

### Measurement Conditions

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

<b>DASY Version</b>	DASY5	V52.10.0
<b>Extrapolation</b>	Advanced Extrapolation	
<b>Phantom</b>	Modular Flat Phantom V5.0	
<b>Distance Dipole Center - TSL</b>	10 mm	with Spacer
<b>Zoom Scan Resolution</b>	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
<b>Frequency</b>	5200 MHz ± 1 MHz 5300 MHz ± 1 MHz 5500 MHz ± 1 MHz 5600 MHz ± 1 MHz 5800 MHz ± 1 MHz	

### Head TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
<b>Nominal Head TSL parameters</b>	22.0 °C	36.0	4.66 mho/m
<b>Measured Head TSL parameters</b>	(22.0 ± 0.2) °C	36.3 ± 6 %	4.51 mho/m ± 6 %
<b>Head TSL temperature change during test</b>	< 0.5 °C	----	----

### SAR result with Head TSL at 5200 MHz

<b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Head TSL</b>	Condition	
SAR measured	100 mW input power	8.05 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>80.6 W/kg ± 19.9 % (k=2)</b>

<b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Head TSL</b>	condition	
SAR measured	100 mW input power	2.30 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>23.0 W/kg ± 19.5 % (k=2)</b>

### Head TSL parameters at 5300 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
<b>Nominal Head TSL parameters</b>	22.0 °C	35.9	4.76 mho/m
<b>Measured Head TSL parameters</b>	(22.0 ± 0.2) °C	36.1 ± 6 %	4.61 mho/m ± 6 %
<b>Head TSL temperature change during test</b>	< 0.5 °C	----	----

### SAR result with Head TSL at 5300 MHz

<b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Head TSL</b>	Condition	
SAR measured	100 mW input power	8.38 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>83.8 W / kg ± 19.9 % (k=2)</b>

<b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Head TSL</b>	condition	
SAR measured	100 mW input power	2.40 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>24.0 W/kg ± 19.5 % (k=2)</b>

### Head TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.6	4.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.8 ± 6 %	4.81 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

### SAR result with Head TSL at 5500 MHz

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.48 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	84.8 W/kg ± 19.9 % (k=2)
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.41 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.1 W/kg ± 19.5 % (k=2)

### Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.7 ± 6 %	4.92 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

### SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.45 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	84.5 W/kg ± 19.9 % (k=2)
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.41 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.1 W/kg ± 19.5 % (k=2)

**Head TSL parameters at 5800 MHz**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.3	5.27 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.4 ± 6 %	5.14 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

**SAR result with Head TSL at 5800 MHz**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.10 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	80.9 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.29 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.9 W/kg ± 19.5 % (k=2)

### Body TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	49.0	5.30 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.4 ± 6 %	5.45 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

### SAR result with Body TSL at 5200 MHz

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.56 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	75.1 W/kg ± 19.9 % (k=2)
SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.13 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	21.1 W/kg ± 19.5 % (k=2)

### Body TSL parameters at 5300 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.9	5.42 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.2 ± 6 %	5.58 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

### SAR result with Body TSL at 5300 MHz

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.75 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	77.0 W/kg ± 19.9 % (k=2)
SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.18 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	21.6 W/kg ± 19.5 % (k=2)

### Body TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.6	5.65 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.9 ± 6 %	5.85 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

### SAR result with Body TSL at 5500 MHz

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	8.19 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	81.4 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.27 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	22.5 W/kg ± 19.5 % (k=2)

### Body TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.5	5.77 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.7 ± 6 %	5.99 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

### SAR result with Body TSL at 5600 MHz

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	8.10 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	80.5 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.28 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	22.6 W/kg ± 19.5 % (k=2)

**Body TSL parameters at 5800 MHz**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.2	6.00 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.4 ± 6 %	6.28 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	---	---

**SAR result with Body TSL at 5800 MHz**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.84 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	78.0 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.19 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	21.7 W/kg ± 19.5 % (k=2)

**Appendix (Additional assessments outside the scope of SCS 0108)**

**Antenna Parameters with Head TSL at 5200 MHz**

Impedance, transformed to feed point	50.5 $\Omega$ - 6.6 $j\Omega$
Return Loss	- 23.7 dB

