

NuVISION

Portable spectrometric gamma imaging system



The NuVISION combines several functions in one device. It can localize hotspots from a distance, identify the corresponding radionuclides and estimate the dose-rate contribution of every hotspot separately. The NuVISION is based on a CZT-detector. Its unique design allows both coded mask AND Compton imaging. This combination provides a full 360° FOV (Compton) while having a great 3.5° resolution (coded mask). The high processing speed allows to perform real-time imaging and tracking mobile sources.

Benefits

- Real-time imaging
- High resolution (coded mask) and 360° field of view (Compton)
- Wide energy range for spectrometry from 20–1400 keV: Radioisotopes from ²⁴¹Am to ⁶⁰Co
- H*(10) dose rate estimation per hotspot
- Dose rate in specified distance to source can be calculated
- No cable needed, fully independent and autonomous
- User-friendly, portable device

Key figures

1.5% → Energy Resolution at 662keV

3kg → Light weight handheld camera

50 nSv/h → ¹³⁷Cs Localisation in less than 2 minutes

Product description

The NuVISION is a real-time portable gamma-ray imager that quickly and accurately locates hotspots, estimates the dose rate and identifies radionuclides and thus promptly characterizes the environment from a radiological stand point for radioprotection or risk assessment purposes.

Combining two imaging techniques results in angular resolutions of

- 3.5° for a 45° field of view (FOV) using coded mask
- 15° for a 360° FOV using Compton imaging

The danger of missing a high energy hotspot is banned while simultaneously a precise localization can be performed. The spectrometric ability allows to localize the source of interest and isolate it from the background whether it is a NORM, medical or industrial source. It also enables to detect peaks from isotopes which may be masked by other sources.

With a weight of only 3 kg the NuVISION can be used as an handheld device.

Performance Characteristics

- Sensitive enough to detect a 50 nSv/h ⁵⁷Co source and localize a 500 nSv/h ¹³⁷Cs source in under two minutes
- An angular resolution of 3.5° allows to localize differences of under 10 cm in a distance of 10 m
- A tripod with a motorized mount allows completely remote operation (optional)
- A scan modus autonomously acquires measurements of large areas (requires tripod)
- Ethernet and power supply via cable drum allow remote operation from up to 60 m distance
- Advanced possibilities for expert users (e.g. set alarm threshold, spectrum analysis, edit library, ...)

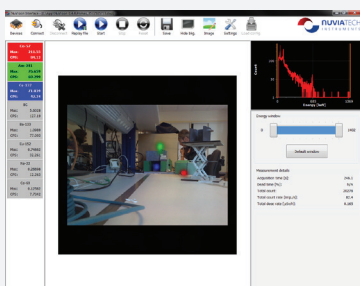
Product applications

- Process control
- Work planning
- Identifying hazards
- Safety measures
- Dose monitoring - ALARA principles
- Environmental monitoring

Product specifications

Size	12cm x 10cm x 24cm (HxWxD) 23cm x 42cm x 30cm with bumper, handle tablet
Weight	3 kg (4.8 kg with bumper, handle tablet)
Detection Vol.	96 cm ³ (56 grams)
Angular Resol.	3.5° Coded Apert. 15° Compton
Field of view	45° Coded Apert. 360° Compton
Battery operation	Yes (15V/6.5W)
Energy Range	20-1400 keV
Dose Range (at camera head)	max. 15 mSv/h (DR measurement) max. 30 mSv/h (identification) max. 80 mSv/h (localisation)
Sensitivity ¹³⁷ Cs	50nSv/h < 120s
Sensitivity ⁵⁷ Co	50nSv/h ~ 5s
Energy Res.	2.5% at 122 keV 1.5% at 662 keV

Isotope	c.s.-1/ (μSv/h)
Am-241	1800
Cs-137	230
Co-60	160



NuVISION has been developed in cooperation with the CEA-LETI and leverages their strong expertise in CZT gamma imagers.