

MEASUREMENT PROCESS

System Verification

Prior to assessment, the system is verified to the $\pm 5\%$ of the specifications by using the system validation kit. System verification is performed with 800 MHz brain equivalent material. Once system verification is complete, the fluid is replaced with 800 MHz muscle equivalent material.

Validation Kit D835V2, S/N: 406	Targeted SAR _{1g} (mW/g) 2.11	Measured SAR _{1g} (mW/g) 2.12
Validation Kit D1900V2, S/N: 502	Targeted SAR _{1g} (mW/g) 10.7	Measured SAR _{1g} (mW/g) 10.5

Dosimetric Assessment Setup

The evaluation was performed with the following procedure:

1. The SAR value at a fixed location above the ear point was measured and was used as a reference value for assessing the power drop.
2. The SAR distribution at the exposed side of the head was measured at a distance of 3.9mm from the inner surface of the shell. The area covered the entire dimension of the head and the horizontal grid spacing was 20mm x 20mm. Based on this data, the area of the maximum absorption was determined by spline interpolation.
3. Around this point, a volume of 32mm x 32mm x 34mm was assessed by measuring 5 x 5 x 7 points. On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:
 - a. The data at the surface were extrapolated, since the center of the dipoles is 2.7mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.2mm. The extrapolation was based on a least square algorithm [13]. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.
 - b. The maximum interpolated value was searched with a straight-forward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1g or 10g) were computed using the 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the "Not a knot" condition (in x,y, and z directions) [13][14]. The volume was integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the average.
 - c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
4. The SAR value, at the same location as procedure #1, was re-measured. If the value changed by more than 5%, the evaluation is repeated.

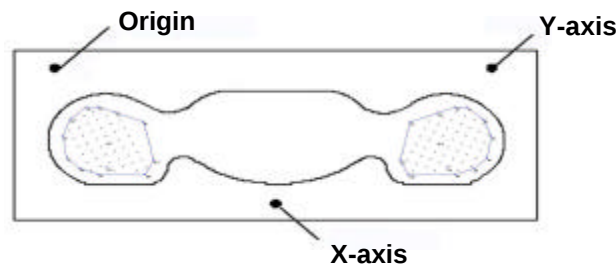


Fig 10. SAR Measurement Points in Area Scan
SAMSUNG FCC ID: A3LSCH8500 (Model: SCH-8500)
Dual-Band Analog/PCS Phone (AMPS/CDMA)

Validation -- Dipole 835MHz

Generic Twin Phantom; Flat Section;

Probe: ET3DV5 - SN1368 -- Probe Cal Date 2/99

Medium Parameters 835 MHz: $\sigma = 0.86$ mho/m $\epsilon_r = 42.5$ $\rho = 1.00$ g/cm³

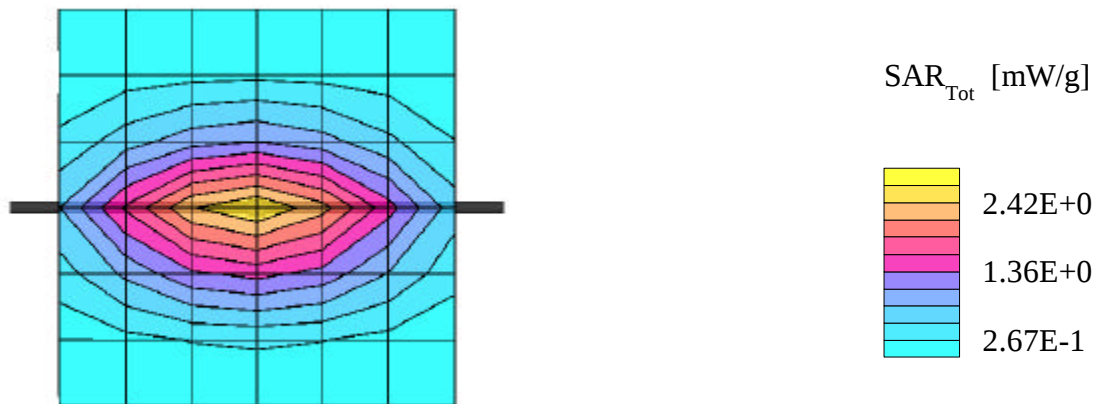
Antenna Position -- Out; Crest Factor 1.0