**Antenna Parameters with Head TSL at 5300 MHz**

Impedance, transformed to feed point	47.5 $\Omega$ - 2.8 $j\Omega$
Return Loss	- 28.3 dB

**Antenna Parameters with Head TSL at 5500 MHz**

Impedance, transformed to feed point	51.1 $\Omega$ - 3.7 $j\Omega$
Return Loss	- 28.5 dB

**Antenna Parameters with Head TSL at 5600 MHz**

Impedance, transformed to feed point	54.0 $\Omega$ + 2.0 $j\Omega$
Return Loss	- 27.4 dB

**Antenna Parameters with Head TSL at 5800 MHz**

Impedance, transformed to feed point	52.3 $\Omega$ - 2.9 $j\Omega$
Return Loss	- 28.9 dB

**Antenna Parameters with Body TSL at 5200 MHz**

Impedance, transformed to feed point	49.7 $\Omega$ - 4.7 $j\Omega$
Return Loss	- 26.5 dB

**Antenna Parameters with Body TSL at 5300 MHz**

Impedance, transformed to feed point	46.8 $\Omega$ - 1.9 $j\Omega$
Return Loss	- 28.3 dB

**Antenna Parameters with Body TSL at 5500 MHz**

Impedance, transformed to feed point	50.7 $\Omega$ - 2.2 $j\Omega$
Return Loss	- 32.8 dB

**Antenna Parameters with Body TSL at 5600 MHz**

Impedance, transformed to feed point	55.1 $\Omega$ + 1.2 $j\Omega$
Return Loss	- 26.1 dB



### Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	52.5 $\Omega$ - 1.9 $j\Omega$
Return Loss	- 30.1 dB

### General Antenna Parameters and Design

Electrical Delay (one direction)	1.202 ns
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After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

### Additional EUT Data

Manufactured by	SPEAG
Manufactured on	November 27, 2006

**DASY5 Validation Report for Head TSL**

Date: 25.07.2017

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1060**

Communication System: UID 0 - CW; Frequency: 5200 MHz, Frequency: 5300 MHz, Frequency: 5500 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz

Medium parameters used:  $f = 5200 \text{ MHz}$ ;  $\sigma = 4.51 \text{ S/m}$ ;  $\epsilon_r = 36.3$ ;  $\rho = 1000 \text{ kg/m}^3$ , Medium parameters used:  $f = 5300 \text{ MHz}$ ;  $\sigma = 4.61 \text{ S/m}$ ;  $\epsilon_r = 36.1$ ;  $\rho = 1000 \text{ kg/m}^3$ , Medium parameters used:  $f = 5500 \text{ MHz}$ ;  $\sigma = 4.81 \text{ S/m}$ ;  $\epsilon_r = 35.8$ ;  $\rho = 1000 \text{ kg/m}^3$ , Medium parameters used:  $f = 5600 \text{ MHz}$ ;  $\sigma = 4.92 \text{ S/m}$ ;  $\epsilon_r = 35.7$ ;  $\rho = 1000 \text{ kg/m}^3$ , Medium parameters used:  $f = 5800 \text{ MHz}$ ;  $\sigma = 5.14 \text{ S/m}$ ;  $\epsilon_r = 35.4$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.76, 5.76, 5.76); Calibrated: 31.12.2016, ConvF(5.35, 5.35, 5.35); Calibrated: 31.12.2016, ConvF(5.2, 5.2, 5.2); Calibrated: 31.12.2016, ConvF(5.09, 5.09, 5.09); Calibrated: 31.12.2016, ConvF(5.01, 5.01, 5.01); Calibrated: 31.12.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 70.18 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 29.8 W/kg

**SAR(1 g) = 8.05 W/kg; SAR(10 g) = 2.30 W/kg**

Maximum value of SAR (measured) = 18.4 W/kg

**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5300 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 69.70 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 30.5 W/kg

**SAR(1 g) = 8.38 W/kg; SAR(10 g) = 2.4 W/kg**

Maximum value of SAR (measured) = 19.4 W/kg

**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 68.97 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 33.3 W/kg

**SAR(1 g) = 8.48 W/kg; SAR(10 g) = 2.41 W/kg**

Maximum value of SAR (measured) = 20.2 W/kg

**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan,****dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 69.72 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 33.6 W/kg

