

# RADScout Ruggedized Radiation Monitor



RADScout is a ruggedized field and mobile spectrometry surveillance Radiolotope IDentification Device (RIID) primarily designed for gamma radiation detection and monitoring in a variety of environments. It can be deployed in a portable or backpack configuration and optionally fixed to an Unmanned Aerial Vehicle (UAV) or Remote Operated Vehicle (ROV) An external Global Positioning System (GPS) is included. The RADScout records full spectra as well as real-time dose and provides selected identified radionuclide concentration calculations from spectra.

## Benefits

- Quick deployment – system stabilization within 2-3 minutes of cold start up
- User-friendly interface and data acquisition system is Android™ mobile device or MS-Windows™ based (user choice)
- Auto-calibrated using our multi-peaks algorithm by statistical presence of photo peaks from Naturally Occurring Radioactive Materials (NORM) in background – no radioactive sources are required
- Real-time positioning GPS allows the operator to follow a survey grid or way-points on a map

## Key Figures

**N** 42.53 → *Compliance*

**1** m → *Height Drop Test*

**IP** 54 → *Compliance*

## Product Description

The RADScout is designed for portable and backpack spectrometry surveillance and can be also used in slow speed mobile applications. The standard RADScout detection module is equipped with a 3"x3" NaI(Tl) detector (with the option to substitute other kinds of detectors like LaBr or optionally add neutron detectors). The spectrometer auto-calibrates and stabilised on natural gamma peaks in real-time (within 2-3 minutes). Acquired data is automatically synchronized with GPS time and location.

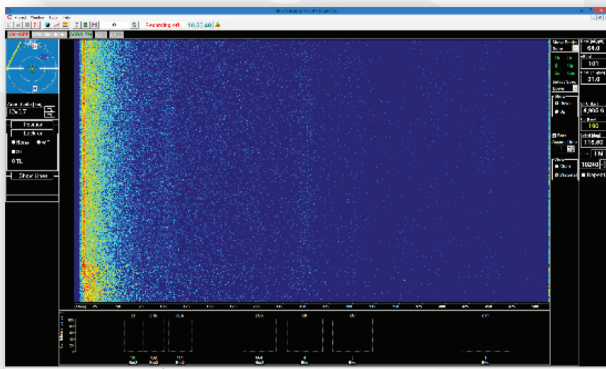
The user interface / data acquisition system is the "RADAqLite" Android™ application for a compatible mobile device or "RADAq" MS-Windows™ based application for a PC (both typically user supplied).

It also comes with "MAPConvert" survey preparation and post-mission visualization software, the "AGRSCalib" calibration and setup software as well as the "DATAView" data quality control visualization and GIS export software tool.

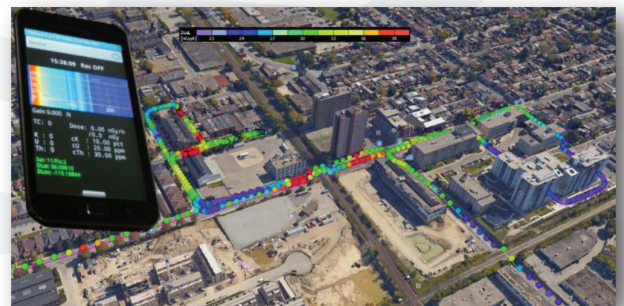
The system provides the user with sufficient information about ambient radioactivity level in real-time, as well as RIID, and data transmission capabilities. System enables synchronised multimedia data comments as a photo, video or text.

Third party trademarks are the property of their respective owners.

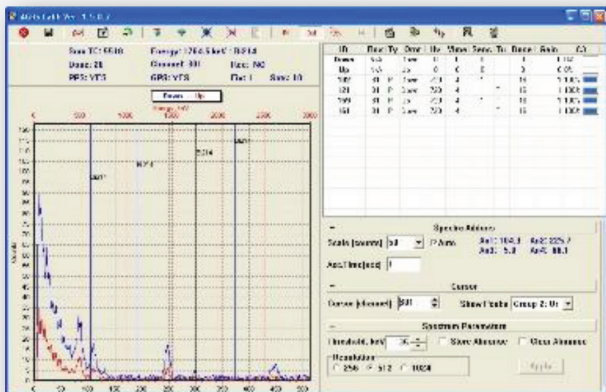
All specifications subject to change without notice.



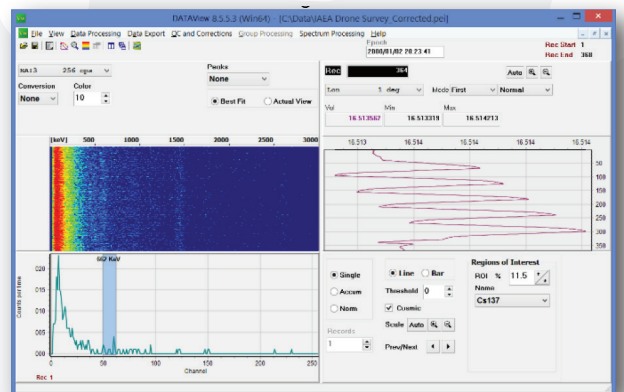
"RADAq" for Window™



"RADAqLite" on Android™-based smart phone with "cookie-crumbs" image from "MAPConvert"



"AGRSCalib"



"DATAView"

