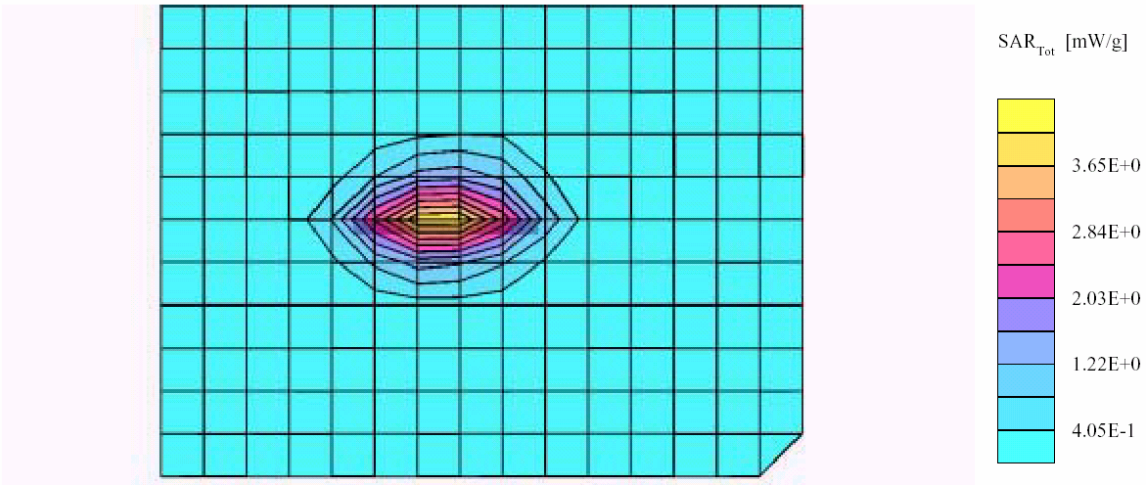
SAR Question 3)

a) Additional details of SAR data plots used to develop Body target value

Please see attached plots

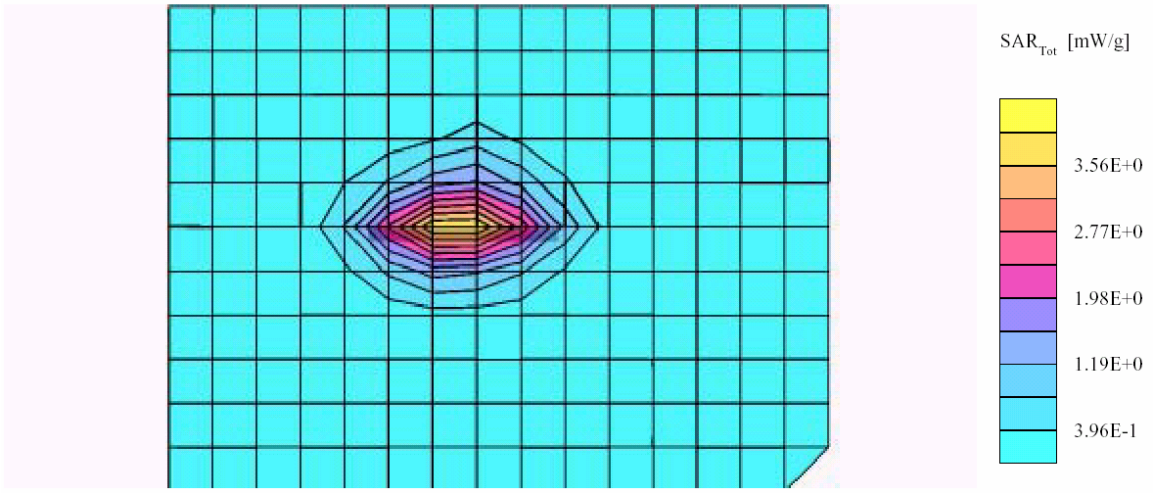
Validation Dipole SAR 1900 MHz (Ambient Temp = 23 C, Liquid Temp = 21 C)

SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 1900 MHz
Probe: ET3DV6 - SN1604; ConvF(4.90,4.90,4.90); Crest factor: 1.0; Body 1900 MHz: σ = 1.53 mho/m ε_r = 55.5 ρ = 1.00 g/cm^3
Cube 5x5x7: SAR (1g): 3.84 mW/g, SAR (10g): 2.12 mW/g, (Worst-case extrapolation)
Coarse: Dx = 12.0, Dy = 12.0, Dz = 10.0
Powerdrift: 0.00 dB



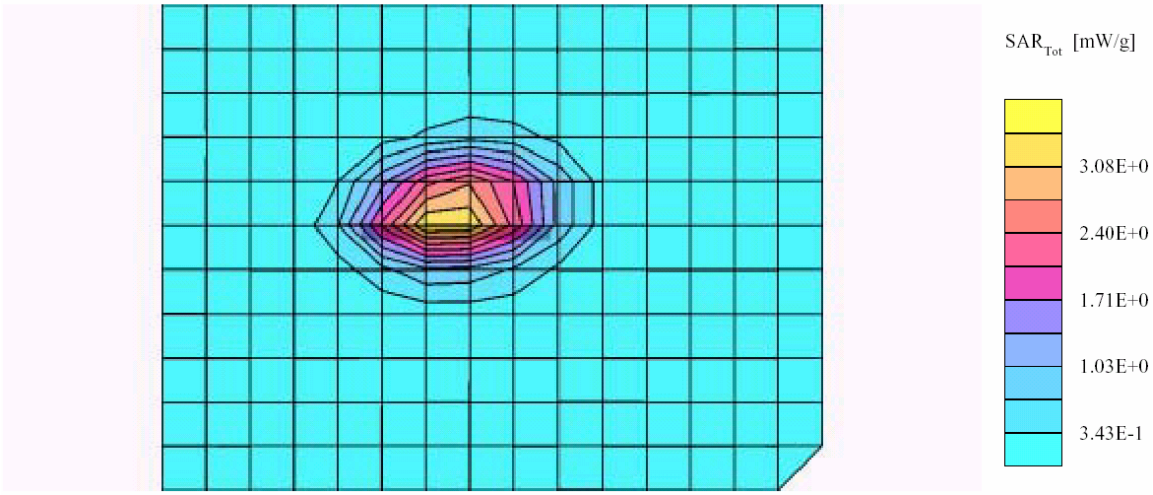
Validation Dipole SAR 1900 MHz (Ambient Temp = 23 C, Liquid Temp = 21 C)

SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 1900 MHz
Probe: ET3DV6 - SN1604; ConvF(4.90,4.90,4.90); Crest factor: 1.0; Body 1900 MHz: σ = 1.53 mho/m ε_r = 55.5 ρ = 1.00 g/cm^3
Cube 5x5x7: SAR (1g): 3.77 mW/g, SAR (10g): 2.08 mW/g, (Worst-case extrapolation)
Coarse: Dx = 12.0, Dy = 12.0, Dz = 10.0
Powerdrift: -0.05 dB



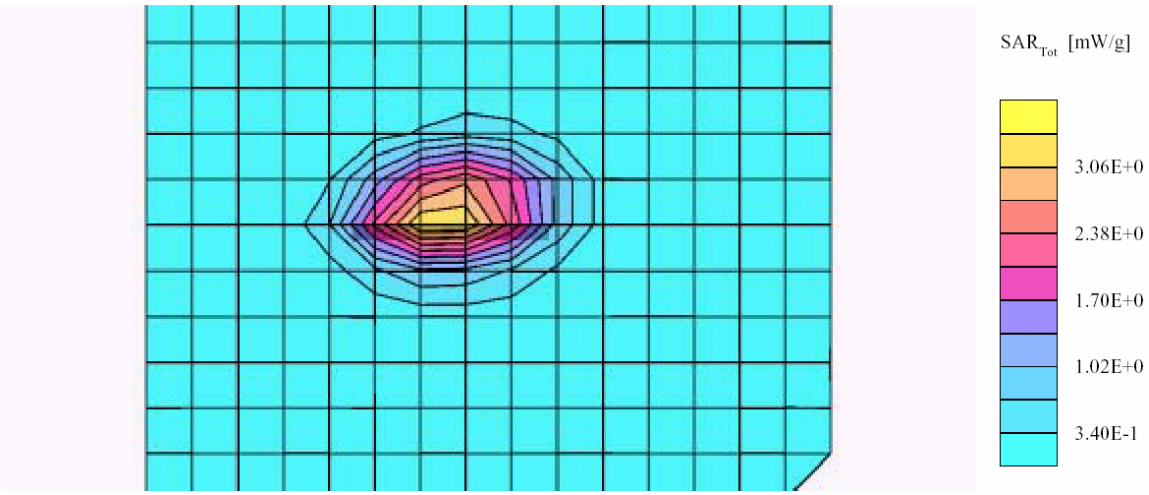
Validation Dipole SAR 1900 MHz (Ambient Temp = 23 C, Liquid Temp = 21 C)

SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 1900 MHz
Probe: ET3DV6 - SN1604; ConvF(4.90,4.90,4.90); Crest factor: 1.0; Body 1900 MHz: σ = 1.53 mho/m ε_r = 55.5 ρ = 1.00 g/cm^3
Cube 5x5x7: SAR (1g): 3.40 mW/g, SAR (10g): 1.85 mW/g, (Worst-case extrapolation)
Coarse: Dx = 12.0, Dy = 12.0, Dz = 10.0
Powerdrift: -0.00 dB



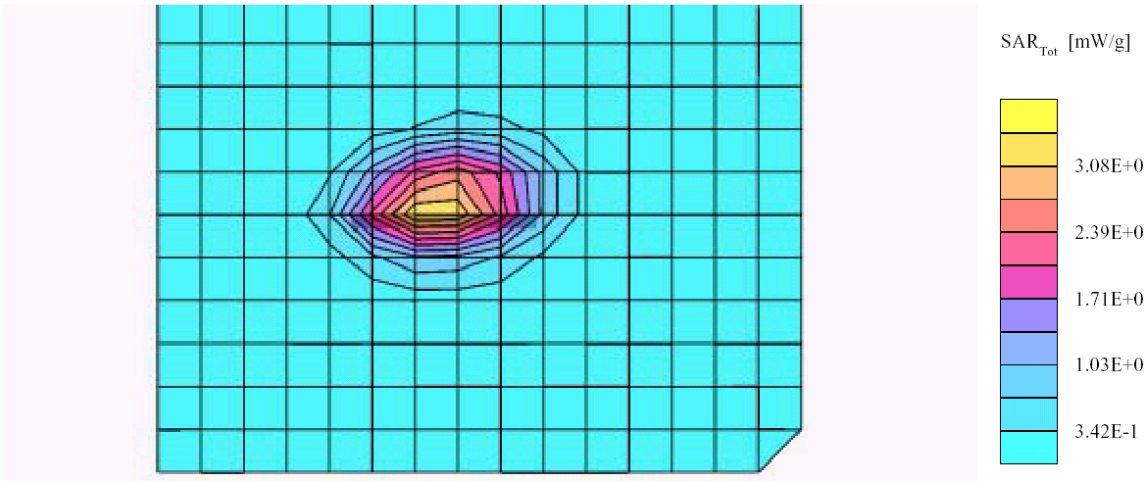
Validation Dipole SAR 1900 MHz (Ambient Temp = 23 C, Liquid Temp = 21 C)

SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 1900 MHz
Probe: ET3DV6 - SN1604; ConvF(4.90,4.90,4.90); Crest factor: 1.0; Body 1900 MHz: σ = 1.53 mho/m ε_r = 55.5 ρ = 1.00 g/cm^3
Cube 5x5x7: SAR (1g): 3.37 mW/g, SAR (10g): 1.83 mW/g, (Worst-case extrapolation)
Coarse: Dx = 12.0, Dy = 12.0, Dz = 10.0
Powerdrift: -0.01 dB



