

N90. Electronic Personal Dosimeter Heralds A Revolution In Legal Dosimetry

Siemen's electronic personal dosimeter system is the first of a new generation of "legal" all-electronic dosimeters for approved dosimetry services. Film badges and thermoluminescent dosimeters (TLD) are normally used for "legal" dosimetry. While these are well established technologies, they do have limitations as to sensitivity; measurable dose thresholds of 100 to 200 μSv being typical. Many operators now want to attain lower average annual doses, about 10 to 15 mSv being common, with the newest plant, such as BNFL's THORP in the U.K., aiming for lower still. Providing accurate monthly reports is becoming more difficult, and a more sensitive dosimeter is needed. To meet this need, Siemen's Plessey Controls and the U.K.'s National Radiological Protection Board (NRPB) have developed the Electronic Personal Dosimeter (EPD), which, in addition to providing "legal" dosimetry, incorporates all the features of a personal alarming dosimeter -- one instrument to cover both functions, and competitively priced in relation to existing alarming dosimeters.

The EPD emulates all the important features expected of personal alarming dosimeters. It is therefore a "legal" dosimetry instrument with instant readout, as it is equipped with a multi-function liquid crystal display.

The EPD measurable dose range is from 1 μSv to 10 Sv for both penetrating and superficial dose with a displayable limit of 1 Sv. The dose rates which can be displayed are:

- 1 $\mu\text{Sv/h}$ to 10 mSv/h

- 0.01 mSv/h to 100 mSv/h

Taken From: "Electronic Personal Dosimeter Heralds a Revolution in Legal Dosimetry," Robert Fletcher, Nuclear Engineering International, May 1991, pp. 19-22. (Siemens Plessey Controls, Sopers Lane, Poole, Dorset BH177ER, United Kingdom)