SAR (1g): 2.12 mW/g, SAR (10g): 1.38 mW/g

835MHz Dipole Validation (D835V2 S/N: 406)

Frequency: 835 MHz; Antenna Input Power: 250 [mW]

PCTEST Brain Tissue Simulating Liquid



FCC ID: 1900 MHz Dipole

Generic Twin Phantom; Flat Section;

Probe: ET3DV5 - SN1368 -- Probe Cal Date 2/99

Medium Parameters Brain 1900 MHz: $\sigma = 1.82$ mho/m $\epsilon_r = 40.4$ $\rho = 1.00$ g/cm³

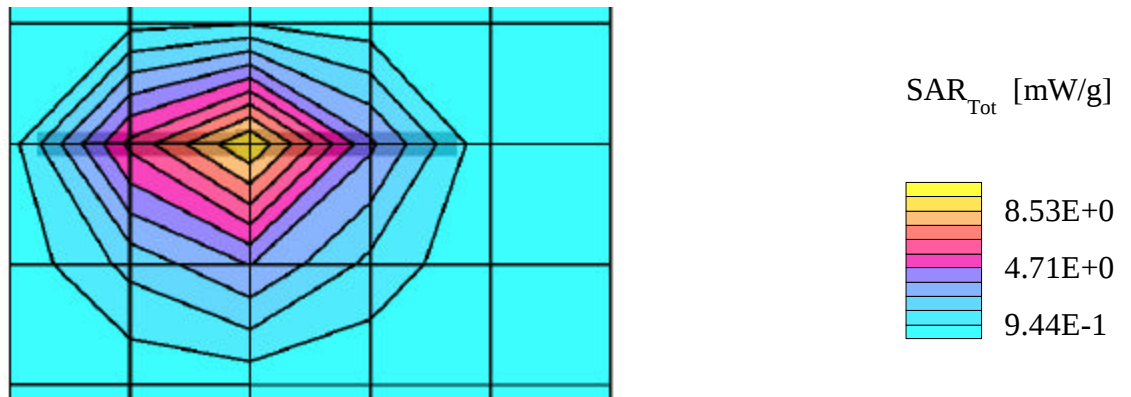
Antenna Position -- Out; Crest Factor 1.0

SAR (1g): 10.5 mW/g, SAR (10g): 5.25 mW/g

1900MHz Dipole Validation (D1900V2 S/N: 502)

Frequency: 1900MHz; Antenna Input Power: 250 [mW]

PCTEST Brain Tissue Simulating Liquid



Validation Dipole D835V2 SN:406, $d = 15\text{mm}$

Frequency: 835 MHz; Antenna Input Power: 250 [mW]

