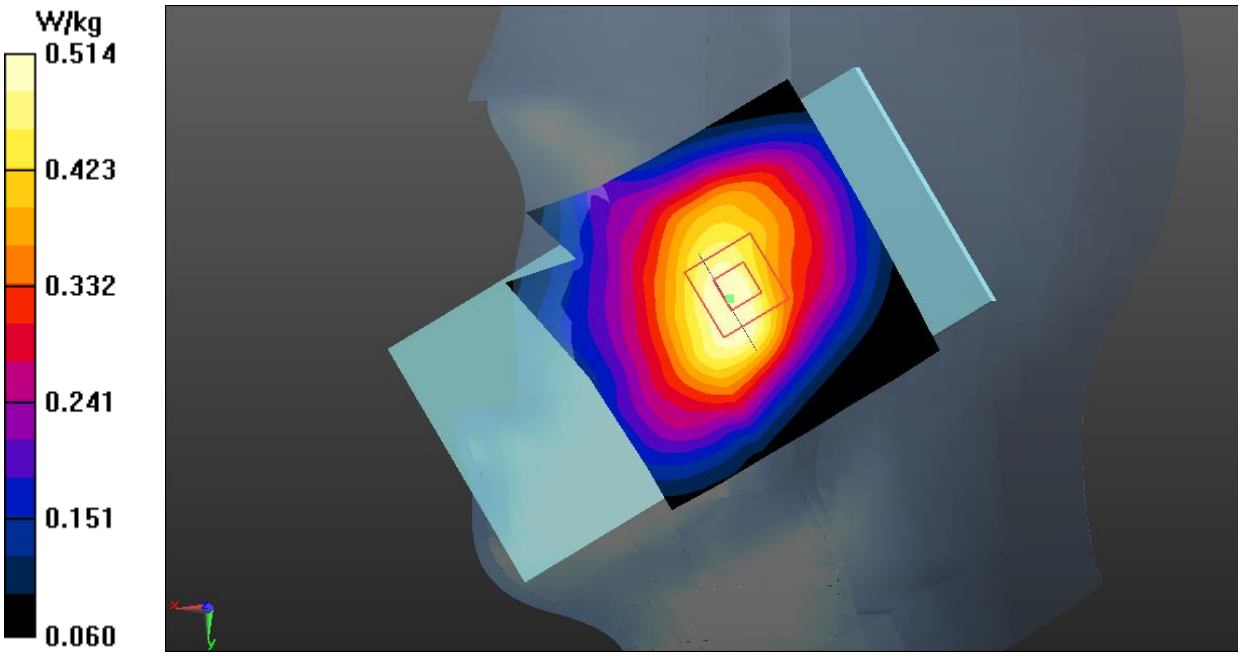
Front Side High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.84 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.427 W/kg
SAR(1 g) = 0.333 W/kg; SAR(10 g) = 0.250 W/kg
Maximum value of SAR (measured) = 0.385 W/kg



LTE Band 5 Head
Date: 2022-9-10
Electronics: DAE4 Sn1527
Medium: Head 835MHz
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.918 S/m; ε_r = 41.133; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 836.5 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

Right Cheek Middle 1RB49/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.527 W/kg

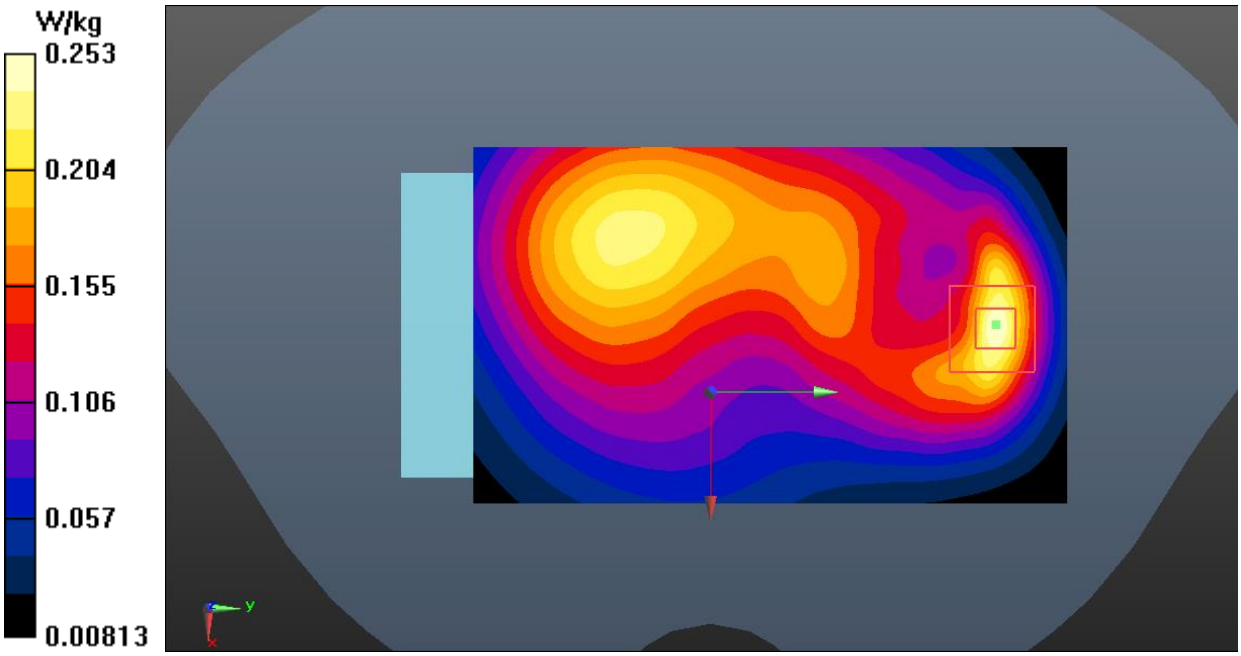
Right Cheek Middle 1RB49/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.276 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.569 W/kg
SAR(1 g) = 0.452 W/kg; SAR(10 g) = 0.338 W/kg
Maximum value of SAR (measured) = 0.514 W/kg



LTE Band 5 Body
Date: 2022-9-10
Electronics: DAE4 Sn1527
Medium: Head 835MHz
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.918 S/m; ε_r = 41.133; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 836.5 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

Rear Side Middle 1RB49/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.259 W/kg

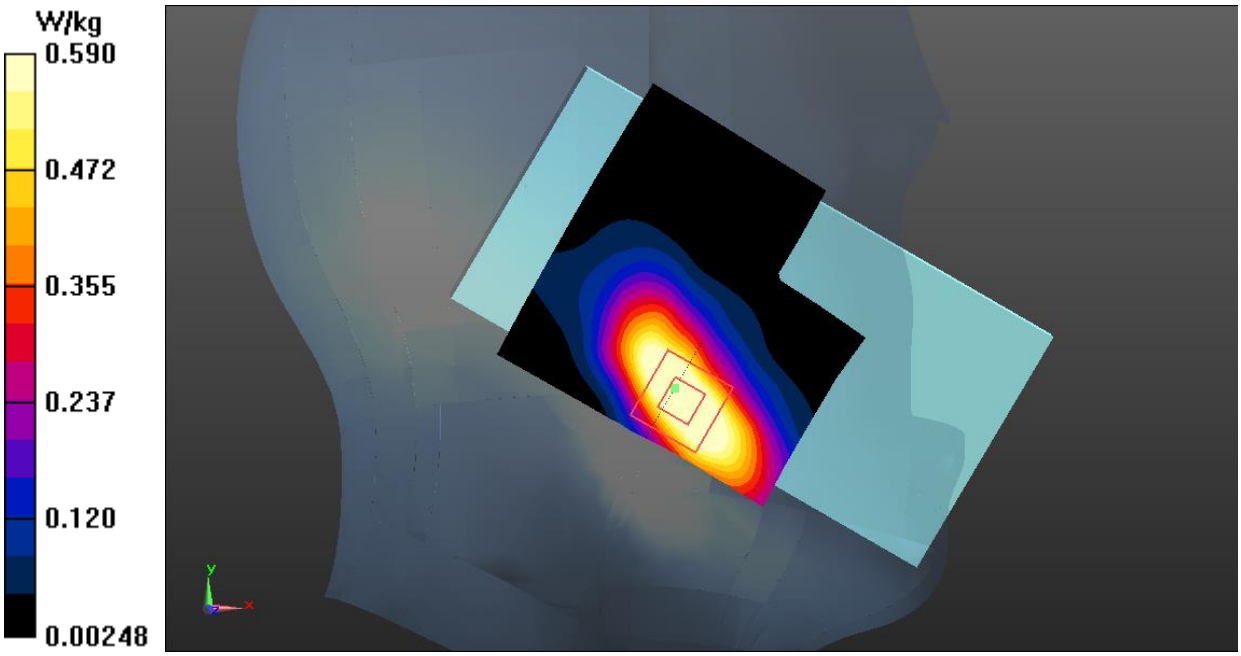
Rear Side Middle 1RB49/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.44 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.314 W/kg
SAR(1 g) = 0.184 W/kg; SAR(10 g) = 0.105 W/kg
Maximum value of SAR (measured) = 0.253 W/kg



LTE Band 7 Head
Date: 2022-9-15
Electronics: DAE4 Sn1527
Medium: Head 2550MHz
Medium parameters used (interpolated): f = 2535 MHz; σ = 1.919 S/m; ε_r = 38.199; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 2535 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (8.17, 8.17, 8.17)

Left Cheek Middle 1RB50/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.723 W/kg

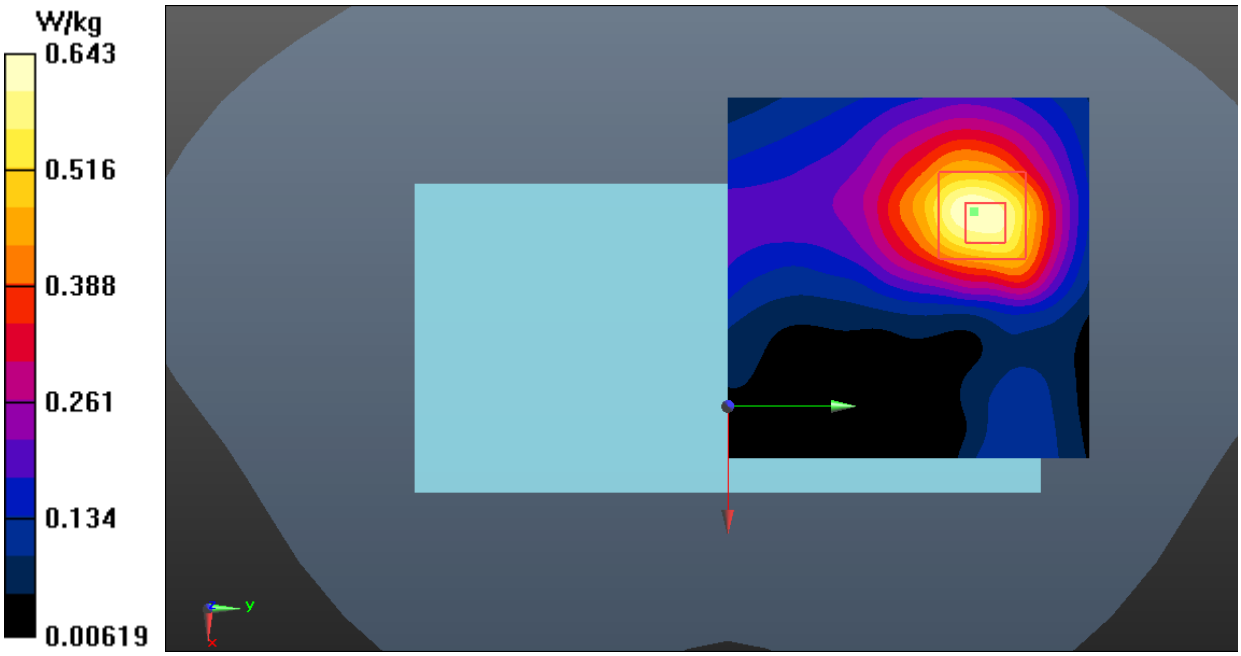
Left Cheek Middle 1RB50/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.273 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.894 W/kg
SAR(1 g) = 0.487 W/kg; SAR(10 g) = 0.262 W/kg
Maximum value of SAR (measured) = 0.590 W/kg



LTE Band 7 Body
Date: 2022-9-15
Electronics: DAE4 Sn1527
Medium: Head 2550MHz
Medium parameters used (interpolated): f = 2535 MHz; σ = 1.919 S/m; ε_r = 38.199; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 2535 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (8.17, 8.17, 8.17)

Rear Side Middle 50RB0/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.701 W/kg

