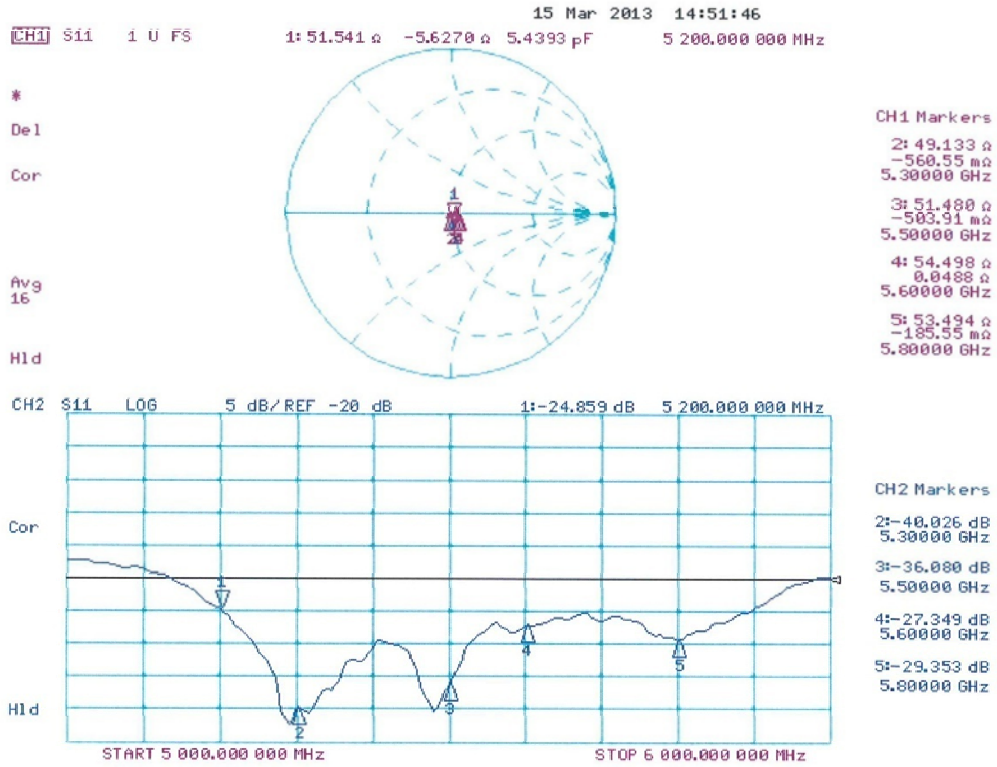


Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 12.03.2013

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1103Communication System: CW; Frequency: 5200 MHz, Frequency: 5300 MHz, Frequency: 5500 MHz,
Frequency: 5600 MHz, Frequency: 5800 MHzMedium parameters used: $f = 5200$ MHz; $\sigma = 5.42$ S/m; $\epsilon_r = 47$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5300$ MHz; $\sigma = 5.55$ S/m; $\epsilon_r = 46.9$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5500$ MHz; $\sigma = 5.8$ S/m; $\epsilon_r = 46.5$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5600$ MHz; $\sigma = 5.94$ S/m; $\epsilon_r = 46.4$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 5800$ MHz; $\sigma = 6.21$ S/m; $\epsilon_r = 46.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(4.91, 4.91, 4.91); Calibrated: 28.12.2012, ConvF(4.67, 4.67, 4.67); Calibrated: 28.12.2012, ConvF(4.43, 4.43, 4.43); Calibrated: 28.12.2012, ConvF(4.22, 4.22, 4.22); Calibrated: 28.12.2012, ConvF(4.38, 4.38, 4.38); Calibrated: 28.12.2012;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Dipole Calibration for Body 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 = 59.522 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 29.9 W/kg

SAR(1 g) = 7.53 W/kg; SAR(10 g) = 2.1 W/kg

Maximum value of SAR (measured) = 17.7 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 = 58.944 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 31.4 W/kg

SAR(1 g) = 7.66 W/kg; SAR(10 g) = 2.14 W/kg

Maximum value of SAR (measured) = 18.4 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 = 59.396 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 35.1 W/kg

