

Long Term Radiation Monitoring of the Environment: Pedestrian Monitoring Station

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A Homeland Security Application

The Gamma-8000 76 mm x 76 mm is well suited for long term radiation monitoring. Because of its high efficiency and excellent resolution, it is capable of quickly detecting and identifying radioactive materials. A Homeland Security example application of this system is a pedestrian walking 10 ft away from a monitoring station and carrying a 100 μCi ^{137}Cs radioactive source. This type of event would not be detected with a standard Geiger counter since it registers a natural background of 0.02 mR/h before and during the pedestrian incident. However, as shown in Figure 1, the GAMMA-8000 76B76 quickly detected a rise in the Total Counts in order to sound the alarm, and unlike the Geiger counter, recorded the spectral information separately for every second. Hence, positive identification of the ^{137}Cs isotope was made by identifying the 662-keV peak. It is important in these types of applications to measure both the total counts and the actual spectrum, so that false positives can be avoided. Without the spectral information, materials such as fertilizers could trigger the alarm.

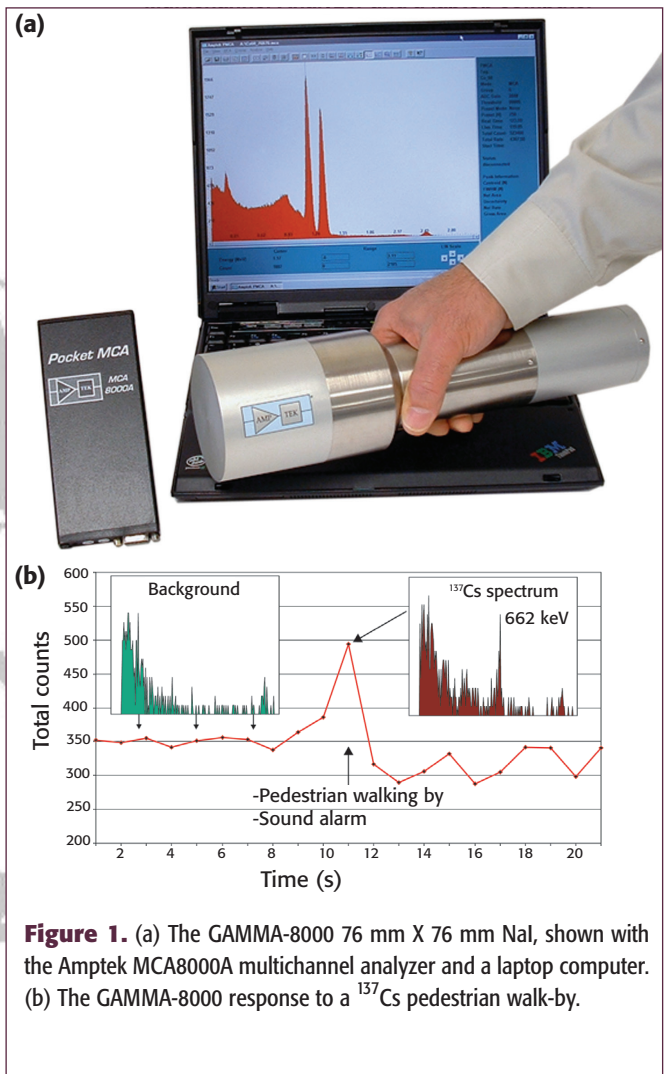


Figure 1. (a) The GAMMA-8000 76 mm X 76 mm NaI, shown with the Amptek MCA8000A multichannel analyzer and a laptop computer. (b) The GAMMA-8000 response to a ^{137}Cs pedestrian walk-by.

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