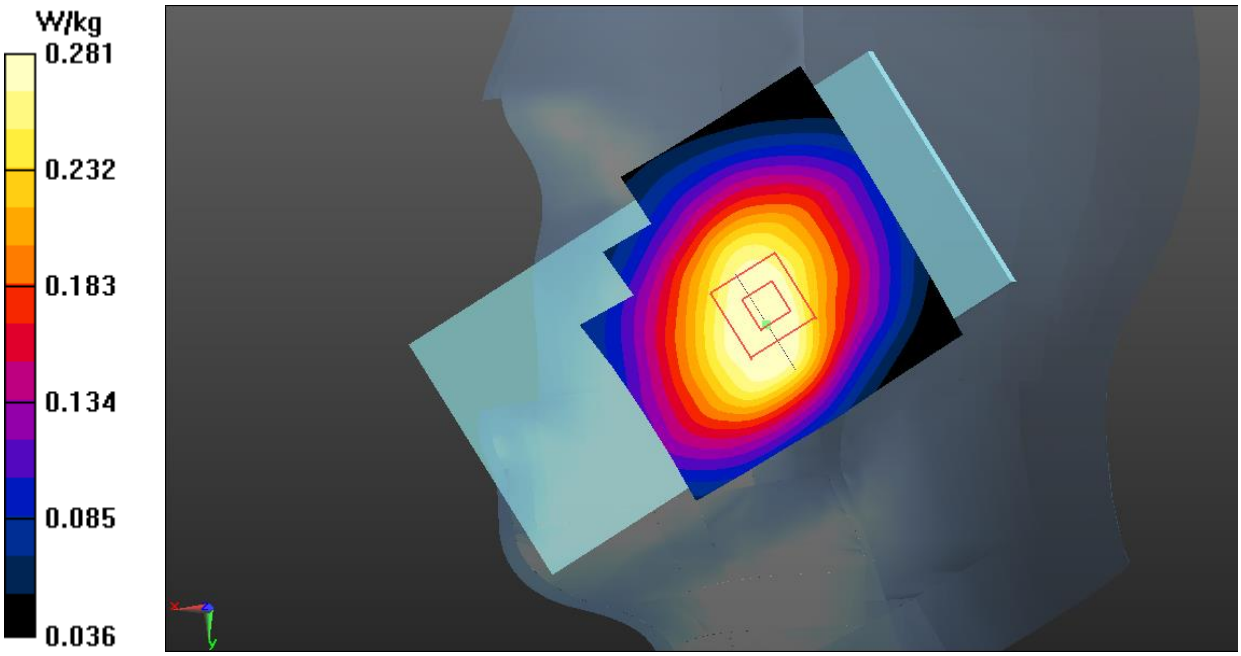
Rear Side Middle 50RB0/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.005 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.992 W/kg
SAR(1 g) = 0.510 W/kg; SAR(10 g) = 0.262 W/kg
Maximum value of SAR (measured) = 0.643 W/kg



LTE Band 12 Head
Date: 2022-9-10
Electronics: DAE4 Sn1527
Medium: Head 750MHz
Medium parameters used: f = 708 MHz; σ = 0.852 S/m; ε_r = 43.186; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 707.5 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

Right Cheek Middle 1RB24/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.310 W/kg

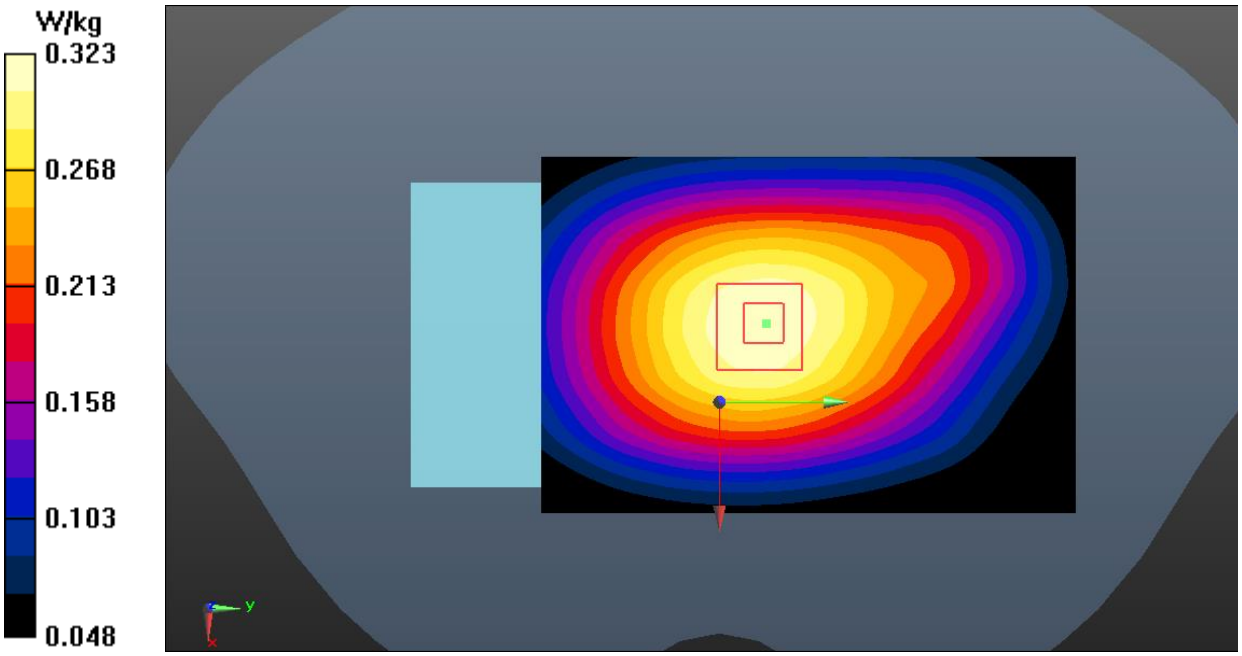
Right Cheek Middle 1RB24/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.706 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.332 W/kg
SAR(1 g) = 0.258 W/kg; SAR(10 g) = 0.193 W/kg
Maximum value of SAR (measured) = 0.281 W/kg



LTE Band 12 Body
Date: 2022-9-10
Electronics: DAE4 Sn1527
Medium: Head 750MHz
Medium parameters used: f = 708 MHz; σ = 0.852 S/m; ε_r = 43.186; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 707.5 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

Front Side Middle 1RB24/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.322 W/kg

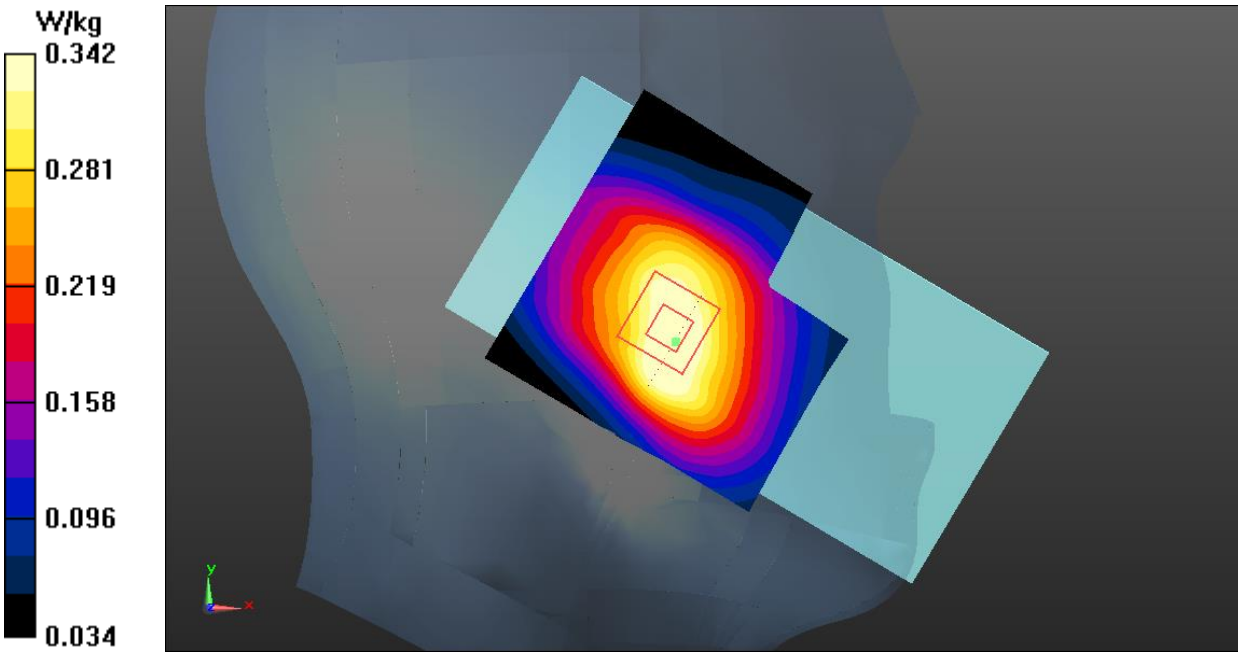
Front Side Middle 1RB24/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.62 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.357 W/kg
SAR(1 g) = 0.279 W/kg; SAR(10 g) = 0.210 W/kg
Maximum value of SAR (measured) = 0.323 W/kg



LTE Band 13 Head
Date: 2022-9-10
Electronics: DAE4 Sn1527
Medium: Head 750MHz
Medium parameters used: f = 782 MHz; σ = 0.899 S/m; ε_r =42.298; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 782 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

Left Cheek Middle 1RB49/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.371 W/kg

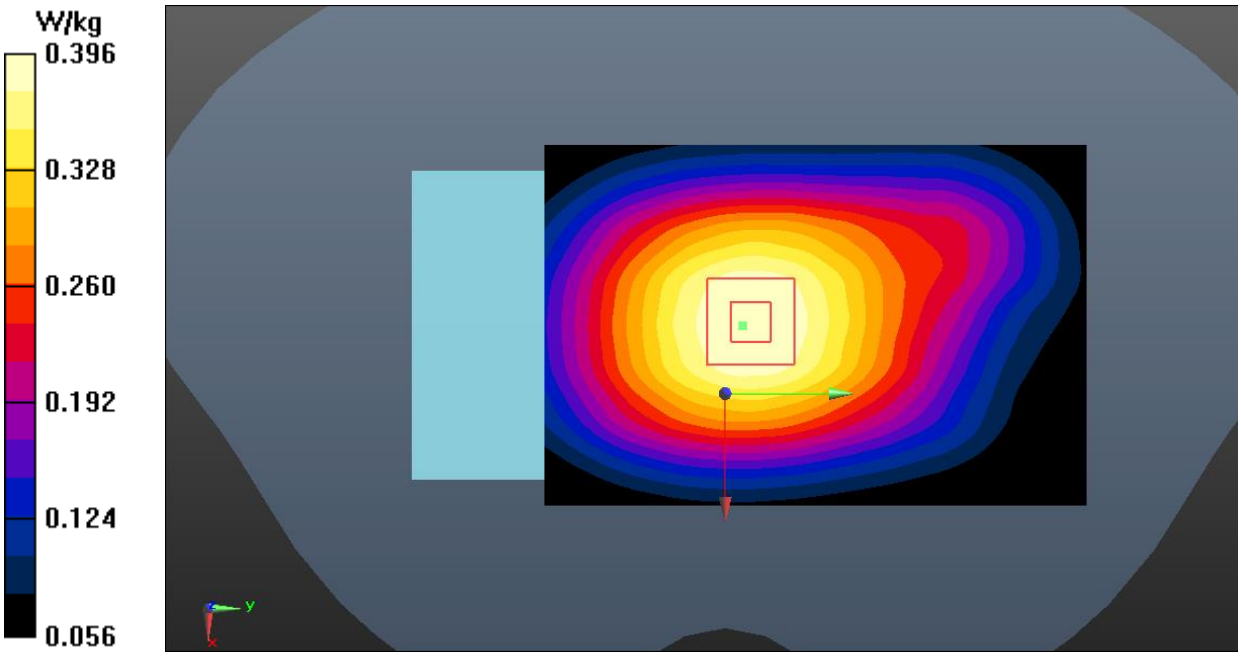
Left Cheek Middle 1RB49/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.855 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.395 W/kg
SAR(1 g) = 0.308 W/kg; SAR(10 g) = 0.227 W/kg
Maximum value of SAR (measured) = 0.342 W/kg



LTE Band 13 Body
Date: 2022-9-10
Electronics: DAE4 Sn1527
Medium: Head 750MHz
Medium parameters used: f = 782 MHz; σ = 0.899 S/m; ε_r =42.298; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 782 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

Front Side Middle 1RB49/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.401 W/kg

