

Appendix for 2008SAR00080
1. System Validation Result
Table 1: System Validation

Measurement is made at temperature 23.3 °C, relative humidity 49%, input power 250 mW. Liquid temperature during the test: 22.5°C								
Liquid parameters	Dipole calibration Target value	Frequency		Permittivity ϵ		Conductivity σ (S/m)		
		835 MHz		39.9		0.88		
	Actual Measurement value	1900 MHz		38.9		1.38		
		835 MHz		41.5(+1.6%)		0.89(+1.1%)		
		1900 MHz		40.2(+3.3%)		1.37(-0.7%)		
Verification results	Frequency	Target value (W/kg)		Measured value (W/kg)		Deviation		
		10 g Average	1 g Average	10 g Average	1 g Average	10 g Average	1 g Average	
	835 MHz		1.60	2.48	1.59	2.45	-0.6%	1.2%
	1900 MHz		5.09	9.73	5.20	9.85	2.2%	1.2%

According to the validation results in Table 1, we used the liquids within $\pm 5\%$ of the dipole calibration liquid target value, and this time the liquids have lower permittivity and conductivity values than the liquids in the report 2008SAR00080. And from the SAR measurement this time, the values are also a little lower than those in the report 2008SAR00080. So we can draw the conclusion that there is a very small effect on the SAR measurement for what we have done in the report 2008SAR00080 with the liquids in this appendix. (Please check the plots on the next pages)

2. System Validation Plots

835MHz

Date/Time: 2009-1-16 8:33:25

Electronics: DAE4 Sn771

Medium: 835 Head

Medium parameters used: $f=835$ MHz; $\sigma = 0.89$ mho/m; $\epsilon_r = 41.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.3°C

Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(6.28, 6.28, 6.28)

835MHz/Area Scan (101x101x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 2.65 mW/g

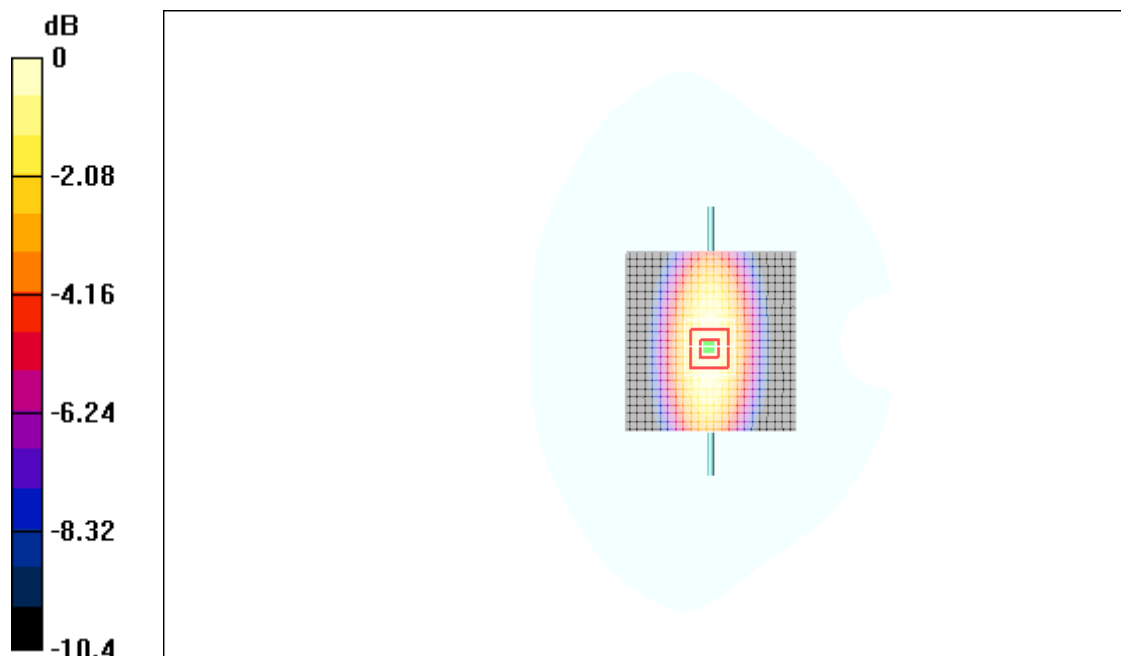
835MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.4V/m; Power Drift = -0.002 dB

