

SCoTSS Gamma Imager for CTBT On-Site Inspection

Gamma-radiation survey is an essential component of an on-site inspection under the Comprehensive Nuclear-Test-Ban Treaty (CTBT - 69.c). The Silicon photomultiplier-based Compton Telescope for Safety and Security (SCoTSS) provides mobile-survey isotope detection, alarming and identification, as well as concentration and dose-rate measurements for contour mapping. In addition, SCoTSS can produce an image of the radiation emitters in the environment, overlaid on an optical photograph. For operators, this is a graphic and intuitive product. The imager is especially useful in situations where restrictions apply to the available airspace. SCoTSS can show a gamma-ray image of an area to which inspectors are restricted from entry (as was experienced during IFE 2014). SCoTSS is a rugged instrument making use of field-proven crystalline scintillator gamma detectors with state-of-the-art miniaturized light collection and custom electronics. Operation and readout are identical to that already in use in CTBT on-site inspection aerial survey so that SCoTSS can function as a drop-in replacement. It is modular, available in a small form suitable for backpack survey and a large form suitable for aerial survey. In this presentation we will provide a review of the performance of the SCoTSS imager with particular attention to scenarios relevant to CTBT on-site inspection.

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Track Classification: 3. Advances in sensors, networks and processing