**SAR(1 g) = 8.45 W/kg; SAR(10 g) = 2.41 W/kg**

Maximum value of SAR (measured) = 20.2 W/kg

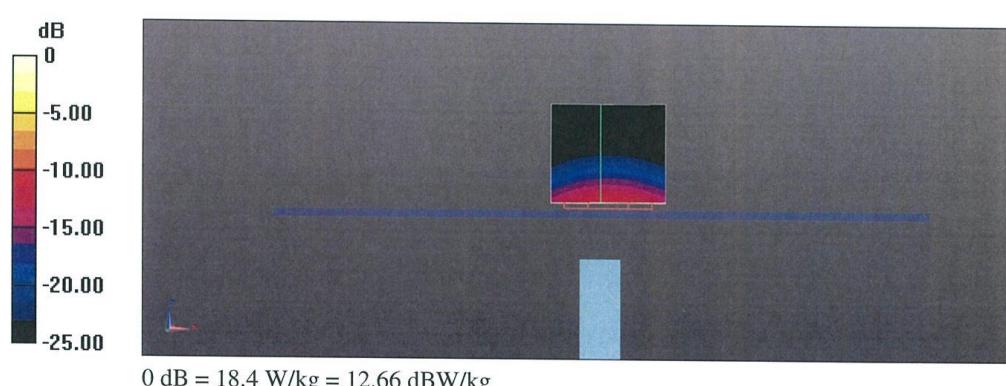
**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan,****dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 67.66 V/m; Power Drift = -0.02 dB

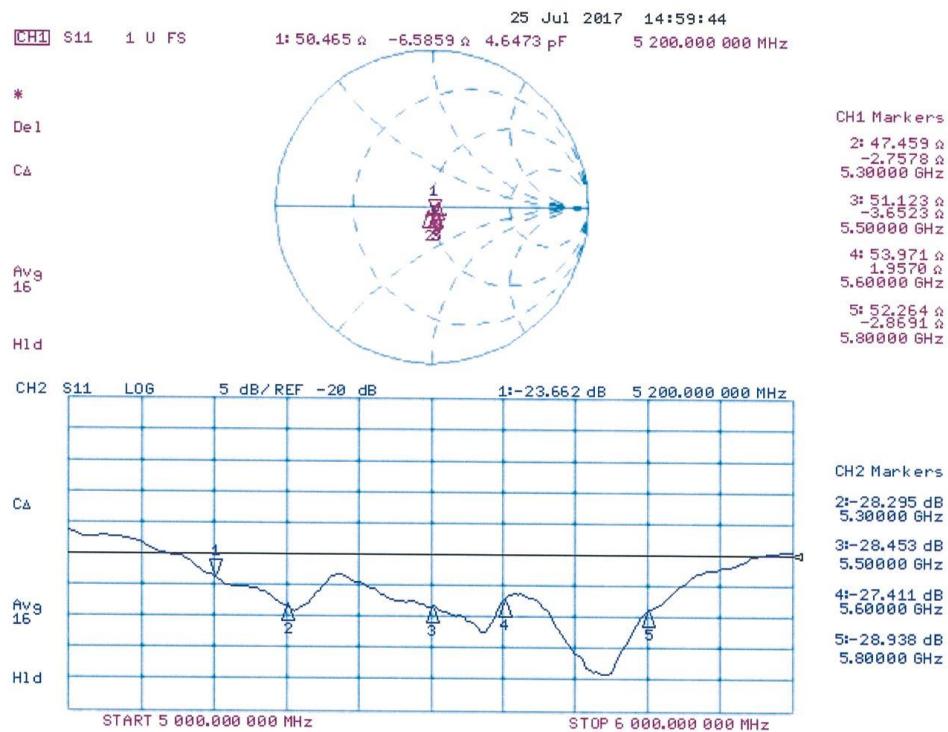
Peak SAR (extrapolated) = 33.2 W/kg

**SAR(1 g) = 8.10 W/kg; SAR(10 g) = 2.29 W/kg**

Maximum value of SAR (measured) = 19.6 W/kg



**Impedance Measurement Plot for Head TSL**



**DASY5 Validation Report for Body TSL**

Date: 17.07.2017

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1060**

Communication System: UID 0 - CW; Frequency: 5200 MHz, Frequency: 5300 MHz, Frequency: 5500 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz

