

T3.2-O3. New development in ruggedized HPGe detectors for outdoor gamma spectroscopy

This paper presents the configurations and performances of novel CANBERRA detection and identification solutions of radioactive nuclides. Based on new HPGe spectrometer designs notably using a proprietary encapsulation technique and autonomous electrical coolers, these systems address outdoor monitoring and mobile surveying with performances similar to lab conditions. Precise dosimetry and source identification are offered even if the background count rate is high, or in simultaneous presence of a source mix at the same location, especially where natural and anthropogenic nuclides have to be separated. These capabilities are exemplified first by presenting a high efficiency (up to 1300%) HPGe array developed for remote radionuclide identification and mapping, and key performances are explained in the case of an airborne application. Also a new immersible HPGe probe will be presented and its in-situ operation as an effluent, ground or portable monitoring device is described.

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