SAR(1 g) = 8.06 W/kg; SAR(10 g) = 2.23 W/kg

Maximum value of SAR (measured) = 19.6 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 = 59.239 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 36.4 W/kg

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

Maximum value of SAR (measured) = 20.1 W/kg

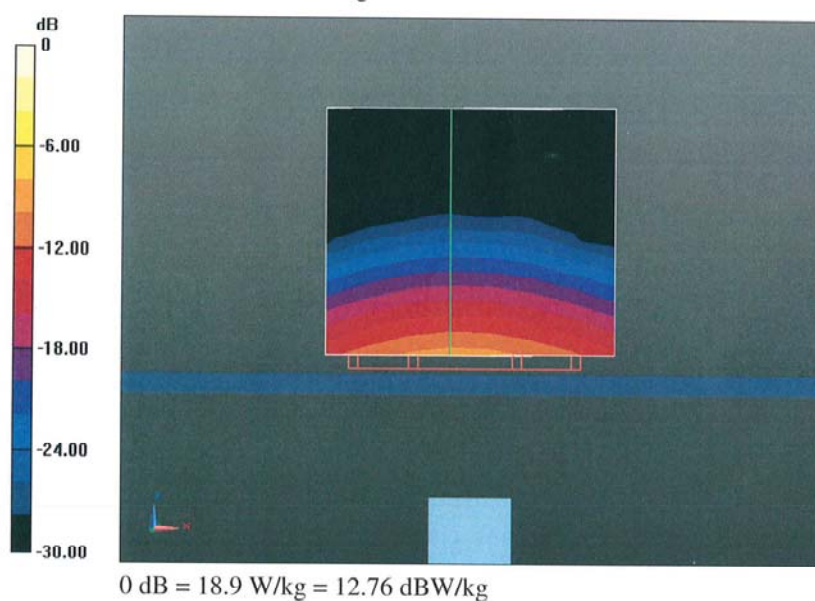
Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan,**dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 56.007 V/m; Power Drift = 0.00 dB