Medium parameters used:  $f = 5200 \text{ MHz}$ ;  $\sigma = 5.45 \text{ S/m}$ ;  $\epsilon_r = 47.4$ ;  $\rho = 1000 \text{ kg/m}^3$ , Medium parameters used:  $f = 5300 \text{ MHz}$ ;  $\sigma = 5.58 \text{ S/m}$ ;  $\epsilon_r = 47.2$ ;  $\rho = 1000 \text{ kg/m}^3$ , Medium parameters used:  $f = 5500 \text{ MHz}$ ;  $\sigma = 5.85 \text{ S/m}$ ;  $\epsilon_r = 46.9$ ;  $\rho = 1000 \text{ kg/m}^3$ , Medium parameters used:  $f = 5600 \text{ MHz}$ ;  $\sigma = 5.99 \text{ S/m}$ ;  $\epsilon_r = 46.7$ ;  $\rho = 1000 \text{ kg/m}^3$ , Medium parameters used:  $f = 5800 \text{ MHz}$ ;  $\sigma = 6.28 \text{ S/m}$ ;  $\epsilon_r = 46.4$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.29, 5.29, 5.29); Calibrated: 31.12.2016, ConvF(5.04, 5.04, 5.04); Calibrated: 31.12.2016, ConvF(4.62, 4.62, 4.62); Calibrated: 31.12.2016, ConvF(4.57, 4.57, 4.57); Calibrated: 31.12.2016, ConvF(4.48, 4.48, 4.48); Calibrated: 31.12.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

**Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5200MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 64.89 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 29.2 W/kg

**SAR(1 g) = 7.56 W/kg; SAR(10 g) = 2.13 W/kg**

Maximum value of SAR (measured) = 18.0 W/kg

**Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5300 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 64.82 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 30.7 W/kg