Peak SAR (extrapolated) = 3.62 W/kg

SAR(1 g) = 2.45 mW/g; SAR(10 g) = 1.59 mW/g

Maximum value of SAR (measured) = 2.63 mW/g



0 dB = 2.63mW/g

Fig.1 validation 835MHz 250mW

1900MHz

Date/Time: 2009-1-16 9:22:12

Electronics: DAE4 Sn771

Medium: 1900 Head

Medium parameters used: $f=1900\text{MHz}$; $\sigma = 1.37 \text{ mho/m}$; $\epsilon_r = 40.2$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 23.3°C Liquid Temperature: 22.3°C

Communication System: CW Frequency: 1900 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(5.08, 5.08, 5.08)

System Validation/Area Scan (101x101x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (interpolated) = 10.9 mW/g

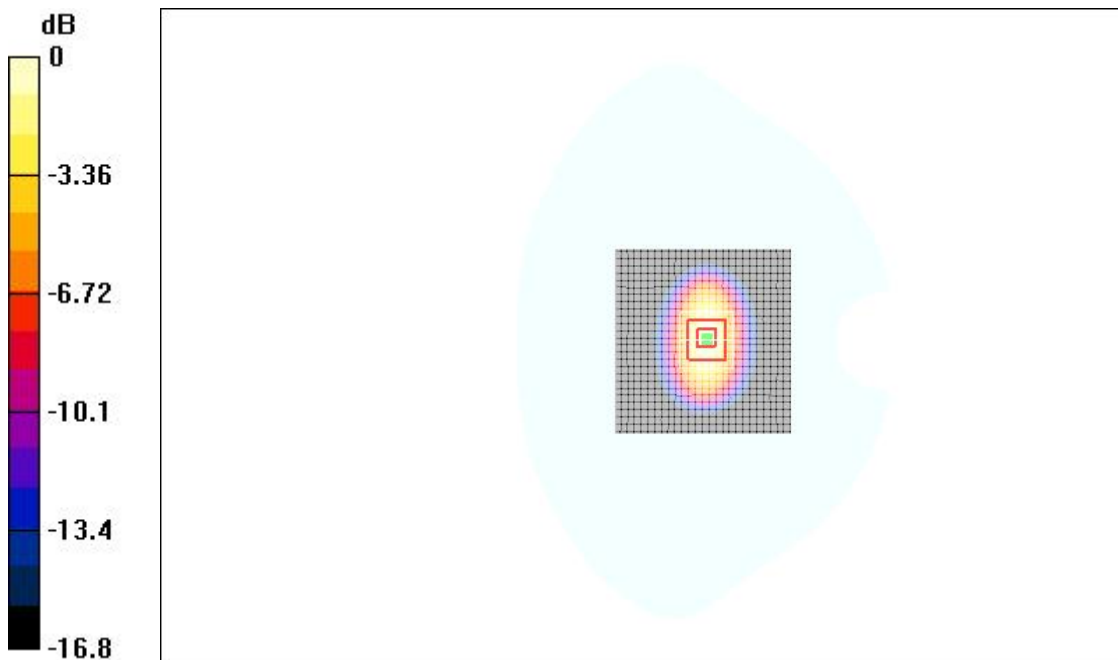
System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 91.8 V/m; Power Drift = 0.052 dB

Peak SAR (extrapolated) = 16.5 W/kg

SAR(1 g) = 9.85 mW/g; SAR(10 g) = 5.20 mW/g

Maximum value of SAR (measured) = 11.1 mW/g



0 dB = 11.1mW/g

Fig.2 validation 1900MHz 250mW