

**ORNL**  
**INSTRUMENT EVALUATION SUMMARY**

Eberline Alpha 7 Alpha Air Monitor

**Description:** The Eberline Alpha 7 Continuous Air Monitor is a solid-state detector based continuous alpha air monitor. The Alpha 7 tested was of the original single-unit design. The detector head (in-line) is contained within the same box as the display unit. This is not the current design of the Alpha 7A or L, but the operating system is the same.

**Ranges Tested:** N/A

**Report Date:** July 19, 2002

**General Comments:**

1. 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).

**RADIATION RESPONSE**

**Probe Surface Sensitivity:** N/A

**ELECTRONIC and MECHANICAL REQUIREMENTS and TESTS**

**Line Noise:** Not performed on this model. Tests were performed on the Alpha 7L.

**Power Line Variations:** Not performed on this model. Tests were performed on the Alpha 7L.

**Conducted Radio Frequency:** Not performed on this model. Tests were performed on the Alpha 7L.

**INTERFERING RESPONSES TEST RESULTS**

**Radio Frequency/Microwave:** Susceptibilities were observed throughout the test being indicated by spectral counts. Most indicated susceptibilities did not affect the operation of the monitor since they were located at the low energy end of the spectrum. Additional details are available in the test report.

**Electric Fields:** Not performed.

**Magnetic Fields:** No response abnormalities were observed when exposed to a 10 Gauss DC field and 60 Hz (1.26 Gauss) AC field in two orientations.

**Interfering Ionizing Radiations:** Not performed on this model. Tests were performed on the 7L.

## **ENVIRONMENTAL FACTORS**

**Temperature:** No susceptibilities were observed over the test range of -10 to 50 °C (+14 to +122 °F).

**Temperature Shock:** Not performed

**Humidity:** No susceptibilities were observed during and after exposure to 95% relative humidity at  $30 \pm 2$  °C for 24 hours.

**Vibration:** Not performed.