**SAR(1 g) = 7.75 W/kg; SAR(10 g) = 2.18 W/kg**

Maximum value of SAR (measured) = 18.6 W/kg

**Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 66.03 V/m; Power Drift = -0.05 dB

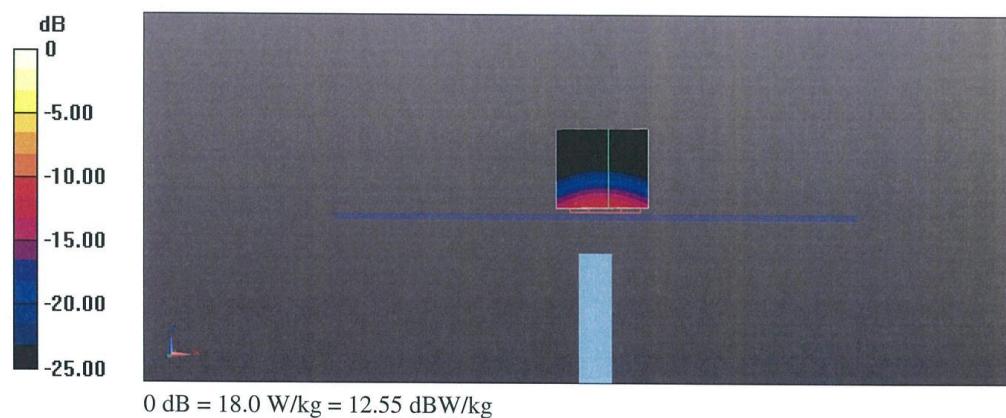
Peak SAR (extrapolated) = 34.2 W/kg

**SAR(1 g) = 8.19 W/kg; SAR(10 g) = 2.27 W/kg**

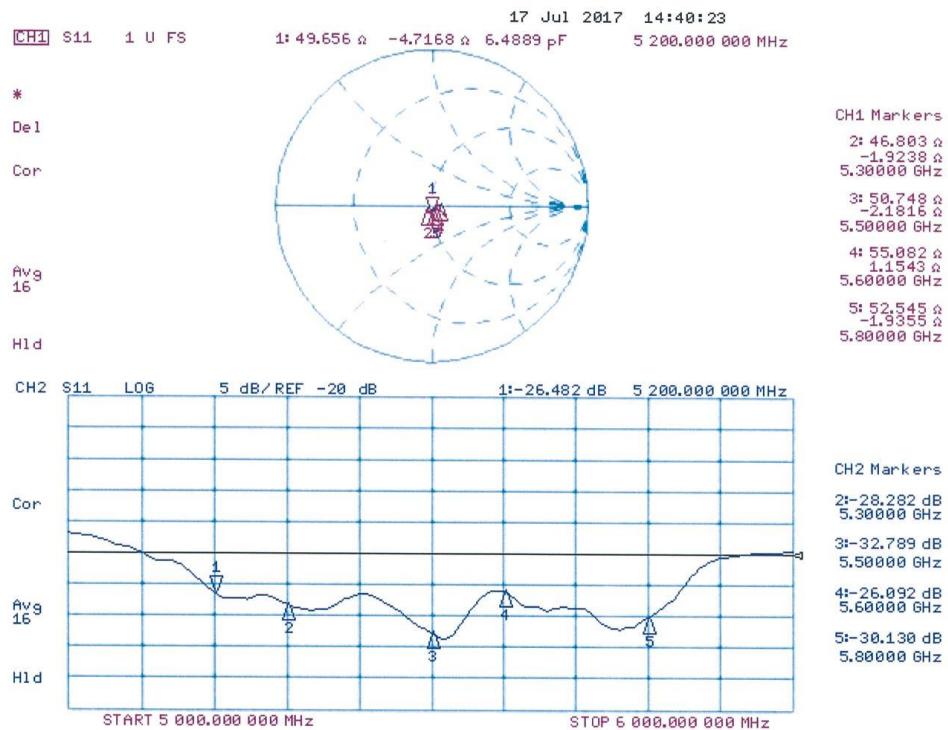
Maximum value of SAR (measured) = 19.9 W/kg

**Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 65.05 V/m; Power Drift = -0.04 dB  
Peak SAR (extrapolated) = 34.5 W/kg  
**SAR(1 g) = 8.1 W/kg; SAR(10 g) = 2.28 W/kg**

**Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 63.30 V/m; Power Drift = -0.07 dB  
Peak SAR (extrapolated) = 35.2 W/kg  
**SAR(1 g) = 7.84 W/kg; SAR(10 g) = 2.19 W/kg**  
Maximum value of SAR (measured) = 19.7 W/kg



**Impedance Measurement Plot for Body TSL**



## ANNEX I SPOT CHECK

### I.1 Conducted power of selected case

**Table I.1-1: The conducted power results for GPRS**

GSM 850 GPRS (GMSK)	Measured Power (dBm)		
	251	190	128
3 Txslots	29.49	/	/
PCS1900 GPRS (GMSK)	Measured Power (dBm)		
	810	661	512
4 Txslots	24.66	24.12	24.37

**Table I.1-2: The conducted Power for WCDMA**

Item	band	FDDV result		
	ARFCN	4233 (846.6MHz)	4182 (836.4MHz)	4132 (826.4MHz)
WCDMA	\	/	23.53	23.57
Item	band	FDDII result		
	ARFCN	9538 (1907.6MHz)	9400 (1880MHz)	9262 (1852.4MHz)
WCDMA	\	23.30	23.17	/
Item	band	FDDIV result		
	ARFCN	1513 (1752.6MHz)	1412 (1732.4MHz)	1312 (1712.4MHz)
WCDMA	\	23.38	23.58	23.69

**Table I.1-3: The conducted Power for LTE**

Band	Mode	Frequency (Channel)	Measured Power (dBm)
LTE Band2	20MHz-1RB-Middle (50)	1900 (19100)	22.81
LTE Band7	20MHz-1RB-High (99)	2560 (21350)	22.78
	20MHz-1RB-High (99)	2535 (21100)	22.77
	20MHz-1RB-Low (0)	2510 (20850)	22.47
LTE Band41	20MHz-1RB-Low (0)	2680 (41490)	23.69

**Table I.1-4: The conducted Power for WLAN**

Mode	Data rate	Channel	Measured Power (dBm)
802.11b (Low power)	1Mbps	1	16.94
802.11b	1Mbps	1	19.31
802.11a (Low power)	18Mbps	56	15.41
802.11a	18Mbps	132	17.29