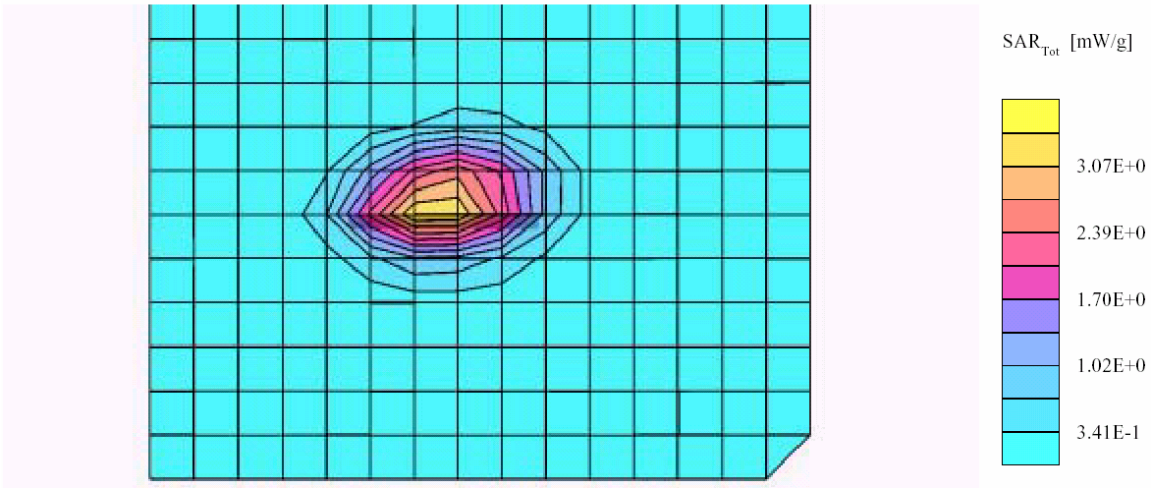
Validation Dipole SAR 1900 MHz (Ambient Temp = 23 C, Liquid Temp = 21 C)

SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 1900 MHz
Probe: ET3DV6 - SN1604; ConvF(4.90,4.90,4.90); Crest factor: 1.0; Body 1900 MHz: σ = 1.53 mho/m ε_r = 55.5 ρ = 1.00 g/cm³
Cube 5x5x7: SAR (1g): 3.37 mW/g, SAR (10g): 1.82 mW/g, (Worst-case extrapolation)
Coarse: Dx = 12.0, Dy = 12.0, Dz = 10.0
Powerdrift: -0.01 dB



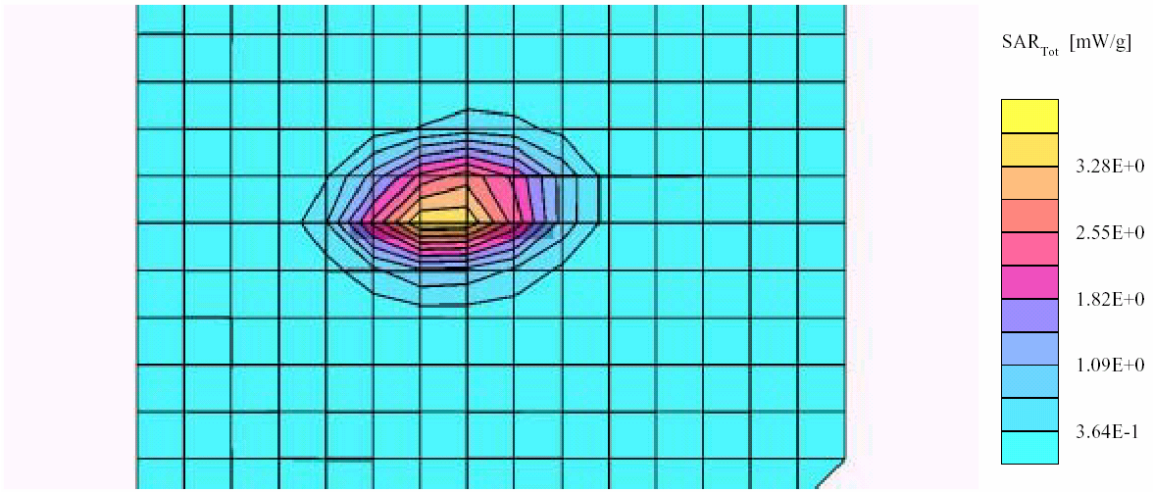
Validation Dipole SAR 1900 MHz (Ambient Temp = 23 C, Liquid Temp = 21 C)

SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 1900 MHz
Probe: ET3DV6 - SN1604; ConvF(4.90,4.90,4.90); Crest factor: 1.0; Body 1900 MHz: σ = 1.53 mho/m ε_r = 55.5 ρ = 1.00 g/cm^3
Cube 5x5x7: SAR (1g): 3.58 mW/g, SAR (10g): 1.94 mW/g, (Worst-case extrapolation)
Coarse: Dx = 12.0, Dy = 12.0, Dz = 10.0
Powerdrift: 0.00 dB



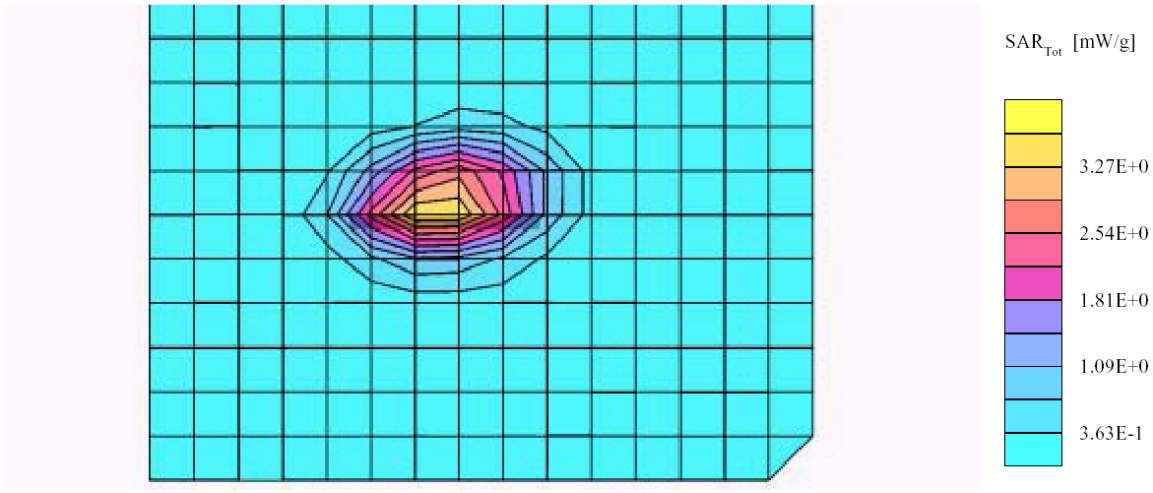
Validation Dipole SAR 1900 MHz (Ambient Temp = 23 C, Liquid Temp = 21 C)

SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 1900 MHz
Probe: ET3DV6 - SN1604; ConvF(4.90,4.90,4.90); Crest factor: 1.0; Body 1900 MHz: σ = 1.53 mho/m ε_r = 55.5 ρ = 1.00 g/cm^3
Cube 5x5x7: SAR (1g): 3.60 mW/g, SAR (10g): 1.95 mW/g, (Worst-case extrapolation)
Coarse: Dx = 12.0, Dy = 12.0, Dz = 10.0
Powerdrift: 0.00 dB



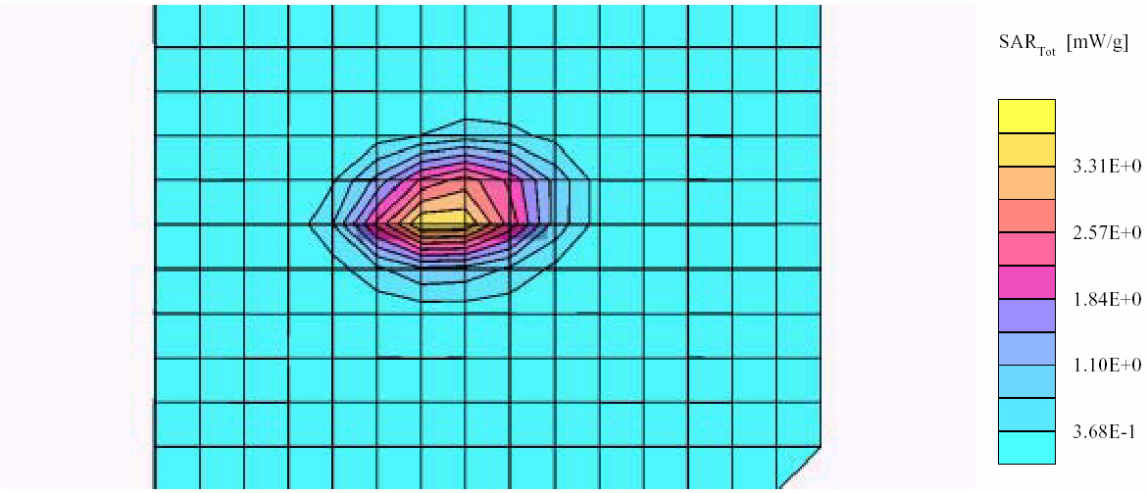
Validation Dipole SAR 1900 MHz (Ambient Temp = 23 C, Liquid Temp = 21 C)

SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 1900 MHz
Probe: ET3DV6 - SN1604; ConvF(4.90,4.90,4.90); Crest factor: 1.0; Body 1900 MHz: σ = 1.53 mho/m ε_r = 55.5 ρ = 1.00 g/cm^3
Cube 5x5x7: SAR (1g): 3.61 mW/g, SAR (10g): 1.95 mW/g, (Worst-case extrapolation)
Coarse: Dx = 12.0, Dy = 12.0, Dz = 10.0
Powerdrift: 0.01 dB



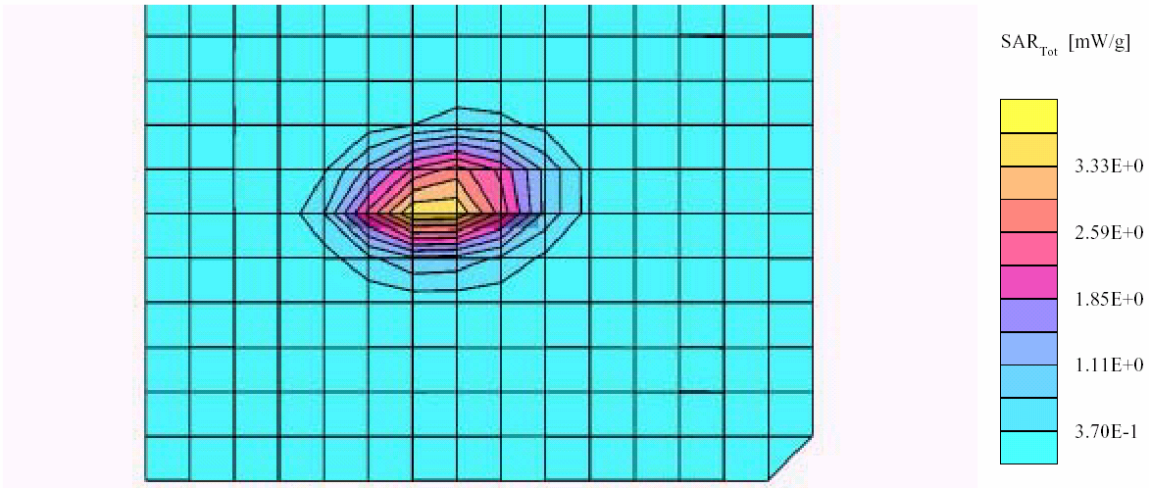
Validation Dipole SAR 1900 MHz (Ambient Temp = 23 C, Liquid Temp = 21 C)

SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 1900 MHz
Probe: ET3DV6 - SN1604; ConvF(4.90,4.90,4.90); Crest factor: 1.0; Body 1900 MHz: σ = 1.53 mho/m ε_r = 55.5 ρ = 1.00 g/cm^3
Cube 5x5x7: SAR (1g): 3.63 mW/g, SAR (10g): 1.97 mW/g, (Worst-case extrapolation)
Coarse: Dx = 12.0, Dy = 12.0, Dz = 10.0
Powerdrift: 0.01 dB



Validation Dipole SAR 1900 MHz (Ambient Temp = 23 C, Liquid Temp = 21 C)

SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 1900 MHz
Probe: ET3DV6 - SN1604; ConvF(4.90,4.90,4.90); Crest factor: 1.0; Body 1900 MHz: σ = 1.53 mho/m ε_r = 55.5 ρ = 1.00 g/cm^3
Cube 5x5x7: SAR (1g): 3.64 mW/g, SAR (10g): 1.97 mW/g, (Worst-case extrapolation)
Coarse: Dx = 12.0, Dy = 12.0, Dz = 10.0
Powerdrift: 0.01 dB



b) Liquid SAR taken same day as body target development measurements. Please see plots provided:

System validation plot

Daily epsilon and rho table spanning 1850 to 1950 MHz.on day testing performed

System Validation 1900 MHz (Head Liquid, Forward Power = 13.98 dBm, Liquid Temp = 21 Deg C, Ambient Temp = 23 Deg C, 3/18/2003)

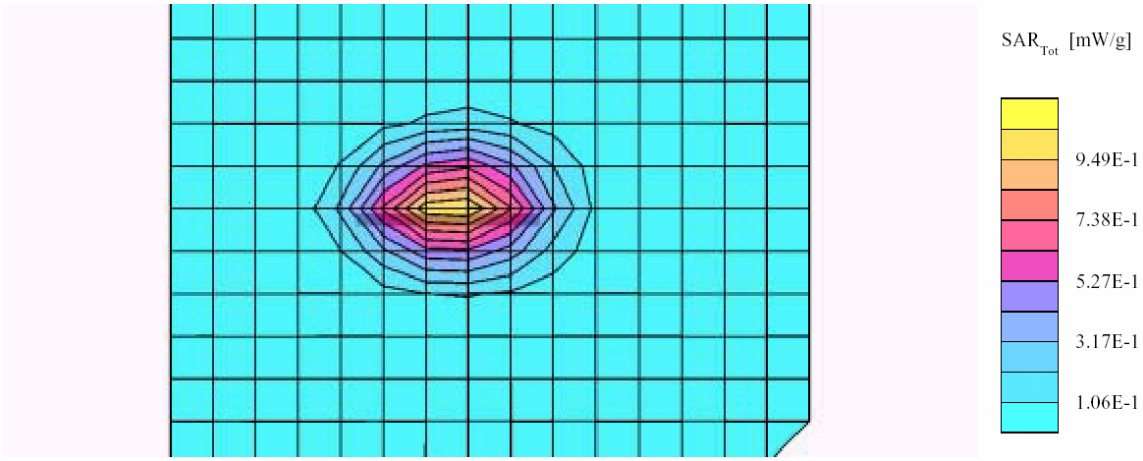
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 1900 MHz

Probe: ET3DV6 - SN1604; ConvF(5.50,5.50,5.50); Crest factor: 1.0; Head 1900 MHz: σ = 1.46 mho/m ε_r = 41.9 ρ = 1.00 g/cm^3

Cube 5x5x7: SAR (1g): 0.965 mW/g, SAR (10g): 0.520 mW/g, (Worst-case extrapolation)

Coarse: Dx = 12.0, Dy = 12.0, Dz = 10.0

Powerdrift: 0.03 dB



c) Details of power scaling for head SAR re-measurement value, or manufacturer's support information.

Our measurement indicated 0.965mw/g using a transmit level of 14.01 dBm (25.17mw) Scaling to the 1W reference we therefore obtain 38.33 mW/g at a separation of 10mm separation distance. Extrapolating from the 20mm value of 72.1 mW/g we therefore obtain a value near 36.05 or within 6.3% of the target value.

For future reference, we have added an amplifier that is now capable of 126mW (HP8449B) while another higher output power HP8349B amplifier is being repaired.

System Verification is performed prior to each series of scans each day of testing to determine that it is within specification.

Attached are the results of ten measurements yielding an average for the ten plots. The table provides the extrapolation based on the power transmitted.

The IEEE 1528 recommended values are as follows:

Frequency MHz	1g SAR	10g SAR	Local SAR at surface	Local SAR at 2cm
1900	39.7	20.5	72.1	6.6

The System Validation Results

Ambient conditions, 26.5 degrees C, 68% RH

Validation Dipole ET3DV6 s/n 1604

Medium Head, dielectric = 41.9, permittivity = 1.46 mho/m, 1gSAR = 0.965 mW/g at transmit level of 14.01 dBm.