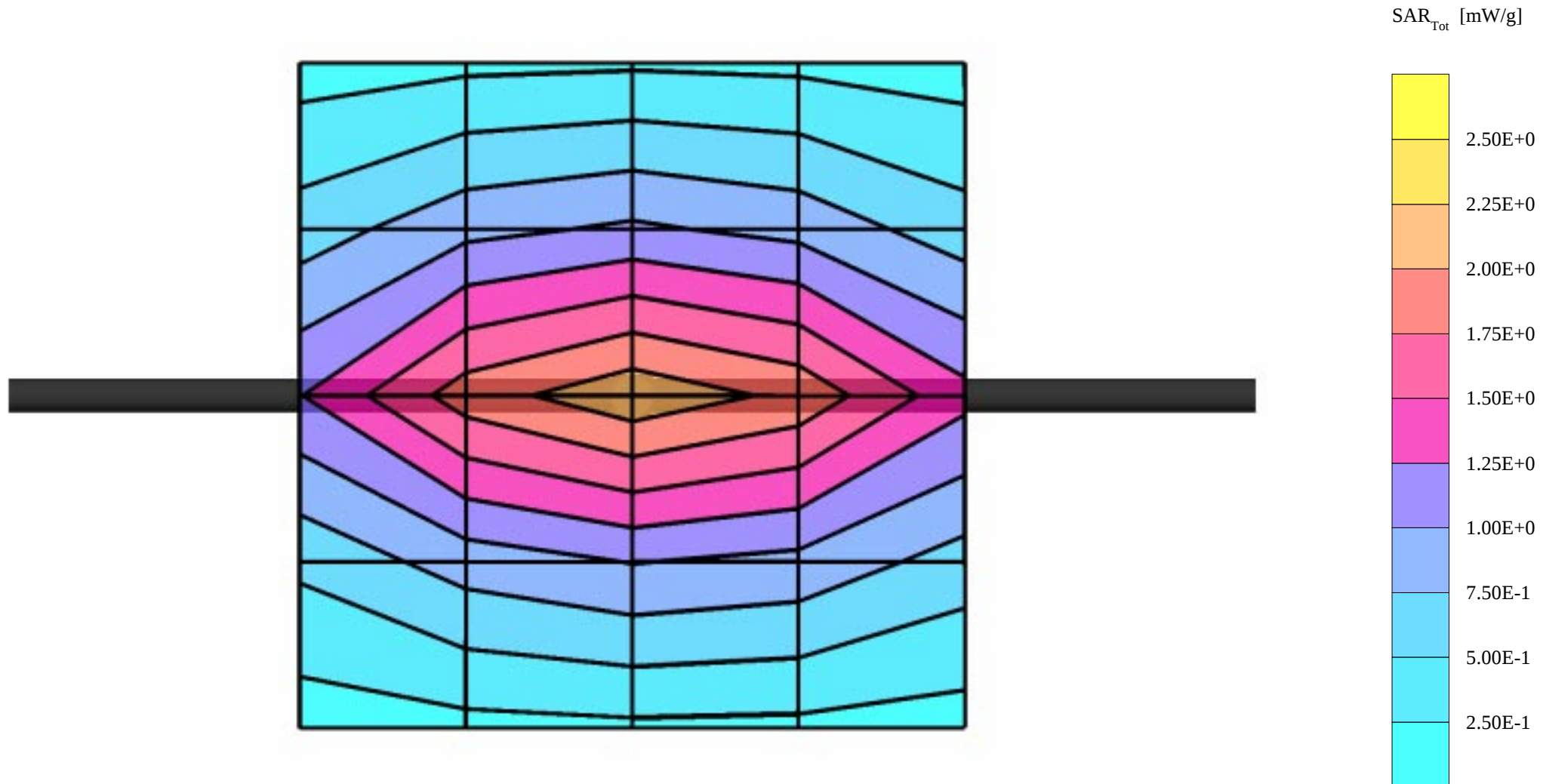
Generic Twin Phantom; Flat Section; Grid Spacing: $D_x = 20.0$, $D_y = 20.0$, $D_z = 10.0$

Probe: ET3DV5 - SN1342/DAE3; ConvF(5.75,5.75,5.75); Brain 835 MHz: $\sigma = 0.79$ mho/m $\epsilon_r = 41.9$ $\rho = 1.00$ g/cm³

Cubes (2): Peak: 3.17 mW/g ± 0.03 dB, SAR (1g): 2.11 mW/g ± 0.03 dB, SAR (10g): 1.41 mW/g ± 0.04 dB, (Worst-case extrapolation)

Penetration depth: 13.4 (12.3, 14.9) [mm]

Powerdrift: -0.01 dB



Validation Dipole D1900V2 SN:502, $d = 10\text{mm}$

Frequency: 1900 MHz; Antenna Input Power: 250 [mW]

Generic Twin Phantom; Flat Section; Grid Spacing: $D_x = 15.0$, $D_y = 15.0$, $D_z = 10.0$

Probe: ET3DV5 - SN1302/DAE3; ConvF(4.55,4.55,4.55); Brain 1900 MHz: $\sigma = 1.82\text{ mho/m}$ $\epsilon_r = 40.4$ $\rho = 1.00\text{ g/cm}^3$

Cubes (2): Peak: $21.2\text{ mW/g} \pm 0.01\text{ dB}$, SAR (1g): $10.7\text{ mW/g} \pm 0.01\text{ dB}$, SAR (10g): $5.26\text{ mW/g} \pm 0.01\text{ dB}$, (Worst-case extrapolation)

Penetration depth: 7.0 (6.8, 7.5) [mm]