## I.2 Measurement results

Test Band	Channel	Frequency	Test Position	Figure No./Note	Conducted Power (dBm)	Tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
GSM850	251	848.8	Right	Fig I.1	29.49	30.5	0.277	<b>0.35</b>	0.371	<b>0.47</b>	0.04
GSM850	251	848.8	Rear	Fig I.2	29.49	30.5	0.401	<b>0.51</b>	0.527	<b>0.66</b>	0.00
GSM1900	661	1880	Right	Fig I.3	24.12	26	0.068	<b>0.11</b>	0.109	<b>0.17</b>	0.11
GSM1900	810	1909.8	Rear	Fig I.4	24.66	26	0.412	<b>0.56</b>	0.784	<b>1.07</b>	-0.13
GSM1900	661	1880	Rear	/	24.12	26	0.322	<b>0.50</b>	0.632	<b>0.97</b>	-0.01
GSM1900	512	1850.2	Rear	/	24.37	26	0.233	<b>0.34</b>	0.459	<b>0.67</b>	-0.07
WCDMA 850	4182	836.4	Right	Fig I.5	23.53	24	0.198	<b>0.22</b>	0.259	<b>0.29</b>	0.03
WCDMA 850	4132	826.4	Rear	Fig I.6	23.57	24	0.204	<b>0.23</b>	0.339	<b>0.37</b>	-0.03
WCDMA1700	1537	1712.4	Left	Fig I.7	23.59	24	0.152	<b>0.17</b>	0.234	<b>0.26</b>	0.02
WCDMA1700	1738	1752.6	Rear	/	23.38	24	0.505	<b>0.58</b>	0.916	<b>1.06</b>	-0.01
WCDMA1700	1637	1732.5	Rear	/	23.58	24	0.546	<b>0.60</b>	1.03	<b>1.13</b>	-0.06
WCDMA1700	1537	1712.4	Rear	Fig I.8	23.69	24	0.572	<b>0.61</b>	1.06	<b>1.14</b>	0.00
WCDMA1900	9800	1880	Right	Fig I.9	23.17	24	0.101	<b>0.12</b>	0.160	<b>0.19</b>	0.09
WCDMA1900	9938	1907.6	Rear	Fig I.10	23.30	24	0.418	<b>0.49</b>	0.790	<b>0.93</b>	0.15
LTE Band2	19100	1900	Right	Fig I.11	22.81	24	0.061	<b>0.08</b>	0.099	<b>0.13</b>	-0.10
LTE Band2	19100	1900	Rear	Fig I.12	22.81	24	0.370	<b>0.49</b>	0.694	<b>0.91</b>	-0.07
LTE Band7	21100	2535	Left	Fig I.13	22.77	24	0.209	<b>0.28</b>	0.384	<b>0.51</b>	0.08
LTE Band7	21350	2560	Rear	/	22.78	24	0.385	<b>0.51</b>	0.737	<b>0.98</b>	0.08
LTE Band7	21100	2535	Rear	Fig I.14	22.77	24	0.460	<b>0.61</b>	0.838	<b>1.11</b>	0.15
LTE Band7	20850	2510	Rear	/	22.47	24	0.412	<b>0.59</b>	0.773	<b>1.10</b>	-0.04
LTE Band41	41490	2680	Left	Fig I.15	23.69	24	0.075	<b>0.08</b>	0.142	<b>0.15</b>	0.04
LTE Band41	41490	2680	Bottom	Fig I.16	23.69	24	0.155	<b>0.17</b>	0.310	<b>0.33</b>	-0.06
Wi-Fi 2.4G	1	2412	Left	Fig I.17	16.94	17	0.312	<b>0.32</b>	0.773	<b>0.78</b>	0.02
Wi-Fi 2.4G	1	2412	Top	Fig I.18	19.31	20	0.201	<b>0.24</b>	0.428	<b>0.50</b>	0.16
Wi-Fi 5G	56	5280	Right	Fig I.19	15.41	15.5	0.181	<b>0.18</b>	0.595	<b>0.61</b>	0.06
Wi-Fi 5G	132	5660	Top	Fig I.20	17.29	17.5	0.060	<b>0.06</b>	0.151	<b>0.16</b>	-0.17

**Table I.2-1: SAR Values (WLAN - Head) – 802.11b (Scaled Reported SAR)**

Frequency		Side	Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g) (W/kg)	Scaled reported SAR (1g) (W/kg)
MHz	Ch.						
2412	1	Left	Tilt	99.05%	100%	<b>0.78</b>	<b>0.79</b>