Errors excepted. Technical changes reserved



## Specification

Detection Usage and Capability	<ul style="list-style-type: none"> <li>Gamma RIID and Gamma Dose Rate measurement using a 0.347 L (3"x3"), NaI(Tl) detector</li> <li>Radio Nuclide Identification (RIID) for NORM, Industrial, Threat and Medical Nuclides</li> </ul>
Design Standards	<ul style="list-style-type: none"> <li>Designed to ANSI N42.53 (including surviving a 1m (39") Height Drop Test) and IEC/EN IP54 environmental standards</li> </ul>
General Technical	<ul style="list-style-type: none"> <li>System stabilization: Cold Startup – typically less than ~2-3 minutes</li> <li>MCA Resolution: 256-2048 channels (user selectable out of 8196 DSP/FPGA technology channels available)</li> <li>Energy Detection Range: 20 keV - 3 MeV</li> <li>Data handling: Individual detector processing and calibration</li> <li>Differential nonlinearity: &lt;0.1%</li> <li>Integral nonlinearity: &lt;0.01%</li> <li>Gain stabilization: Automatic - Real time stabilization (1 s)</li> <li>Dynamic throughput: Up to 250,000 cps per detector</li> <li>Dead Time: Virtually zero, achieved with digital pulse processing</li> <li>Baseline Restoration: Digital (IPBR) Individual Pulse Baseline Restoration. The baseline is established for each individual pulse for maximum pulse height accuracy</li> <li>Pulse shaping: Digital Pulse Shaping</li> <li>Pile up Rejection: Digital (&lt;40 ns)</li> <li>Sampling rate: Dynamic mode: 1 s; or Accumulation mode: selectable time</li> <li>Calibration: Automatic using natural background radiation, multi-peaks algorithm by statistic presence. No radioactive sources required.</li> </ul>
Software and System	<ul style="list-style-type: none"> <li>Real time data acquisition</li> <li>Data processing: Data complies with NASVD processing requirements. Fully linearized output, the Poisson Distribution is unaffected.</li> <li>Wireless Data Logger ready – use an Android™ based smart phone (typically not included) or a Windows™-based PC device (typically not included)</li> <li>Both RADAqLite™ for Android™ and "RADAq" for Windows™ real time data acquisition client software included</li> <li>"AGRSCalib" Windows™-based calibration and setup software included</li> <li>"DATAview" Windows™-based data quality control visualization and GIS export software included</li> <li>"MAPConvert" Windows™-based survey preparation and post-mission visualization software included</li> <li>Control: High level of self-diagnostics</li> <li>"RADReplay" Windows™-based batch-oriented tool to allow the user to replay native binary and N42.42 spectrum files is also available.</li> </ul>
Communications / Data Output	<ul style="list-style-type: none"> <li>Includes external GPS receiver (Garmin GPS18x LVC 5m or similar)</li> <li>Can substitute customer-owned compatible GPS</li> </ul>
Shipping / Protective Case	<ul style="list-style-type: none"> <li>Pelican™/Storm™ Model IM2750 or similar case included (CERTIFICATIONS: MIL-STD-810F / ATA 300 / FED-STD-101C)</li> </ul>
Physical	<ul style="list-style-type: none"> <li>Weight: 8 kg (~18 lbs) (no case), 17 kg (~38 lbs) (within Pelican™ case)</li> <li>Dimensions (L X W X H): <ul style="list-style-type: none"> <li>No Pelican™ Case: 40.5 x 23.2 x 14.3 cm (15.93" x 9.125" x 5.625")</li> <li>With Pelican™ Case: 62.5 x 50 x 36.6 cm (24.60" x 19.70" x 14.40")</li> </ul> </li> </ul>
Environmental	<ul style="list-style-type: none"> <li>Operating Temperature: -20 °C to +50 °C (-4 °F to +122 °F)</li> </ul>
Power and Related Accessories	<ul style="list-style-type: none"> <li>Power: Internal LI-Ion battery ~24 hours typical run time</li> <li>12 VDC Car Adaptor included</li> </ul>

## Options

### **RADScout-N1**

- Adds one (1) Ultra-compact High Sensitivity High Efficiency Thermal Neutron Detector to inside of a standard RADScout
- Designed to alarm on 252Cf source per ANSI N42.53 that has an emission rate of ~20000 X 6 neutrons/s
- Operating Temperature of -10°C to 40 °C (14 °F to +104 °F)
- Each Neutron Detector has excellent gamma rejection, and is equivalent to 100 mm x 13 mm Ø 3He at 4 atmospheres
- The Neutron Detector utilizes a state-of-the-art Silicon photomultiplier (SiPM) photo-sensor array and has a Thermal Neutron Sensitivity of >50% with a maximum throughput of 10,000 cps

### **RADScout-N3**

- Adds three (3) Ultra-compact High Sensitivity High Efficiency Thermal Neutron Detectors to inside of a standard RADScout
- Designed to alarm on 252Cf source per ANSI N42.53 that has an emission rate of ~20000 X 2 neutrons/s

### **RADScout-N6**

- Adds six (6) Ultra-compact High Sensitivity High Efficiency Thermal Neutron Detectors to inside of a larger RADScout case (contact factory for dimensions)
- Adds 660 g (23.4 oz) to weight of larger RADScout (contact factory for weight increase information)
- Designed to alarm on 252Cf source per ANSI N42.53 that has an emission rate of ~20000 neutrons/s

### **RADScout-UAV**

- Adds UAV/Drone capabilities to RADScout
- Laser Altimeter
- Maximum Altitude: 120 m (393 ft)
- Mounting hardware and Instructions / Drawings (contact factory for specifics)

### **RADScout-RF**

- Adds Long Distance RF remote control real-time datalogger to RADScout
- Ranges: 100 m (328 ft) indoor, 5 km (3.1 miles) outdoor

## Product Applications

- Homeland Security Surveys
- Remediation, Assessment and/or Characterization Surveys of existing or decommissioned or shutdown state nuclear sites
- Geophysical Surveys

### **RADScout-Lite**

- Non-ruggedized case versions

### **RADScout-ROV**

- Adds ROV capabilities to RADScout:
- Mounting hardware and Instructions / Drawings (contact factory for specifics)