

OAK RIDGE NATIONAL LABORATORY

INSTRUMENT EVALUATION SUMMARY

Bicron Micro Rem

Description: The Bicron Micro Rem is a five-range portable instrument that utilizes a plastic scintillation detector to measure exposure rates in $\mu\text{rem/hr}$. The ranges are X 0.1 (0 - 20 $\mu\text{rem/hr}$), X 1 (0 - 200 $\mu\text{rem/hr}$), X 10 (0 - 2000 $\mu\text{rem/hr}$), X 100 (0 - 20000 $\mu\text{rem/hr}$), and X 1000 (0 - 200000 $\mu\text{rem/hr}$).

Ranges Evaluated: X 10

Report Date: September 1997

General Comments:

1. Evaluation performed in response to design change by Bicron.

RADIATION RESPONSE

Probe Surface Sensitivity: N/A.

ELECTRONIC and MECHANICAL REQUIREMENTS and TESTS

Line Noise: N/A

INTERFERING RESPONSES TEST RESULTS

Radio Frequency/Microwave: No response changes were observed when exposed to 140 and 2450 MHz fields at 20 V/m. Susceptibility was indicated at frequencies during the scan from 0.1 to 1000 MHz at 20 V/m and at 915 MHz. Specific information is available in the test report.

Electric Fields: Not performed.

Magnetic Fields: Results were acceptable when exposed to 10 Gauss (10 Oersted) DC and 1.26 Gauss AC in two orientations relative to the field lines.

Interfering Ionizing Radiations: Not performed.

ENVIRONMENTAL FACTORS

Temperature: Results were acceptable over the temperature range of -10 C to +50 C (14 F to 122 F).

Temperature Shock: Results were acceptable when exposed to rapid temperature changes from 22 to -10, -10 to 22, 22 to 50, and 50 to 22 (in C).

Humidity: Results were acceptable when exposed to a relative humidity level of 95% (non-condensing) for eight hours, and upon return to 40% for 4 hours at 22 ± 2 C.

Ambient Pressure: Not performed.

Vibration: Results were acceptable when exposed to 15 and 28 Hz fields at 2 Gs in each of three orientations.