**Table I.2-2: SAR Values (WLAN - Body) – 802.11b (Scaled Reported SAR)**

Frequency		Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g) (W/kg)	Scaled reported SAR (1g) (W/kg)
MHz	Ch.					
2412	1	Top	99.05%	100%	<b>0.50</b>	<b>0.50</b>

**Table I.2-3: SAR Values (WLAN - Head) – 802.11a (Scaled Reported SAR)**

Frequency		Side	Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g) (W/kg)	Scaled reported SAR (1g) (W/kg)
MHz	Ch.						
5280	56	Right	Touch	85.86%	100%	<b>0.61</b>	<b>0.71</b>

**Table I.2-4: SAR Values (WLAN - Body) – 802.11a (Scaled Reported SAR)**

Frequency		Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g) (W/kg)	Scaled reported SAR (1g) (W/kg)
MHz	Ch.					
5660	132	Top	85.71%	100%	<b>0.16</b>	<b>0.19</b>

### I.3 Reported SAR Comparison

Exposure Configuration	Technology Band	Reported SAR 1g (W/Kg): spot check	Reported SAR 1g (W/Kg): original
Head (Separation Distance 0mm)	GSM 850	<b>0.47</b>	0.41
	PCS 1900	0.17	0.22
	UMTS FDD 5	<b>0.29</b>	0.23
	UMTS FDD 4	<b>0.26</b>	0.21
	UMTS FDD 2	0.19	0.23
	LTE Band 2	0.13	0.21
	LTE Band 7	<b>0.51</b>	0.40
	LTE Band 41	0.15	0.16
	WLAN 2.4 GHz	0.79	0.93
	WLAN 5 GHz	<b>0.71</b>	0.56
Hotspot (Separation Distance 10mm)	GSM 850	0.66	0.66
	PCS 1900	<b>1.07</b>	0.84
	UMTS FDD 5	0.37	0.37
	UMTS FDD 4	<b>1.14</b>	1.11
	UMTS FDD 2	0.93	1.14
	LTE Band 2	0.91	<b>1.17</b>
	LTE Band 7	<b>1.11</b>	0.90
	LTE Band 41	0.33	0.35
	WLAN 2.4 GHz	0.50	0.66
	WLAN 5 GHz	0.19	0.57

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

#### I.4 Graph Results of spot check

##### 850 Right Cheek High

Date: 2018-5-27

Electronics: DAE4 Sn1525

Medium: Head 850 MHz

Medium parameters used:  $f = 848.8 \text{ MHz}$ ;  $\sigma = 0.901 \text{ mho/m}$ ;  $\epsilon_r = 41.93$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature:  $22.9^\circ\text{C}$  Liquid Temperature:  $22.5^\circ\text{C}$

Communication System: GSM 850 GPRS Frequency: 848.8 MHz Duty Cycle: 1:2.67

Probe: EX3DV4 – SN7464 ConvF(10.28, 10.28, 10.28)

**Area Scan (91x161x1):** Interpolated grid:  $dx=1.000\text{mm}$ ,  $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 0.408 W/kg

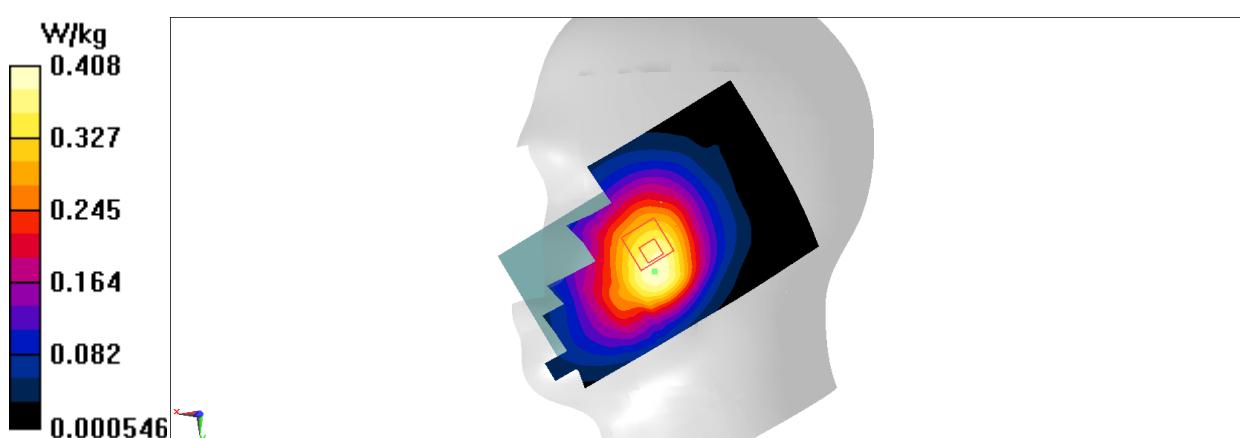
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 4.160 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.727 W/kg