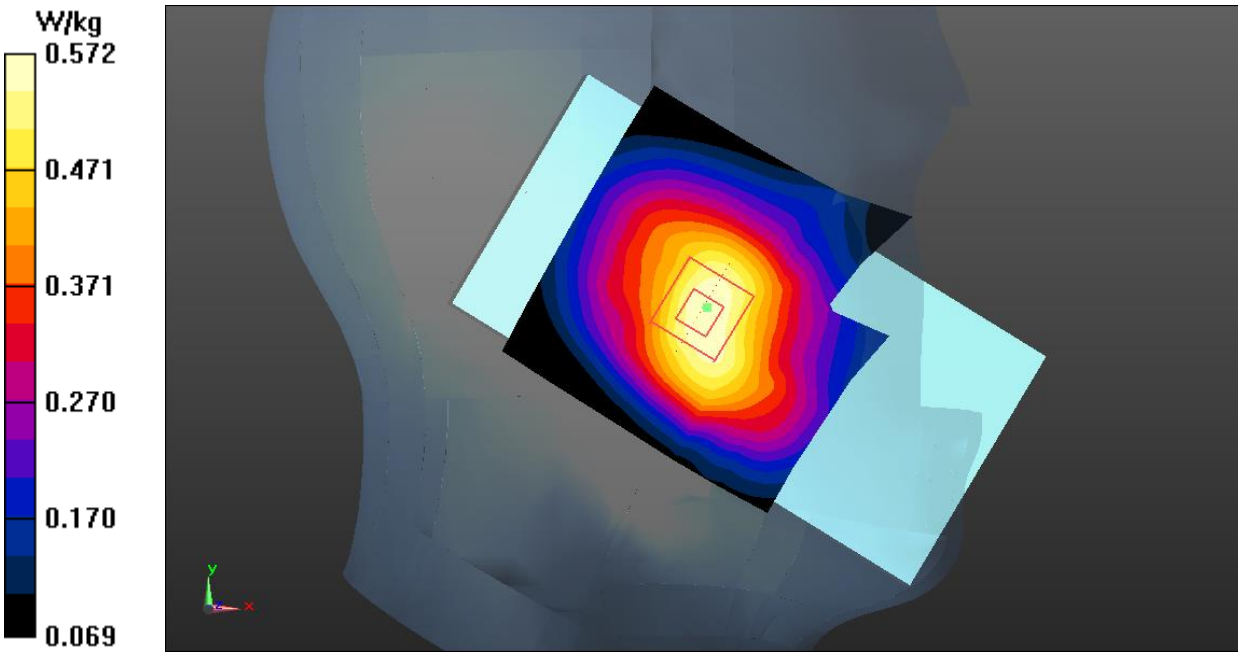
Front Side Middle 1RB49/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.79 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.439 W/kg
SAR(1 g) = 0.342 W/kg; SAR(10 g) = 0.256 W/kg
Maximum value of SAR (measured) = 0.396 W/kg



LTE Band 14 Head
Date: 2022-9-10
Electronics: DAE4 Sn1527
Medium: Head 750MHz
Medium parameters used (interpolated): f = 793 MHz; σ = 0.906 S/m; ε_r =42.166; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 793 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

Left Cheek Middle 1RB24/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.574 W/kg

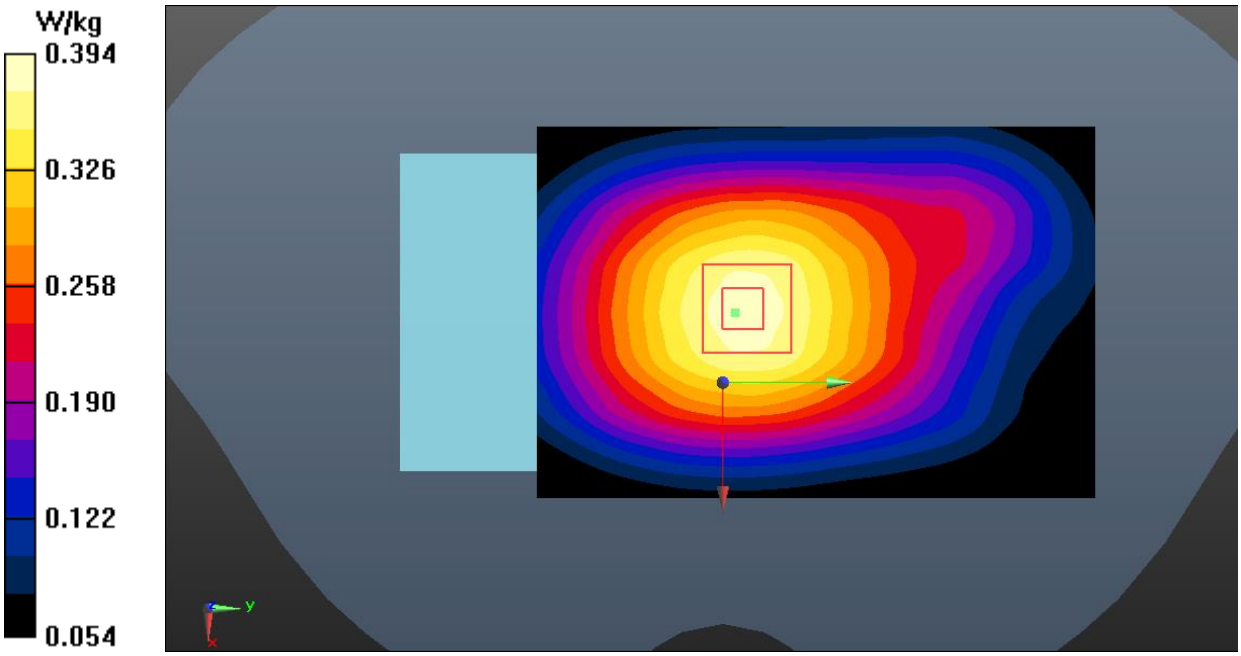
Left Cheek Middle 1RB24/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.217 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.629 W/kg
SAR(1 g) = 0.495 W/kg; SAR(10 g) = 0.370 W/kg
Maximum value of SAR (measured) = 0.572 W/kg



LTE Band 14 Body
Date: 2022-9-10
Electronics: DAE4 Sn1527
Medium: Head 750MHz
Medium parameters used (interpolated): f = 793 MHz; σ = 0.906 S/m; ε_r =42.166; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 793 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

Front Side Middle 1RB24/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.384 W/kg

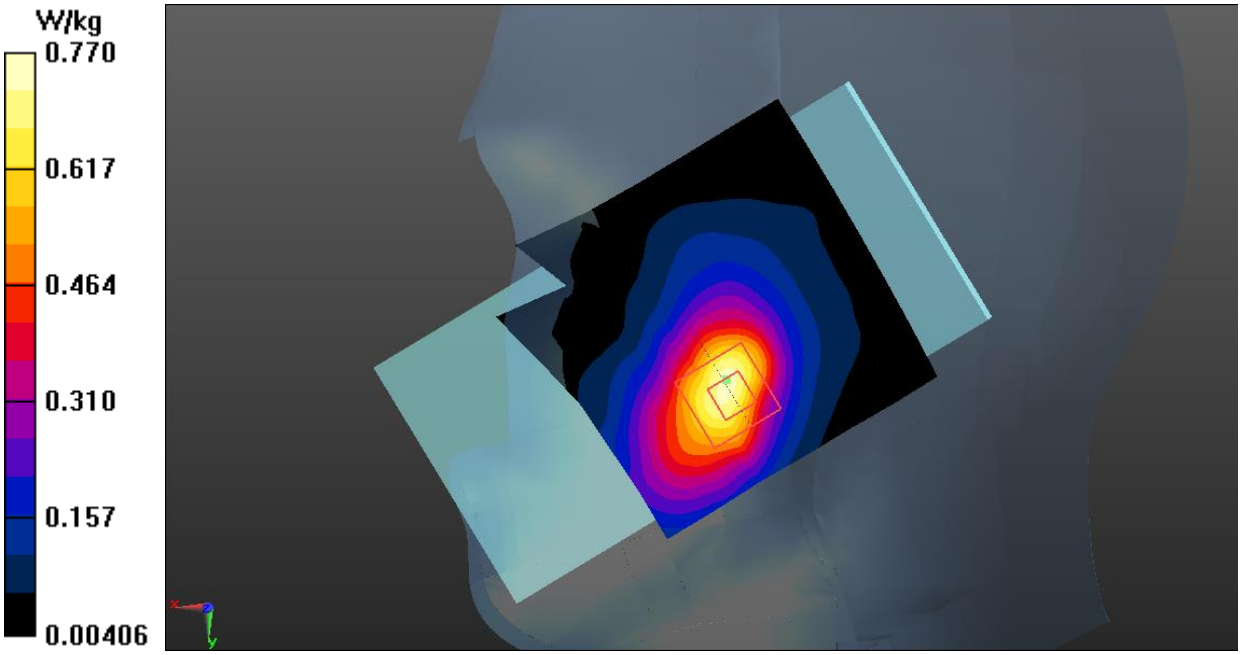
Front Side Middle 1RB24/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.06 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.438 W/kg
SAR(1 g) = 0.337 W/kg; SAR(10 g) = 0.251 W/kg
Maximum value of SAR (measured) = 0.394 W/kg



LTE Band 25 Head
Date: 2022-9-15
Electronics: DAE4 Sn1527
Medium: Head 1900MHz
Medium parameters used (interpolated): f = 1882.5 MHz; σ = 1.399 S/m; ε_r = 39.125; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 1882.5 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (8.90, 8.90, 8.90)

Right Cheek Middle 1RB0/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.742 W/kg

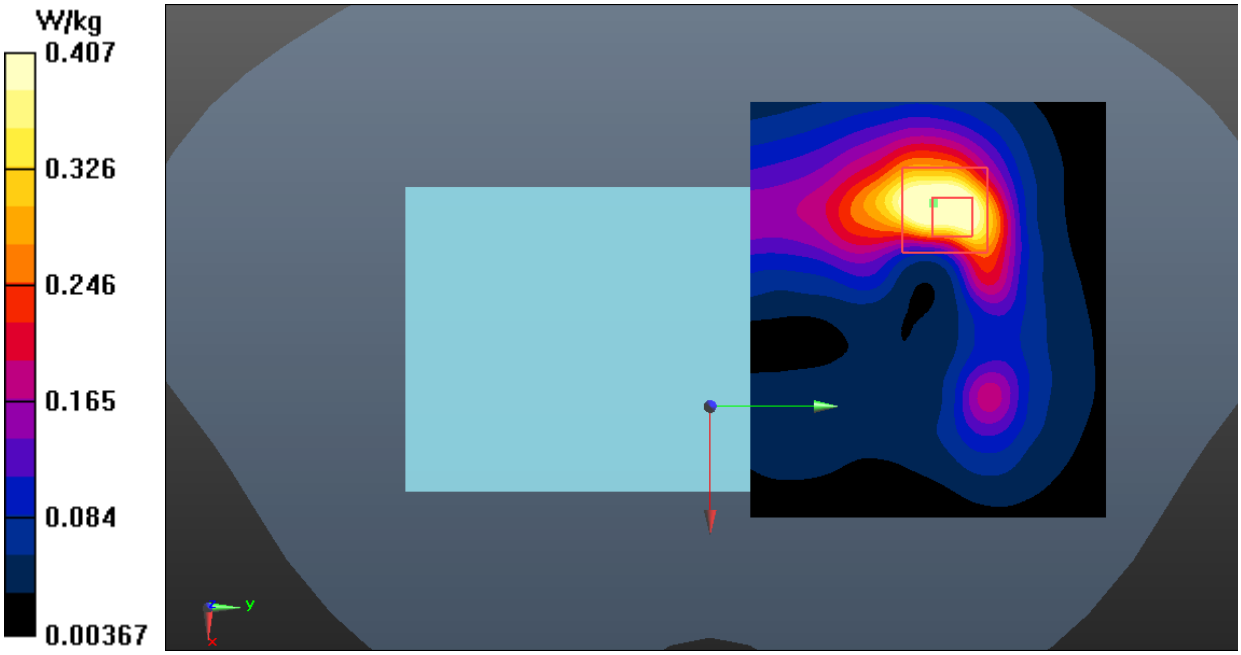
Right Cheek Middle 1RB0/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.233 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.980 W/kg
SAR(1 g) = 0.590 W/kg; SAR(10 g) = 0.338 W/kg
Maximum value of SAR (measured) = 0.770 W/kg



LTE Band 25 Body
Date: 2022-9-15
Electronics: DAE4 Sn1527
Medium: Head 1900MHz
Medium parameters used (interpolated): f = 1882.5 MHz; σ = 1.399 S/m; ε_r = 39.125; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 1882.5 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (8.90, 8.90, 8.90)

Rear Side Middle 1RB0/Area Scan (71x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.484 W/kg