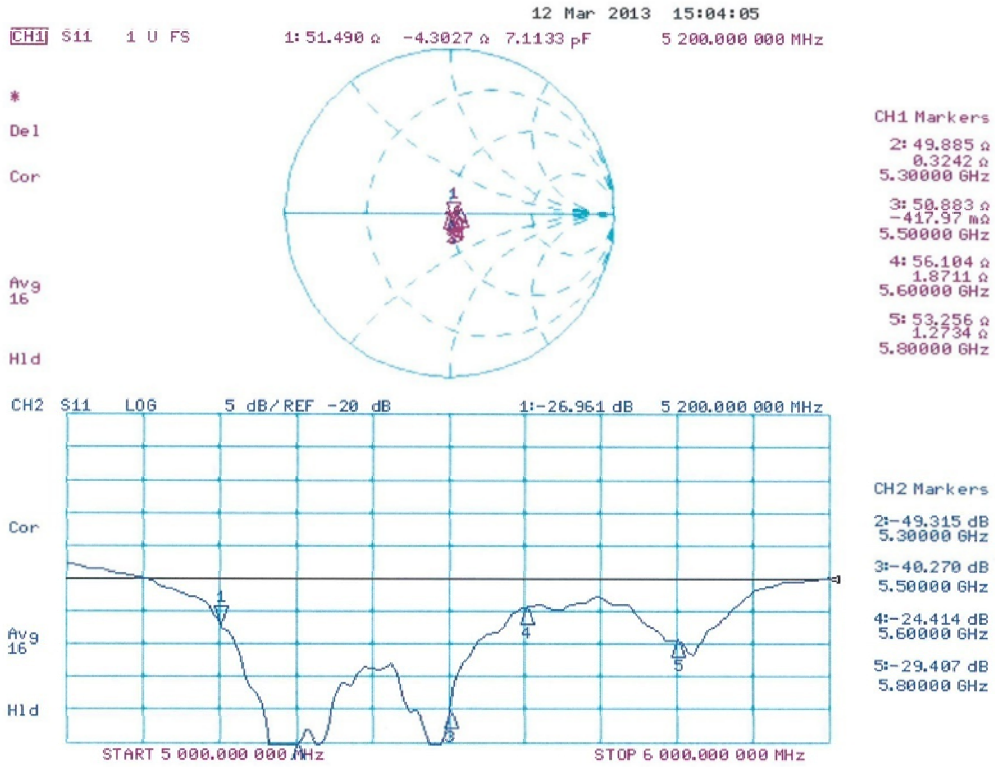
Peak SAR (extrapolated) = 35.6 W/kg

SAR(1 g) = 7.61 W/kg; SAR(10 g) = 2.11 W/kg

Maximum value of SAR (measured) = 18.9 W/kg



Impedance Measurement Plot for Body TSL



Attachment 3. – SAR SYSTEM VALIDATION

SAR System Validation

Per FCC KDB 865664 D02v01, SAR system validation status should be documented to confirm measurement accuracy. The SAR systems (including SAR probes, system components and software versions) used for this device were validated against its performance specifications prior to the SAR measurements. Reference dipoles were used with the required tissue- equivalent media for system validation, according to the procedures outlined in IEEE 1528-2003 and FCC KDB 865664 D01 v01.

Since SAR probe calibrations are frequency dependent, each probe calibration point was validated at a frequency within the valid frequency range of the probe calibration point, using the system that normally operates with the probe for routine SAR measurements and according to the required tissue-equivalent media.

A tabulated summary of the system validation status including the validation date(s), measurement frequencies, SAR probes and tissue dielectric parameters has been included.

Table Attachment 3.1 SAR System Validation Summary

SAR System	Freq. [MHz]	Date	Probe SN	Probe Type	Probe CAL. Point		PERM.	COND.	CW Validation			MOD. Validation		
							(ϵ_r)	(σ)	Sensitivity	Probe Linearity	Probe Isortopy	MOD. Type	Duty Factor	PAR
A	835	2013-01-30	3643	EX3DV3	835	Head	41.523	0.878	PASS	PASS	PASS	GMSK	PASS	N/A
A	1900	2013-02-01	3643	EX3DV3	1900	Head	39.819	1.406	PASS	PASS	PASS	GMSK	PASS	N/A
A	2450	2013-01-28	3643	EX3DV3	2450	Head	38.710	1.840	PASS	PASS	PASS	OFDM	N/A	PASS
A	5200	2013-04-01	3643	EX3DV3	5200	Head	36.133	4.696	PASS	PASS	PASS	OFDM	N/A	PASS
A	5300	2013-04-02	3643	EX3DV3	5300	Head	35.913	4.895	PASS	PASS	PASS	OFDM	N/A	PASS
A	5500	2013-04-03	3643	EX3DV3	5500	Head	35.521	5.027	PASS	PASS	PASS	OFDM	N/A	PASS
A	5600	2013-04-04	3643	EX3DV3	5600	Head	35.362	5.215	PASS	PASS	PASS	OFDM	N/A	PASS
A	5800	2013-04-05	3643	EX3DV3	5800	Head	34.996	5.314	PASS	PASS	PASS	OFDM	N/A	PASS
A	835	2013-01-31	3643	EX3DV3	835	Body	55.649	0.948	PASS	PASS	PASS	GMSK	PASS	N/A
A	1900	2013-02-02	3643	EX3DV3	1900	Body	54.233	1.541	PASS	PASS	PASS	GMSK	PASS	N/A
A	2450	2013-01-29	3643	EX3DV3	2450	Body	53.505	1.995	PASS	PASS	PASS	OFDM	N/A	PASS
A	5200	2013-04-08	3643	EX3DV3	5200	Head	48.012	5.199	PASS	PASS	PASS	OFDM	N/A	PASS
A	5300	2013-04-09	3643	EX3DV3	5300	Head	47.858	5.412	PASS	PASS	PASS	OFDM	N/A	PASS
A	5500	2013-04-10	3643	EX3DV3	5500	Head	47.755	5.696	PASS	PASS	PASS	OFDM	N/A	PASS
A	5600	2013-04-11	3643	EX3DV3	5600	Head	47.512	5.775	PASS	PASS	PASS	OFDM	N/A	PASS
A	5800	2013-04-12	3643	EX3DV3	5800	Head	46.912	6.121	PASS	PASS	PASS	OFDM	N/A	PASS