

Table 1. Dielectric properties of the various tissues assumed for the model of the human body [7].

Tissue	Mass Density 10^3 kg/m^3	815.0 MHz		860.5 MHz	
		ϵ_r	σ S/m	ϵ_r	σ S/m
Muscle	1.04	56.17	0.94	56.05	0.96
Fat	0.92	11.37	0.10	11.35	0.11
Bone (cancellous)	1.85	16.75	0.23	16.68	0.23
Cartilage	1.10	42.97	0.74	42.80	0.76
Skin	1.01	44.17	0.83	43.93	0.84
Nerve	1.04	32.81	0.55	32.65	0.56
Intestine	1.04	60.11	2.12	59.76	2.14
Spleen	1.05	57.75	1.23	57.43	1.25
Heart	1.03	60.49	1.19	60.16	1.21
Blood	1.06	61.65	1.50	61.48	1.52
Liver	1.03	47.26	0.82	47.02	0.84
Kidney	1.05	59.41	1.34	59.00	1.37
Lung (inflated)	0.35	22.17	0.44	22.08	0.45
CSF	1.01	68.83	2.38	68.73	2.40
Eye humor	1.01	68.92	1.61	68.91	1.62
Sclera	1.17	55.51	1.14	55.38	1.15
Lens	1.10	41.37	0.62	41.28	0.63
Stomach	1.05	65.31	1.15	65.18	1.17
Pancreas, paratid gland	1.05	59.89	1.01	59.77	1.02
Brain, pineal gland, pituitary gland	1.03	46.18	0.74	45.97	0.75

Table 2. Model size and computing requirements for SAR calculations for M/A-Com P-801T Portable Radio.

	Configuration 1 Radio with “1/2 wave” antenna held at 1 inch in front of the mouth (See Fig. 3)	Configuration 2 Radio with “1/2 wave” antenna in a holster mounted at back side of waist (See Fig. 6)	Configuration 3 Microphone with “1/4 wave” antenna held at 1 inch in front of the mouth (See Fig. 9)	Configuration 4 Microphone with “1/4 wave” antenna clipped to the lapel at shoulder (See Fig. 10)
Resolution (mm)	1.974 x 1.974 x 2	2.961 x 2.961 x 3	1.974 x 1.974 x 2	2.961 x 2.961 x 3
Human model (cells)	101 x 113 x 127	116 x 98 x 265	101 x 113 x 127	120 x 127 x 167
FDTD dimensions (cells)	121 x 160 x 196	130 x 135 x 280	121 x 160 x 196	140 x 147 x 187
Memory requirement	268 MB	272 MB	268 MB	347 MB
Calculation periods	8	8	10	15

Table 3. Models used to represent the P-801T Radio and the microphone.

Handset Handset Dimensions	P-801T Radio With “1/2 wave” Antenna 2.3” \times 1.5” \times 6.1”	Microphone With “1/4 wave” Antenna 2.25” \times 1” \times 2.5”
No. of voxels* for 1.974 x 1.974 x 2 mm models (Configurations 1, 3)	$(28 + 1 + 1) \times (18 + 1 + 1) \times (76 + 1 + 1)$	$(27 + 1 + 1) \times (11 + 1 + 1) \times (30 + 1 + 1)$
No. of voxels* for 2.961 x 2.961 x 3 mm models (Configurations 2, 4)	$(18 + 1 + 1) \times (11 + 1 + 1) \times (50 + 1 + 1)$	$(18 + 1 + 1) \times (7 + 1 + 1) \times (19 + 1 + 1)$
Sleeve** Sleeve, diameter, height	19.05, 16 mm	19.05, 16 mm
No. of voxels (1.974 x 1.974 x 2 mm models)	6 x 6 x 8	6 x 6 x 8
No. of voxels (2.961 x 2.961 x 3 mm models)	4 x 4 x 5	4 x 4 x 5
Antenna Wire (Unshielded Region)**		
Antenna, diameter, height	1.7, 159 mm	1.7, 69 mm
No. of voxels (1.974 x 1.974 x 2 mm models)	1, 80	1, 35
No. of voxels (2.961 x 2.961 x 3 mm models)	1, 53	1, 23

* 1 + 1 cells along each of the directions are taken because of the need to represent plastic covering of the handsets.

** Both the sleeve and the antenna are also assumed to be covered with 1 cell on each of the sides to represent rubber sheathing ($\epsilon_r = 4$).

Table 4. The calculated maximum 1-g SARs * for the body (face in Configurations 1 and 3) and the left and right eyes for four configurations of the M/A-Com Model P-801T Portable Radio radiating 3W at 815 or 860.5 MHz in the analog (100% duty cycle mode).

Configuration	Description	815 MHz			860.5 MHz			
		Max 1-g SAR (W/kg)	Body	Left Eye	Right Eye	Max 1-g SAR (W/kg)	Body	Left Eye
1	Handheld Radio with “1/2 wave” antenna held at 2 inches from the face to the antenna (see Fig. 3a, b) For a Flat Phantom	1.53 3.53	0.27 ---	0.27 ---	0.27 ---	1.55 ---	0.25 ---	0.26 ---
2	Radio with “1/2 wave” antenna belt-mounted at waist against the back left side with a distance of 1 inch due to thickness of holster (see Fig. 6a, b)	5.09	0	0	0	5.15	0	0
3	Handheld, “Microphone” with “1/4 wave” antenna held at 2 inches from the face to the antenna (see Fig. 9a, b) For a Flat Phantom	3.42 7.44	1.22 ---	1.30 ---	1.30 ---	3.39 ---	1.17 ---	1.28 ---
4	“Microphone” with “1/4 wave” antenna mounted on lapel at the shoulder for a distance of 11 mm from the body (due to thickness of the clip and the clothing (see Figs. 10a, b)	7.02	0.10	0	0	6.98	0.11	0

* All of the SARs would be reduced by a factor of 2 for the TDMA (50% duty cycle) mode used in the vast majority of cases.