

W or less for situations where the exposure is not under the control or is without knowledge of the user. Note that this exclusion does not apply to devices with radiating structures maintained within 2.5 cm of the human body. Accordingly, at 849 MHz, if the radiated power is 0.74 W or less and the radiating structure is maintained at a distance of 2.5 cm away from the body, the maximum exposure limit of 0.53 mW/cm<sup>2</sup> may be exceeded. However, the SAR limits of 8.0 W/kg averaged over one gram of tissue for controlled environments and, 1.6 W/kg for situations where the exposure is not under the control or is without knowledge of the user remain effective.

**Table 2.** Permissible exposure limits for wireless communication frequencies (ANSI/IEEE C95.1-1992).

Frequency (MHz)	Controlled Environment			Uncontrolled Environment		
	Power Density (mW/cm <sup>2</sup> )	SAR (W/kg)	Ave Time (min)	Power Density (mW/cm <sup>2</sup> )	SAR (W/kg)	Ave Time (min)
800	2.7	8.0	6	0.53	1.6	30
900	3.0	8.0	6	0.60	1.6	30
1800	6.0	8.0	6	1.20	1.6	30
2200	7.3	8.0	6	1.47	1.6	30

### DOSIMETRY - INDUCED FIELDS IN BIOLOGICAL TISSUES

An important task in assessing health risk is the determination of induced fields in biological tissues. Considerable progress has been made in this area. We will summarize the status of experimental and numerical dosimetry. The dosimetric quantities of interest include incident field, induced field and SAR in tissue models.

As indicated earlier, the incident field strengths range from 3-10 V/m at typical distances from sources of RF radiation used for wireless communication. The precise field strength measured in each situation will however differ according to distance and source type and user environment (handheld, land mobile, or base station).

The induced fields in biological tissue are functions of permittivity, conductivity, tissue geometry, and source configuration and frequency. There exist a variety of experimental and computational methods for quantifying induced fields and SARs [Lin, 1986; Michaelson and Lin,

1987; Lin and Gandhi  
coupling and its distrib

### Experimental Dosimetry

A direct measure of the understanding of biological tissues (3) it helps in the de establishment of guidelines quantities such as SAR there are a limited number a common practice in e under a short-duration, in temperature can be conductivity and speci

It is noteworthy measure. It is defined a in) an incremental mass of SAR as a meaningful C95.1 standards on do absorption of RF radi important to distinguish to confuse the quantity mechanism of interacti

**Figure 1** SAR measurement with its antenna extend