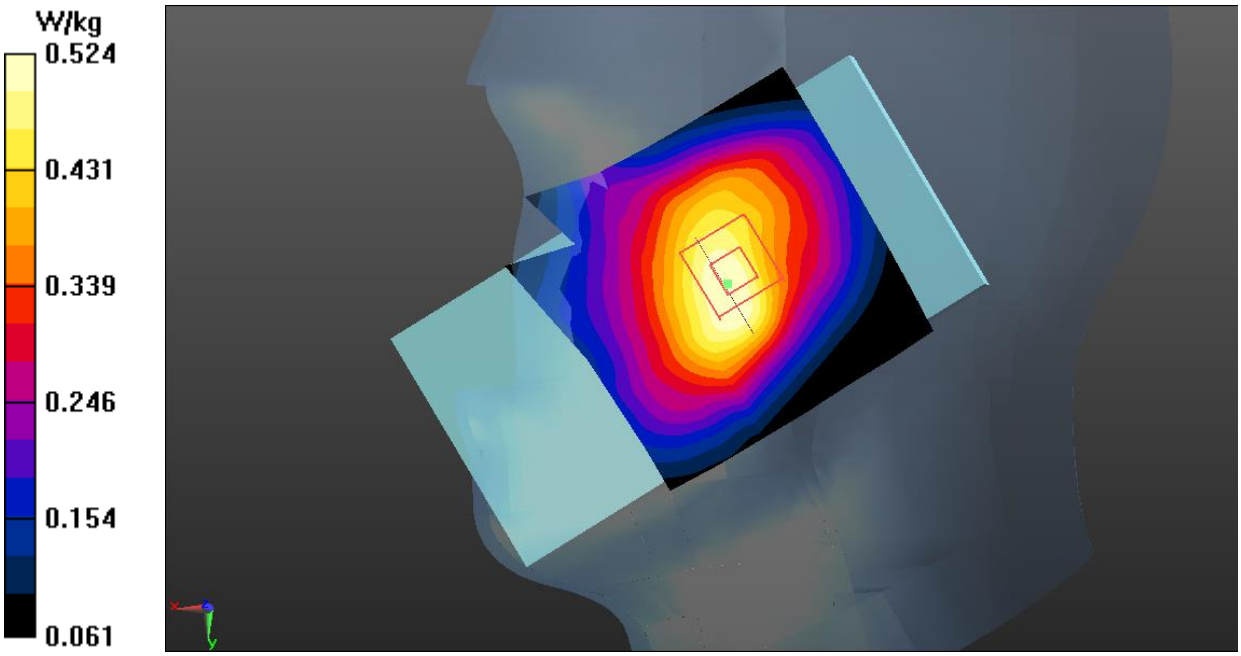
Rear Side Middle 1RB0/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.302 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.670 W/kg
SAR(1 g) = 0.339 W/kg; SAR(10 g) = 0.167 W/kg
Maximum value of SAR (measured) = 0.407 W/kg



LTE Band 26 Head
Date: 2022-9-10
Electronics: DAE4 Sn1527
Medium: Head 835MHz
Medium parameters used (interpolated): f = 841.5 MHz; σ = 0.923 S/m; ε_r = 41.073; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 841.5 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

Right Cheek High 1RB74/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.534 W/kg

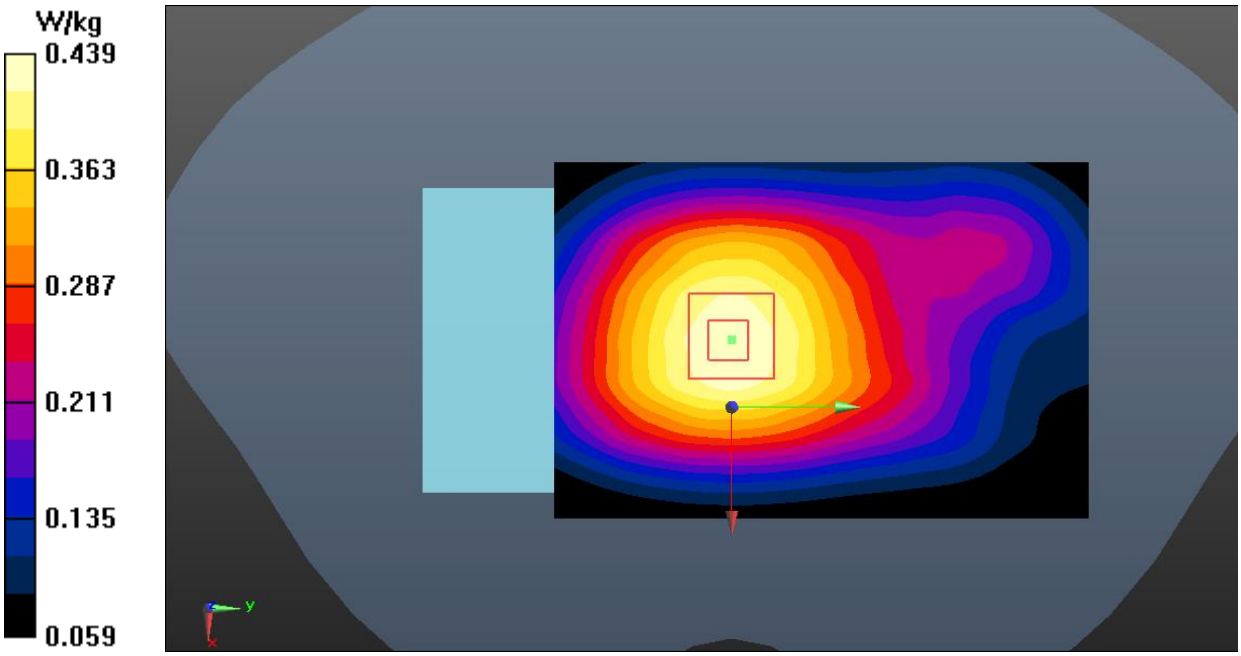
Right Cheek High 1RB74/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.348 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.579 W/kg
SAR(1 g) = 0.460 W/kg; SAR(10 g) = 0.345 W/kg
Maximum value of SAR (measured) = 0.524 W/kg



LTE Band 26 Body
Date: 2022-9-10
Electronics: DAE4 Sn1527
Medium: Head 835MHz
Medium parameters used (interpolated): f = 841.5 MHz; σ = 0.923 S/m; ε_r = 41.073; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 841.5 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

Front Side High 1RB74/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.437 W/kg

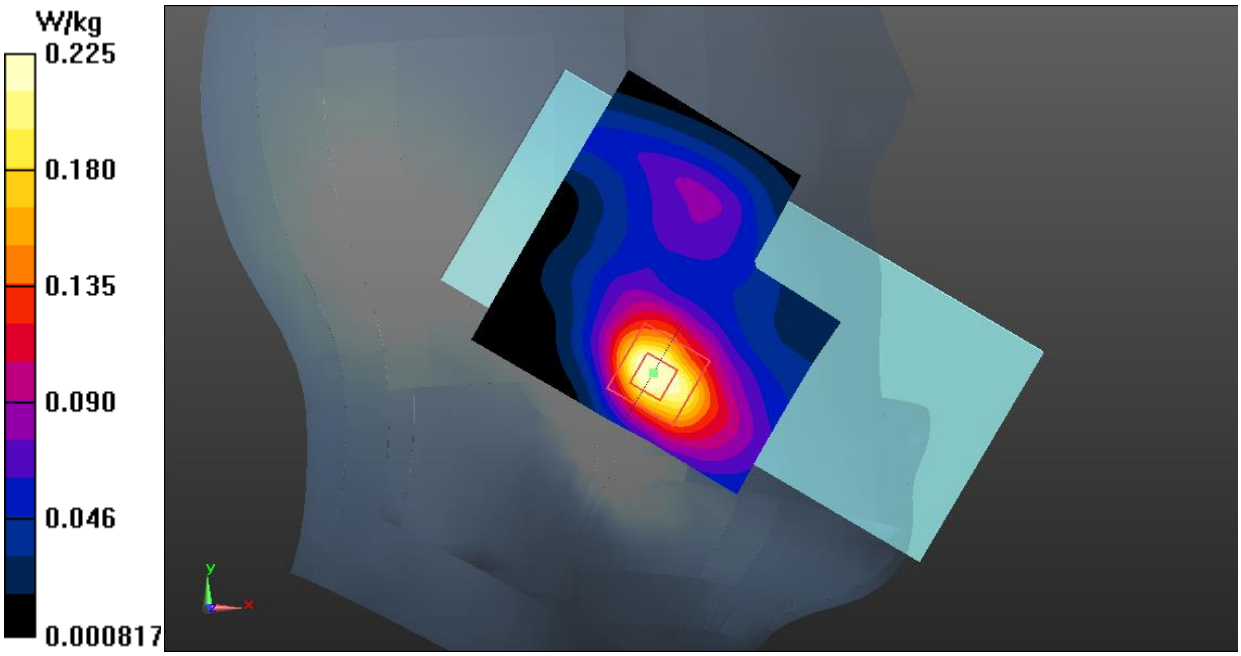
Front Side High 1RB74/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.34 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.482 W/kg
SAR(1 g) = 0.379 W/kg; SAR(10 g) = 0.284 W/kg
Maximum value of SAR (measured) = 0.439 W/kg



LTE Band 30 Head
Date: 2022-9-15
Electronics: DAE4 Sn1527
Medium: Head 2300MHz
Medium parameters used: f = 2310 MHz; σ = 1.661 S/m; ε_r = 38.82; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 2310 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (8.60, 8.60, 8.60)

Left Cheek Middle 1RB24/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.274 W/kg

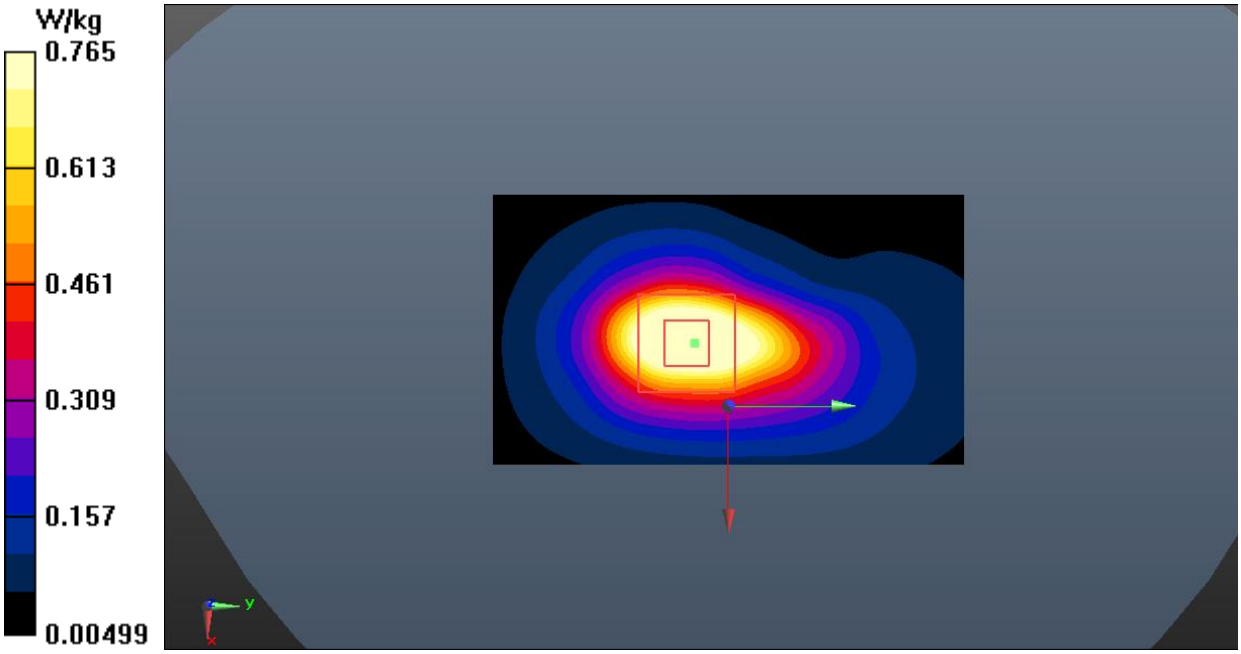
Left Cheek Middle 1RB24/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.971 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.289 W/kg
SAR(1 g) = 0.166 W/kg; SAR(10 g) = 0.094 W/kg
Maximum value of SAR (measured) = 0.225 W/kg



LTE Band 30 Body
Date: 2022-9-15
Electronics: DAE4 Sn1527
Medium: Head 2300MHz
Medium parameters used: f = 2310 MHz; σ = 1.661 S/m; ε_r = 38.82; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 2310 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (8.60, 8.60, 8.60)

Bottom Side Middle 1RB24/Area Scan (61x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.807 W/kg

