# Working Group 34 “ Digital Proficiency Tests ”

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# « Digital Proficiency Tests »

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## Context

- **Historically**: IRSN (experience in providing measured or simulated spectra in the framework of emergency prepardness), CETAMA EQRAIN (physical sample) and GT32 (speciation calculation tools)
- **Training**: requirement to improve the skills of technicians and engineers in a wide national scale
- **Domain**:
  - gamma-ray spectrometry (energy range from 50 keV to 2 MeV)
  - wide range of spectra/radionuclides and different types of samples

*Crédits : Jean-Marie Huron/Signatures/Médiathèque IRSN Support original : Photographie*

## Approach & Objectives

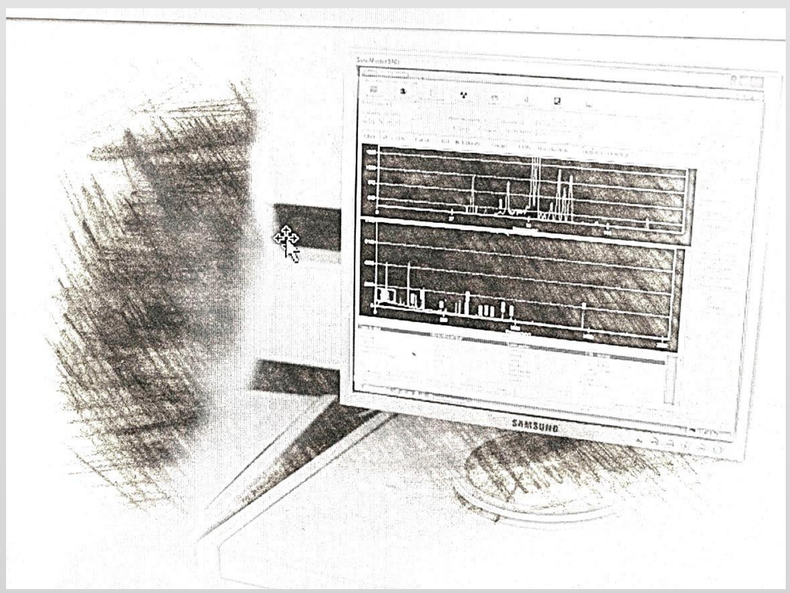
- **Proficiency test without physical sample:** no need for nuclear measurement instrumentation (lab), no sample handling or transportation, no sample preparation , no analytical waste, etc.
- **Broad range of possibilities:** measurement geometries (from sample to radwaste package), very short half-life and « exotic » radionuclides
- **Saving costs**
- **Qualitative and quantitative lab performance assessment** (statistical performance scores: Relative Difference$_{(\%),}$ z-score, Relative Laboratory Performance, Relative Sum of z-score )
- **Verification and improvement of operators knowledge and skills (adjusted to profile of participants)**
- **A large versatility (deployment in internal training sessions, specific role-playing,…)**

## First Digital Proficiency Test Organization - Key Deadlines

- Registration announcement: **March 2022** (national information using IRSN proficiency test website and network)
- Registration deadline: **May 2022**
- Sending set of digital files (spectra and associated files) by e-mail: **June 2022**
- Labs analytical results: **September 2022**
- Proficiency test results: participation certificate (end of 2022), **technical note (publication of final report: 2023)**

## Upcoming Challenges

- Extension to alpha spectrometry and others spectrometric techniques
- Modelisation step (efficiency curve, sample density, measurement geometry)
- Hybridisation of measured and simulated spectra
- Characteristic limits and parent-daughter calculations
- Inquiry to deal with “out of scope” metrological acts (sample positioning, best measurement geometry, acquisition time, sample preparation, instrumentation set up and checks, etc.)



*Crédits : Philippe Dureuil/Médiathèque IRSN*

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