

ORNL INSTRUMENT EVALUATION SUMMARY

Electronic Personal Dosimeter

Description: The International Electrotechnical Commission (IEC) is developing a new international standard that will require an electronic personal dosimeter (EPD) to operate in high radio frequency (RF) environments. To ensure that current EPDs are able to meet the expected requirement, a series of tests were performed using various EPD models from Siemens and Canberra.

Report Date: February 12, 2003

General Comments:

1. Four EPD models were subjected to testing: Siemens Mark 1, Mark 2, and EPD-N; and Canberra Dover Radiac Set UDR-13A.
2. Confidence intervals used to ascertain whether results are conclusive or inconclusive are determined using the 0.95 quantile of the student's t distribution (95% confidence interval).

Results: The EPDs were exposed to an RF scan from 20 MHz to 1GHz at **50±2** volts/meter amplitude modulated with 1 kHz at 80%. Siemens models Mark 2 and EPD-N and Canberra Dover Radiac were unaffected. Siemens Mark 1 indicated susceptibility.

Three EPDs were exposed to an RF scan from 20MHz to 1GHZ at **100±2** volts/meter amplitude modulated with 1 kHz at 80%. Siemens EPD-N and Mark 2 were unaffected. Siemens Mark 1 indicated susceptibility. The Canberra model was not included in this test.