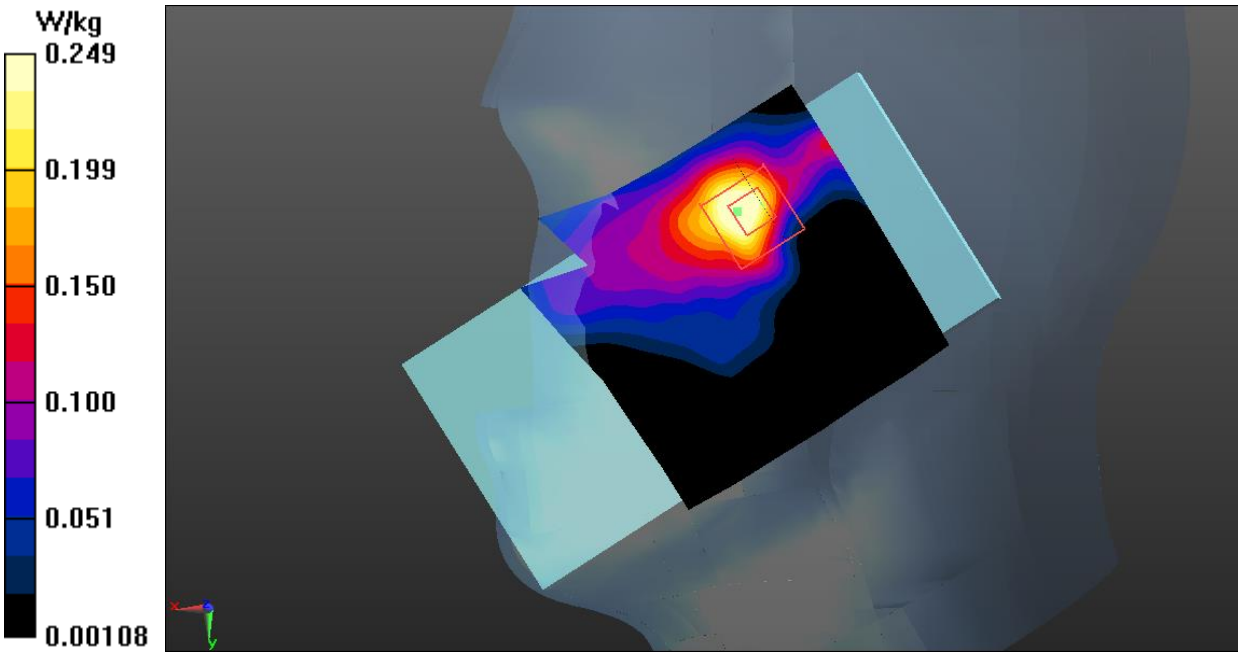
Bottom Side Middle 1RB24/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.782 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.969 W/kg
SAR(1 g) = 0.553 W/kg; SAR(10 g) = 0.306 W/kg
Maximum value of SAR (measured) = 0.765 W/kg



LTE Band 41 Head
Date: 2022-9-15
Electronics: DAE4 Sn1527
Medium: Head 2550MHz
Medium parameters used: f = 2680 MHz; σ = 2.089 S/m; ε_r = 37.72; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_TDD (0) Frequency: 2680 MHz Duty Cycle: 1:1.58
Probe: EX3DV4 - SN7621 ConvF (7.93, 7.93, 7.93)

Right Cheek High 1RB99/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.277 W/kg

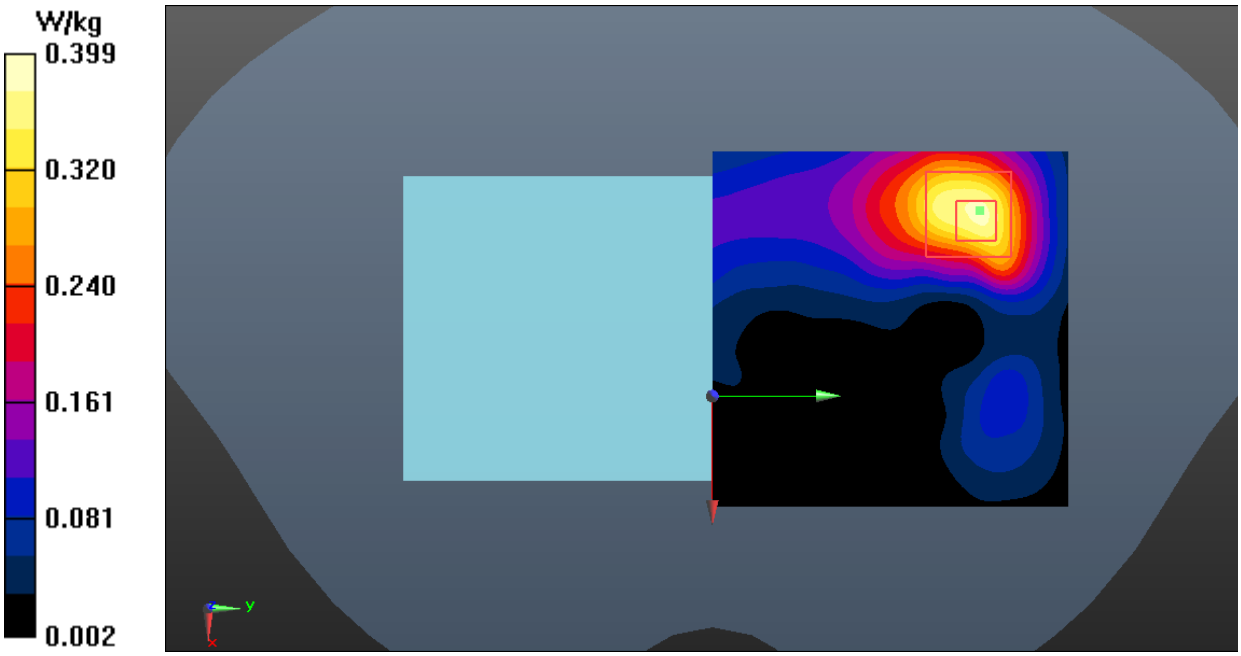
Right Cheek High 1RB99/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.048 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.338 W/kg
SAR(1 g) = 0.179 W/kg; SAR(10 g) = 0.092 W/kg
Maximum value of SAR (measured) = 0.249 W/kg



LTE Band 41 Body
Date: 2022-9-15
Electronics: DAE4 Sn1527
Medium: Head 2550MHz
Medium parameters used: f = 2680 MHz; σ = 2.089 S/m; ε_r = 37.72; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_TDD (0) Frequency: 2680 MHz Duty Cycle: 1:1.58
Probe: EX3DV4 - SN7621 ConvF (7.93, 7.93, 7.93)

Rear Side Middle 1RB99/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.383 W/kg

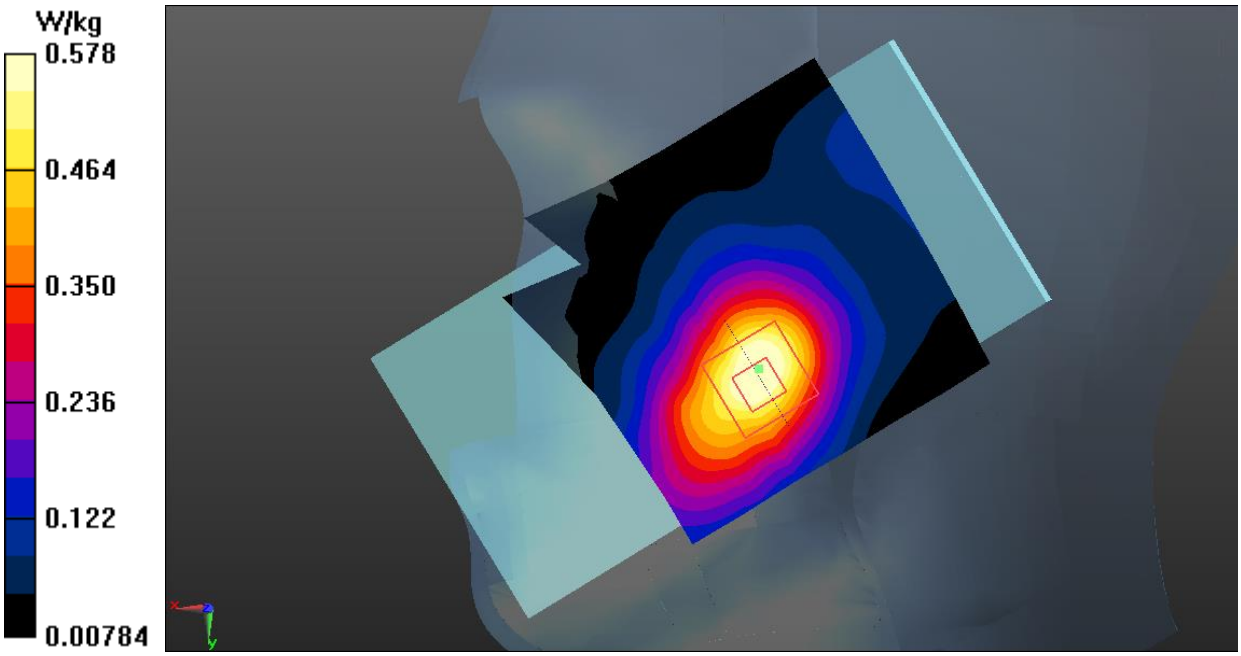
Rear Side Middle 1RB99/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.241 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.552 W/kg
SAR(1 g) = 0.285 W/kg; SAR(10 g) = 0.144 W/kg
Maximum value of SAR (measured) = 0.399 W/kg



LTE Band 66 Head
Date: 2022-9-15
Electronics: DAE4 Sn1527
Medium: Head 1750MHz
Medium parameters used: f = 1720 MHz; σ = 1.362 S/m; ε_r = 39.541; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 1720 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (9.22, 9.22, 9.22)

Right Cheek Low 1RB99/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.614 W/kg

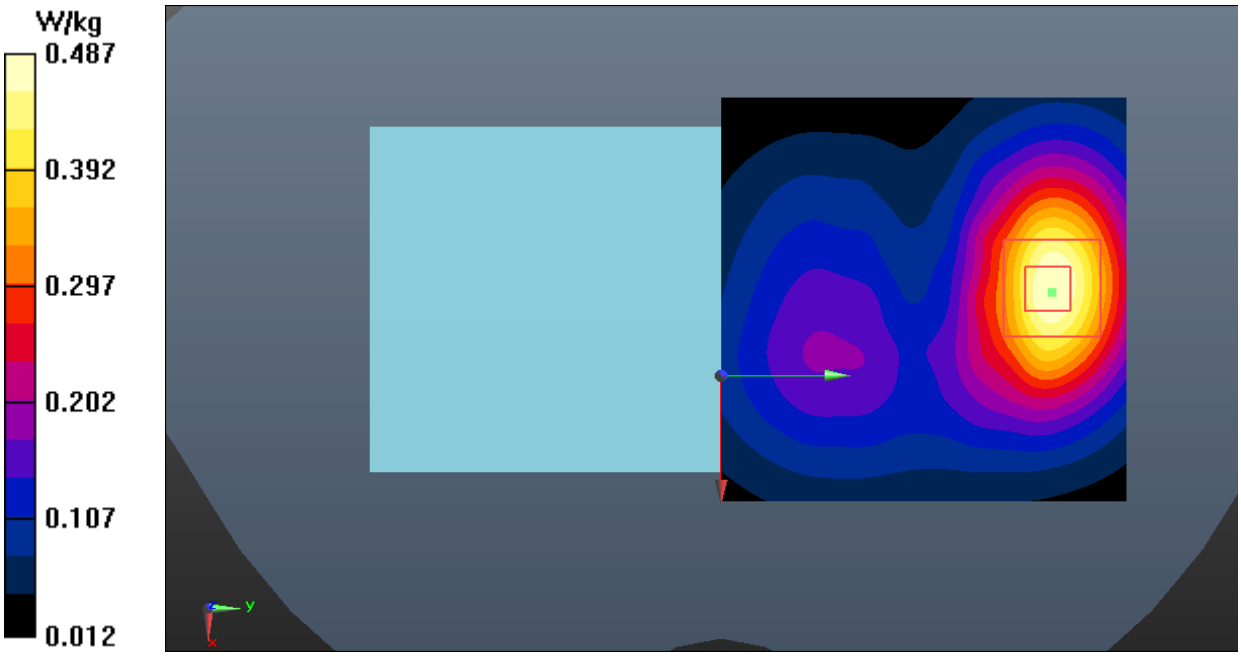
Right Cheek Low 1RB99/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.638 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.719 W/kg
SAR(1 g) = 0.460 W/kg; SAR(10 g) = 0.284 W/kg
Maximum value of SAR (measured) = 0.578 W/kg



LTE Band 66 Body
Date: 2022-9-15
Electronics: DAE4 Sn1527
Medium: Head 1750MHz
Medium parameters used: f = 1720 MHz; σ = 1.362 S/m; ε_r = 39.541; ρ = 1000 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 1720 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (9.22, 9.22, 9.22)

Rear Side Low 1RB0/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.496 W/kg