SAR(1 g) = 0.371 W/kg; SAR(10 g) = 0.277 W/kg

Maximum value of SAR (measured) = 0.408 W/kg



**Fig I.1 850MHz**

## 850 Body Rear High

Date: 2018-5-27

Electronics: DAE4 Sn1525

Medium: Body 850 MHz

Medium parameters used:  $f = 848.8 \text{ MHz}$ ;  $\sigma = 0.993 \text{ mho/m}$ ;  $\epsilon_r = 55.76$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature:  $22.9^\circ\text{C}$  Liquid Temperature:  $22.5^\circ\text{C}$

Communication System: GSM 850 GPRS Frequency: 848.8 MHz Duty Cycle: 1:2.67

Probe: EX3DV4 – SN7464 ConvF(10.21, 10.21, 10.21)

**Area Scan (121x71x1):** Interpolated grid:  $dx=1.000 \text{ mm}$ ,  $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 0.578 W/kg

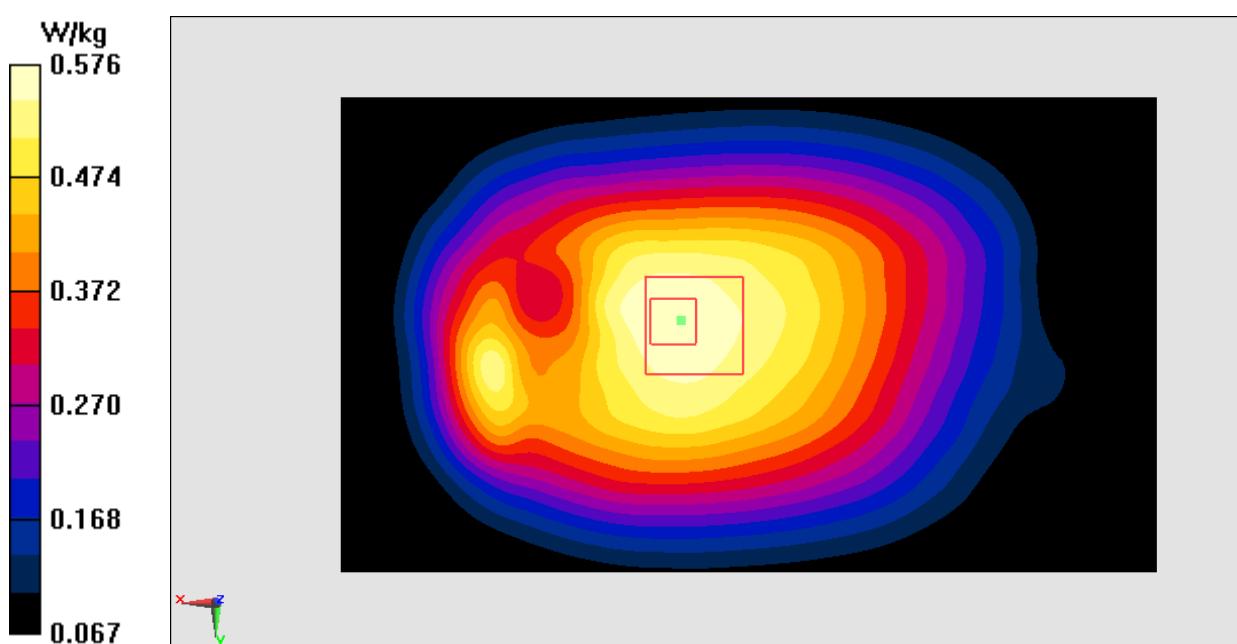
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 22.88 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.662 W/kg

SAR(1 g) = 0.527 W/kg; SAR(10 g) = 0.401 W/kg

Maximum value of SAR (measured) = 0.576 W/kg



**Fig I.2 850 MHz**