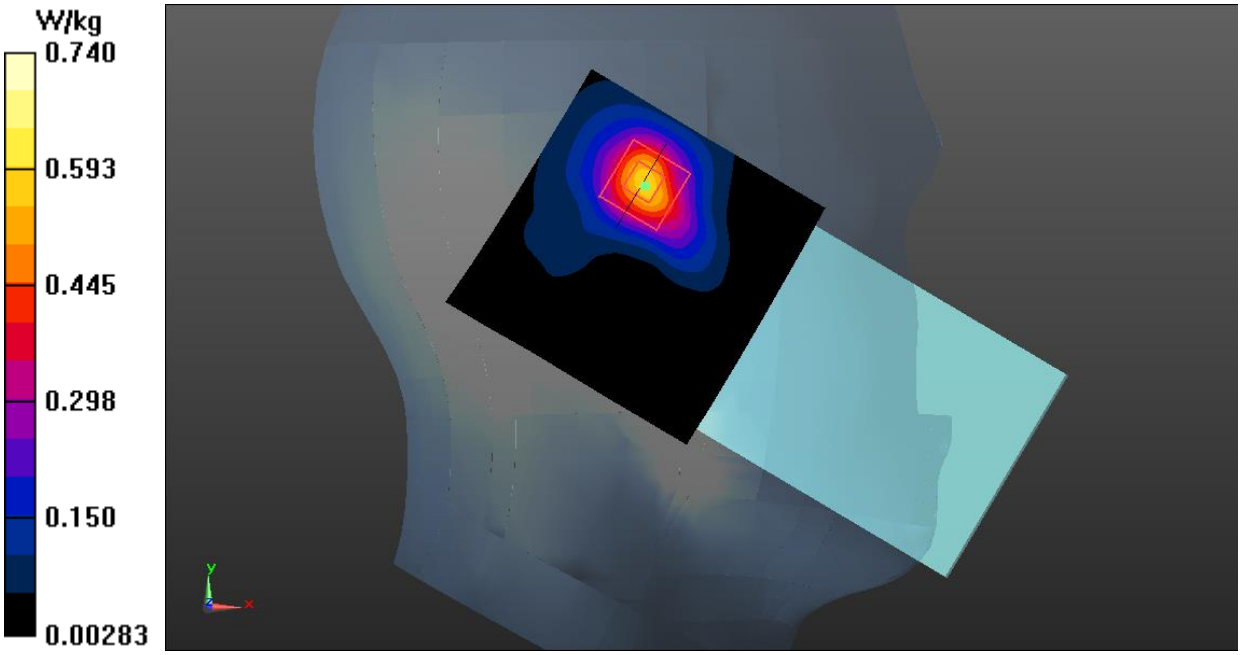
Rear Side Low 1RB0/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.114 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.591 W/kg
SAR(1 g) = 0.370 W/kg; SAR(10 g) = 0.219 W/kg
Maximum value of SAR (measured) = 0.487 W/kg



WLAN 2.4GHz Head
Date: 2022-9-13
Electronics: DAE4 Sn1527
Medium: Head 2450MHz
Medium parameters used: f = 2462 MHz; σ = 1.853 S/m; ε_r = 38.401; ρ = 1000 kg/m^3
Communication System: UID 0, WiFi (0) Frequency: 2462 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (8.17, 8.17, 8.17)

Left Cheek Ch.11/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.586 W/kg

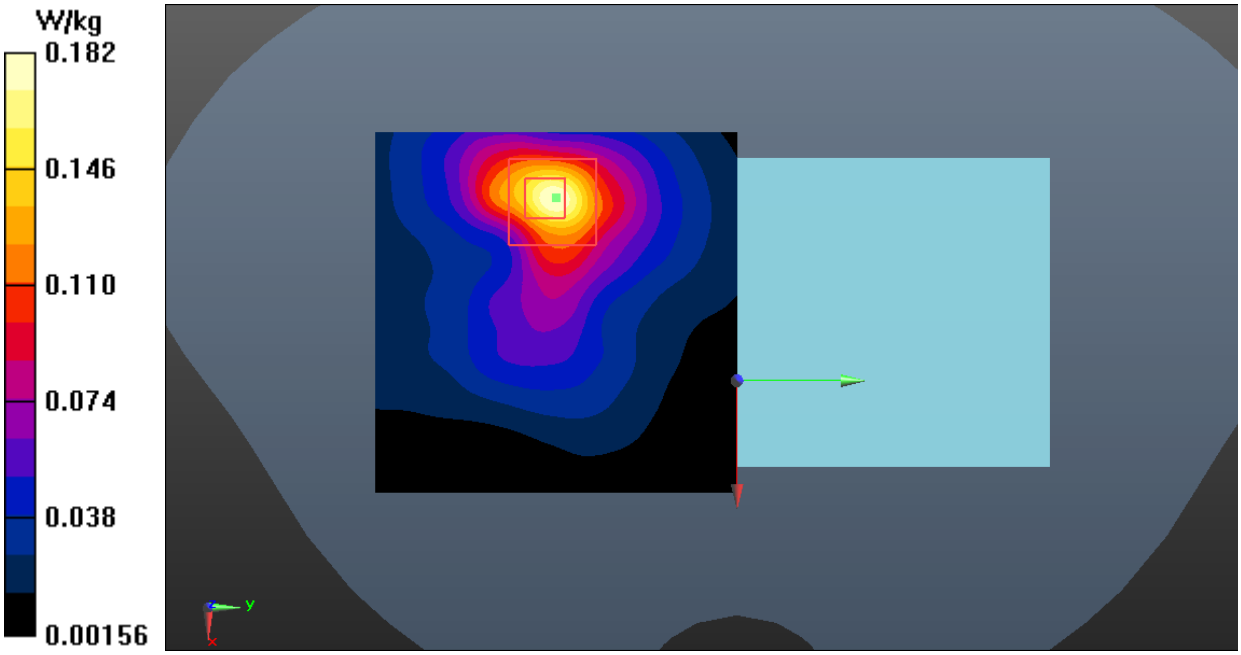
Left Cheek Ch.11/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.363 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.04 W/kg
SAR(1 g) = 0.502 W/kg; SAR(10 g) = 0.217 W/kg
Maximum value of SAR (measured) = 0.740 W/kg



WLAN 2.4GHz Body
Date: 2022-9-13
Electronics: DAE4 Sn1527
Medium: Head 2450MHz
Medium parameters used: f = 2412 MHz; σ = 1.794 S/m; ε_r = 38.566; ρ = 1000 kg/m^3
Communication System: UID 0, WiFi (0) Frequency: 2412 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (8.17, 8.17, 8.17)

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

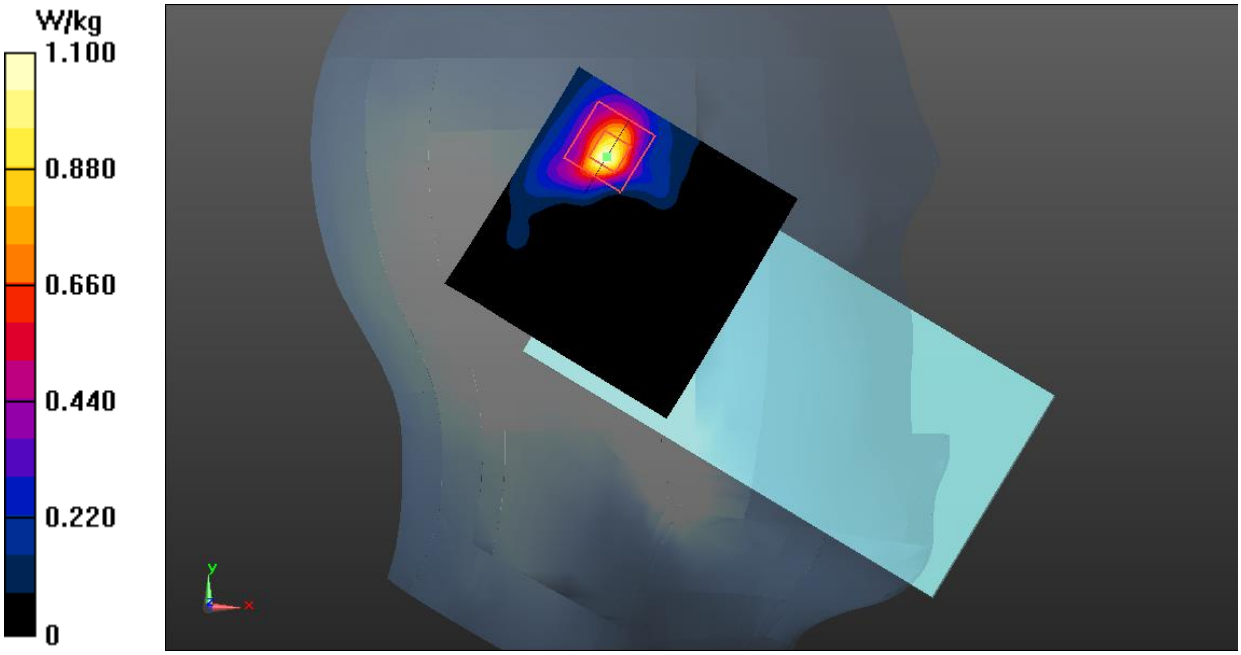
Front Side Ch.1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.916 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.245 W/kg
SAR(1 g) = 0.125 W/kg; SAR(10 g) = 0.062 W/kg
Maximum value of SAR (measured) = 0.182 W/kg



WLAN 5GHz Head
Date: 2022-9-13
Electronics: DAE4 Sn1527
Medium: Head 5750MHz
Medium parameters used (interpolated): f = 5755 MHz; σ = 5.352 S/m; ε_r = 34.398; ρ = 1000 kg/m^3
Communication System: UID 0, WiFi 5G (0) Frequency: 5755 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (5.40, 5.40, 5.40)

Left Tilt Ch.151/Area Scan (81x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.12 W/kg

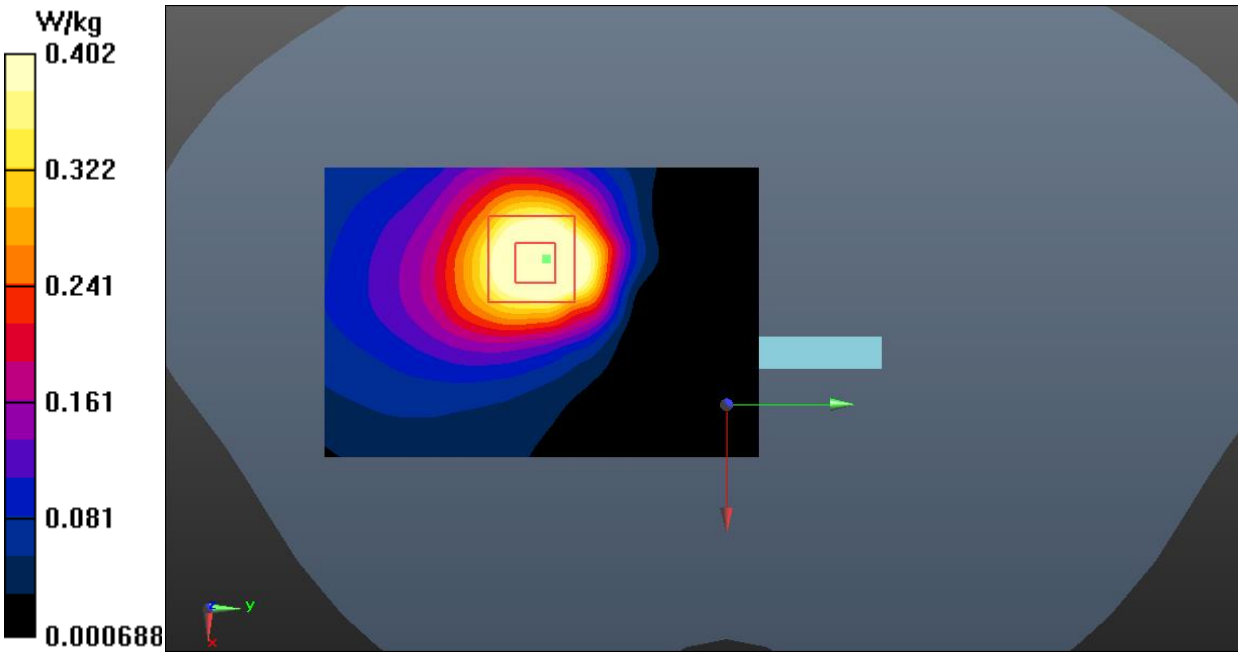
Left Tilt Ch.151/Zoom Scan (8x8x21)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 1.058 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 2.39 W/kg
SAR(1 g) = 0.535 W/kg; SAR(10 g) = 0.168 W/kg
Maximum value of SAR (measured) = 1.10 W/kg



WLAN 5GHz Body
Date: 2022-9-13
Electronics: DAE4 Sn1527
Medium: Head 5600MHz
Medium parameters used (interpolated): f = 5510 MHz; σ = 5.032 S/m; ε_r = 35.108; ρ = 1000 kg/m^3
Communication System: UID 0, WiFi 5G (0) Frequency: 5510 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (5.47, 5.47, 5.47)

Right Side Ch.102/Area Scan (71x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.549 W/kg

Right Side Ch.102/Zoom Scan (8x8x21)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 1.844 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.41 W/kg
SAR(1 g) = 0.288 W/kg; SAR(10 g) = 0.133 W/kg
Maximum value of SAR (measured) = 0.402 W/kg



K.4. System Verification Results for Spot Check

750MHz

Date: 2022-9-10

Electronics: DAE4 Sn1527

Medium: Head 750MHz

Medium parameters used: f = 750 MHz; σ = 0.879 S/m; ε_r = 42.682; ρ = 1000 kg/m^3

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

Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

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

Reference Value = 59.123 V/m; Power Drift = -0.07 dB

SAR(1 g) = 2.07 W/kg; SAR(10 g) = 1.39 W/kg

Maximum value of SAR (interpolated) = 2.66 W/kg

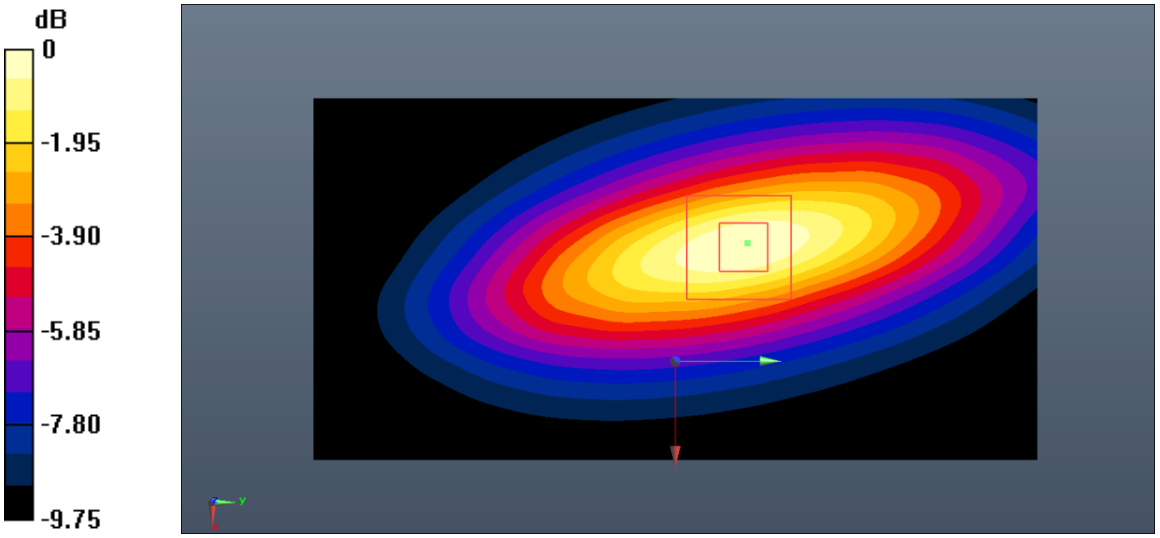
System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 59.123 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 3.08 W/kg

SAR(1 g) = 2.02 W/kg; SAR(10 g) = 1.36 W/kg

Maximum value of SAR (measured) = 2.62 W/kg

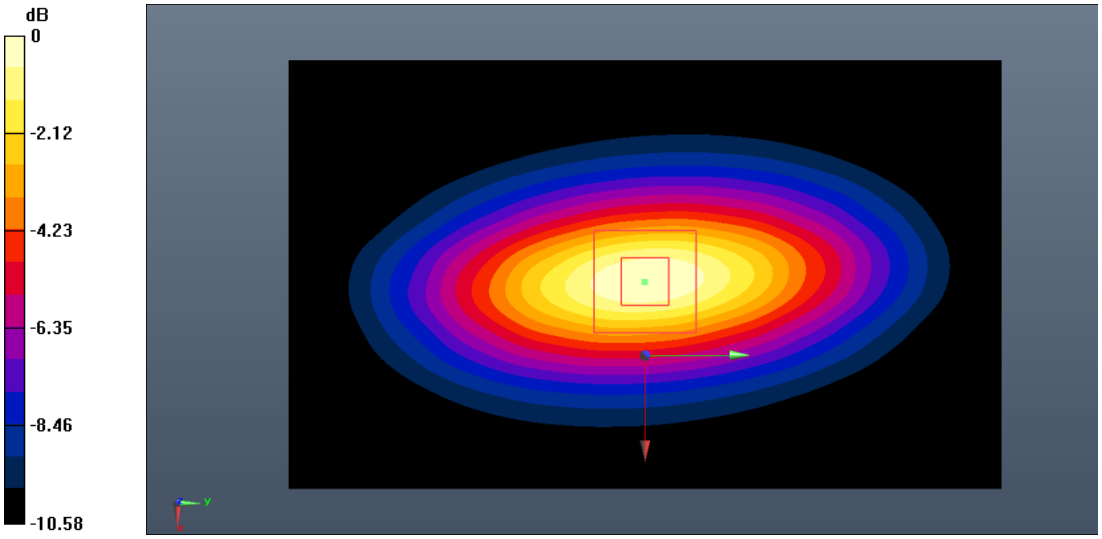


0 dB = 2.62 W/kg = 4.18 dB W/kg

835MHz
Date: 2022-9-10
Electronics: DAE4 Sn1527
Medium: Head 835MHz
Medium parameters used: f = 835 MHz; σ = 0.917 S/m; εr = 41.151; ρ = 1000 kg/m^3
Communication System: CW_TMC Frequency: 835 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

System Validation/Area Scan (91x161x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 63.837 V/m; Power Drift = 0.05 dB
SAR(1 g) = 2.42 W/kg; SAR(10 g) = 1.57 W/kg
Maximum value of SAR (interpolated) = 3.63 W/kg

System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 63.837 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 4.30 W/kg
SAR(1 g) = 2.48 W/kg; SAR(10 g) = 1.60 W/kg
Maximum value of SAR (measured) = 3.65 W/kg

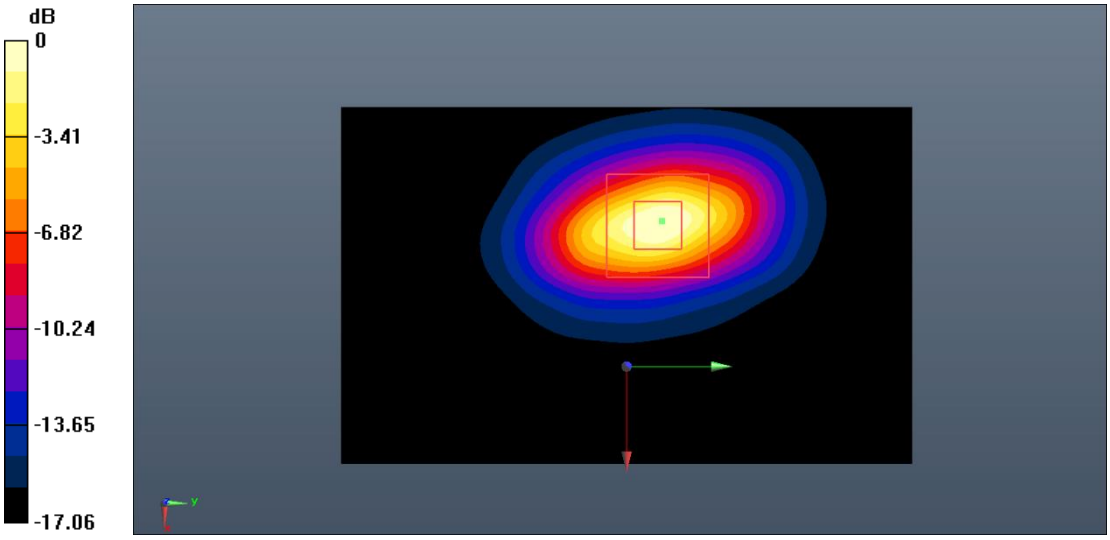


0 dB = 3.65 W/kg = 5.62 dB W/kg

1750MHz
Date: 2022-9-15
Electronics: DAE4 Sn1527
Medium: Head 1750MHz
Medium parameters used: f = 1750 MHz; σ = 1.388 S/m; ε_r = 39.424; ρ = 1000 kg/m^3
Communication System: CW_TMC Frequency: 1750 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (9.22, 9.22, 9.22)

System Validation/Area Scan (81x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 78.752 V/m; Power Drift = 0.08 dB
SAR(1 g) = 9.20 W/kg; SAR(10 g) = 4.88 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 = 78.752 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 20.4 W/kg
SAR(1 g) = 9.46 W/kg; SAR(10 g) = 5.01 W/kg
Maximum value of SAR (measured) = 11.3 W/kg

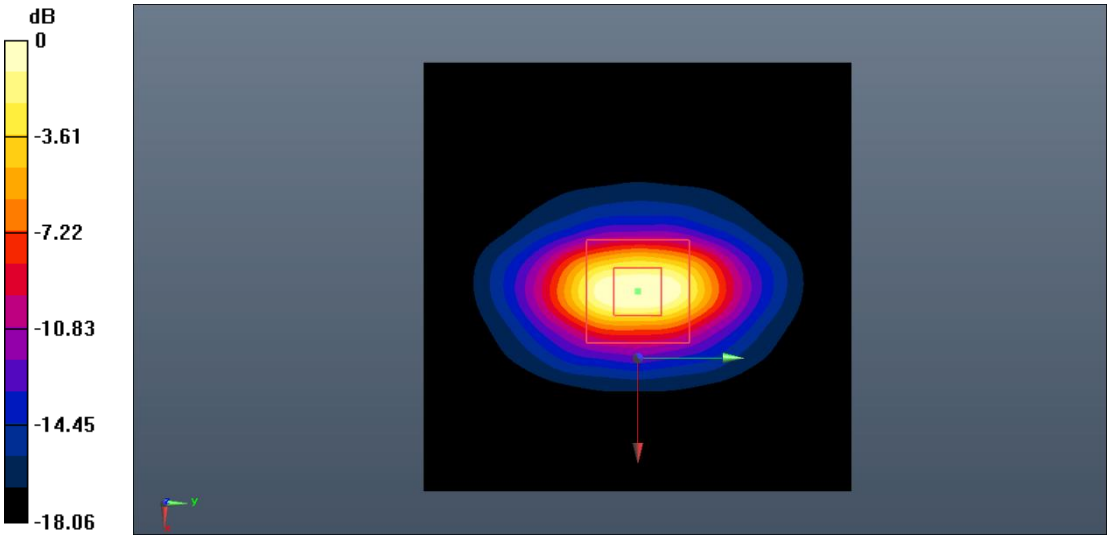


0 dB = 11.3 W/kg = 10.53 dB W/kg

1900MHz
Date: 2022-9-15
Electronics: DAE4 Sn1527
Medium: Head 1900MHz
Medium parameters used: f = 1900 MHz; σ = 1.414 S/m; ε_r = 39.058; ρ = 1000 kg/m^3
Communication System: CW_TMC Frequency: 1900 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (8.90, 8.90, 8.90)

System Validation/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 81.542 V/m; Power Drift = 0.02 dB
SAR(1 g) = 10.2 W/kg; SAR(10 g) = 5.15 W/kg
Maximum value of SAR (interpolated) = 12.0 W/kg

System Validation/Zoom Scan (7x7x7)/Cube0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 81.542 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 25.1 W/kg
SAR(1 g) = 10.4 W/kg; SAR(10 g) = 5.24 W/kg
Maximum value of SAR (measured) = 12.3 W/kg

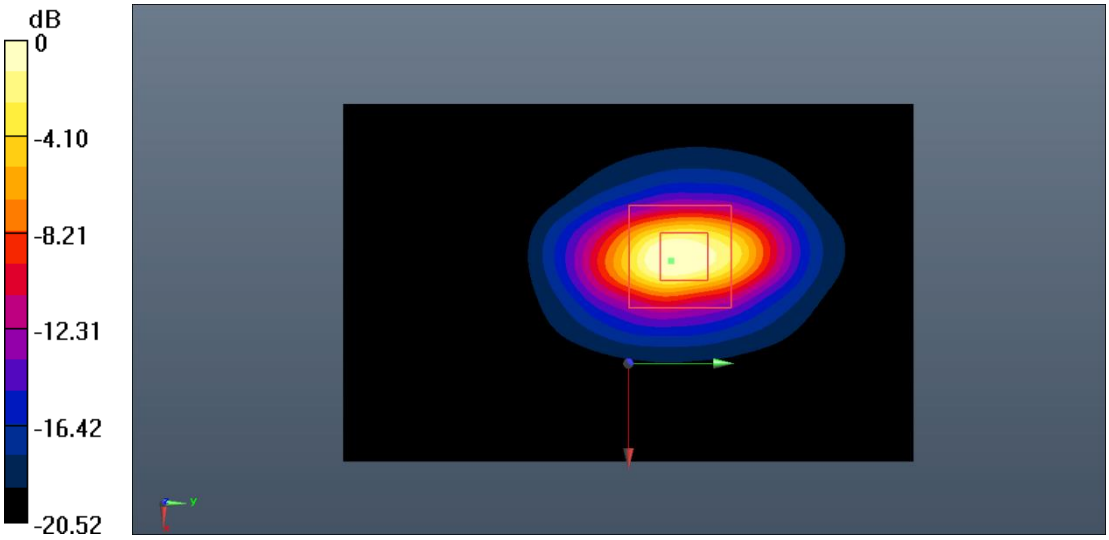


0 dB = 12.3 W/kg = 10.90 dB W/kg

2300MHz
Date: 2022-9-15
Electronics: DAE4 Sn1527
Medium: Head 2300MHz
Medium parameters used: f = 2300 MHz; σ = 1.649 S/m; ε_r = 38.853; ρ = 1000 kg/m^3
Communication System: CW_TMC Frequency: 2300 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (8.60, 8.60, 8.60)

System Validation/Area Scan (81x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 83.562 V/m; Power Drift = -0.11 dB
SAR(1 g) = 12.0 W/kg; SAR(10 g) = 5.75 W/kg
Maximum value of SAR (interpolated) = 14.0 W/kg

System Validation/Zoom Scan (7x7x7)/Cube0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 83.562 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 25.6 W/kg
SAR(1 g) = 11.7 W/kg; SAR(10 g) = 5.59 W/kg
Maximum value of SAR (measured) = 13.8 W/kg

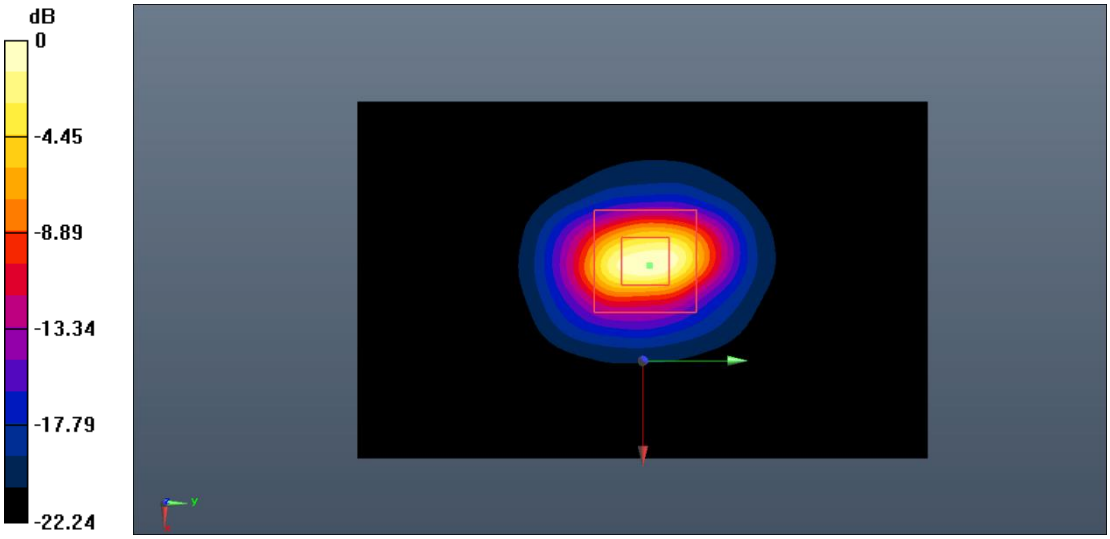


0 dB = 13.8 W/kg = 11.40 dB W/kg

2450MHz
Date: 2022-9-13
Electronics: DAE4 Sn1527
Medium: Head 2450MHz
Medium parameters used: f = 2450 MHz; σ = 1.839 S/m; ε_r = 38.442; ρ = 1000 kg/m^3
Communication System: CW_TMC Frequency: 2450 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (8.17, 8.17, 8.17)

System Validation/Area Scan (81x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 92.495 V/m; Power Drift = 0.12 dB
SAR(1 g) = 13.5 W/kg; SAR(10 g) = 6.09 W/kg
Maximum value of SAR (interpolated) = 15.4 W/kg

System Validation/Zoom Scan (7x7x7)/Cube0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 92.495 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 34.7 W/kg
SAR(1 g) = 13.8 W/kg; SAR(10 g) = 6.18 W/kg
Maximum value of SAR (measured) = 15.7 W/kg

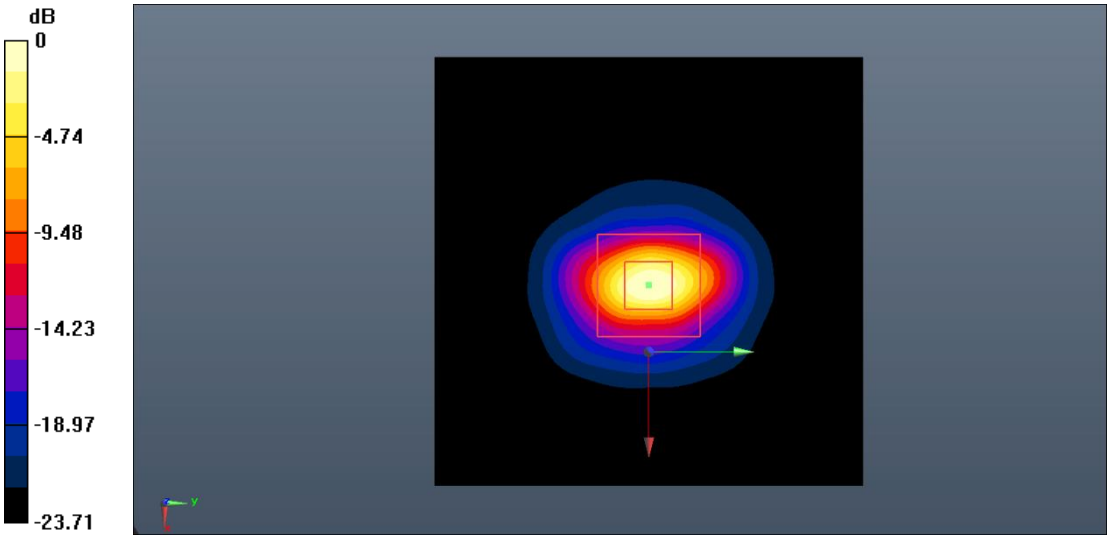


0 dB = 15.7 W/kg = 11.96 dB W/kg

2550MHz
Date: 2022-9-15
Electronics: DAE4 Sn1527
Medium: Head 2550MHz
Medium parameters used: f = 2550 MHz; σ = 1.937 S/m; ε_r = 38.149; ρ = 1000 kg/m^3
Communication System: CW_TMC Frequency: 2550 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7621 ConvF (8.17, 8.17, 8.17)

System Validation/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 94.008 V/m; Power Drift = 0.09 dB
SAR(1 g) = 14.1 W/kg; SAR(10 g) = 6.31 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 = 94.008 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 37.7 W/kg
SAR(1 g) = 14.4 W/kg; SAR(10 g) = 6.42 W/kg
Maximum value of SAR (measured) = 16.4 W/kg

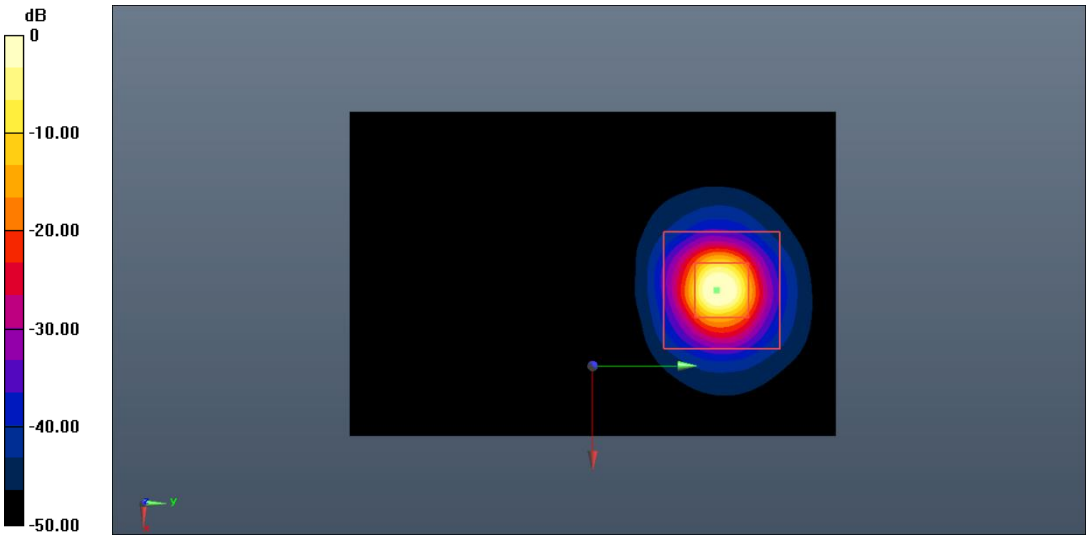


0 dB = 16.4 W/kg = 12.15 dB W/kg

5600MHz
Date: 2022-9-13
Electronics: DAE4 Sn1527
Medium: Head 5600MHz
Medium parameters used: f = 5600 MHz; σ = 5.153 S/m; ε_r = 34.865; ρ = 1000 kg/m^3
Communication System: CW_TMC Frequency: 5600 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (5.47, 5.47, 5.47)

System Validation/Area Scan (61x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 67.559 V/m; Power Drift = 0.08 dB
SAR(1 g) = 8.29 W/kg; SAR(10 g) = 2.33 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 = 67.559 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 27.8 W/kg
SAR(1 g) = 8.45 W/kg; SAR(10 g) = 2.39 W/kg
Maximum value of SAR (measured) = 10.5 W/kg

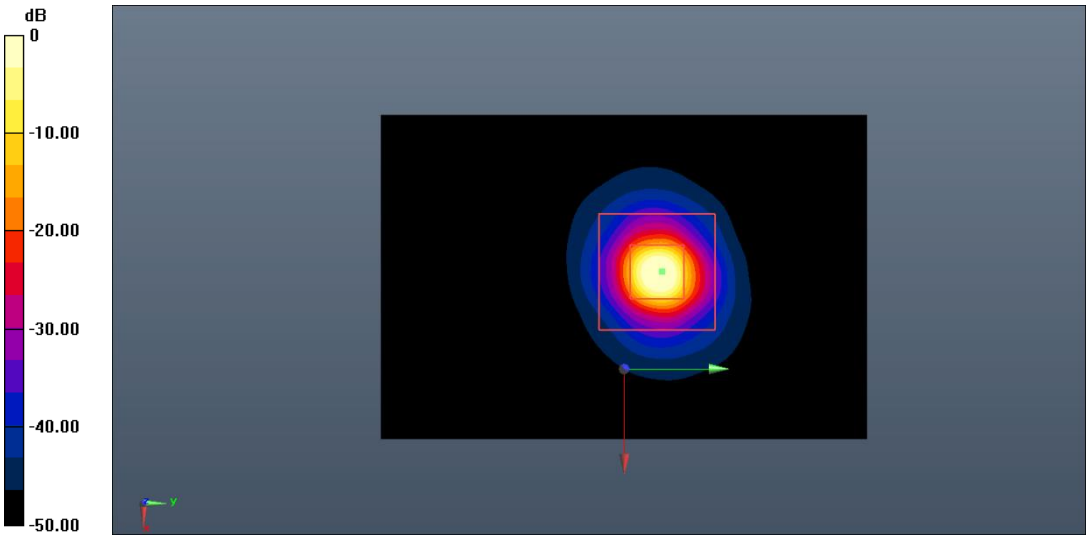


0 dB = 10.5 W/kg = 10.21 dB W/kg

5750MHz
Date: 2022-9-13
Electronics: DAE4 Sn1527
Medium: Head 5750MHz
Medium parameters used: f = 5750 MHz; σ = 5.345 S/m; ε_r = 34.411; ρ = 1000 kg/m^3
Communication System: CW_TMC Frequency: 5750 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7621 ConvF (5.40, 5.40, 5.40)

System Validation/Area Scan (61x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 65.983 V/m; Power Drift = 0.05 dB
SAR(1 g) = 7.98 W/kg; SAR(10 g) = 2.22 W/kg
Maximum value of SAR (interpolated) = 9.97 W/kg

System Validation/Zoom Scan (8x8x21)/Cube0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 65.983 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 26.2 W/kg
SAR(1 g) = 8.19 W/kg; SAR(10 g) = 2.27 W/kg
Maximum value of SAR (measured) = 10.2 W/kg



0 dB = 10.2 W/kg = 10.09 dB W/kg

*****END OF REPORT*****