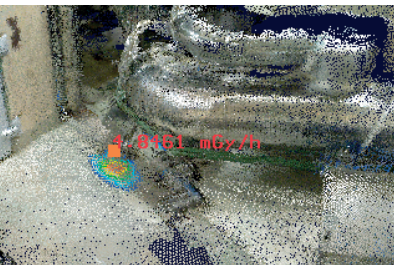
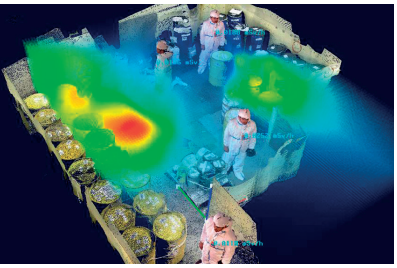
MANUELA™

Construction of 3D radiological and topographical maps





Scope

3D radiological mapping

- Simultaneous 3D radiological and topographical mapping of facilities
- 3D reconstruction of the existing environment in which the radiological measurements (dose rate, gamma spectra of emissions) performed by the operator are very precisely positioned

Spatial identification of the location of hot spots and their characteristics

- Visualization of the distribution of the intensity of gamma radiation within the premises or the cell at the time of measurement
- Spatial identification of irradiation sources location and characteristics

Assessment of the accumulated operators dose performing interventions

- Integration of virtual operators (avatars) into the reconstructed mapping in order to assess the accumulated dose of personnel performing interventions within the framework of ALARA approaches
- Simulation of operating scenarios and optimization of workstations

Transmission of information to teams prior to performing intervention

- Present the worksite environment to the operators, rehearse and repeat the gestures, understand the risks and thus make the intervention more reliable
- Export of data to a virtual reality interface for immersion of operators into the workspace

Advantages

- SAFETY
  Carrying out of risk and dose rate optimization studies
- QUALITY
  Reliability and traceability of radiological measurements and their spatial positioning
- PERFORMANCE
  Increase in the quantity of information transmitted to teams performing interventions
- UNIVERSALITY
  Can be adapted to all nuclear environments
- EXPERTISE
  Analysis of data with specific post-processing software

Key data

- **Autonomy:** 4 hours of scanning
- **Weight:** approx. 1.5 kg
- **Measurement probes:** dose rate and gamma spectrometry (CdZnTe)
- **Data processing:**
  - Retro-projection of radiological gamma distribution on a 3D model
  - Visualization in real time of the 3D reconstruction and of radiological measurements
- **Data export:**
  - Interface with various different modeling tools for the estimation of activities
  - Interface with Virtual Reality tools (MANUELA VR): prejob briefing , training, etc.
  - Interface with Augmented Reality tools (MANUELA AR): visualization of radiological information by the operator while performing the intervention

Portable system that is autonomous and easy-to-use, to perform real-time 3D radiological mapping

Our services

- **Comprehensive service for the constitution of input data**
- **Inspections conducted** on your premises by **an experienced team in close collaboration with your own team**
- **Provision of data (radiological and physical readings/measurements), which remain your property**

MANUELA™ is patent-protected

Watch our presentation video for MANUELA™

Our references

Mapping of facilities

- **Chinon and Fessenheim NPPs:** Mapping of different areas within the reactor building with the aim of identifying hotspots, validating the marking out of orange zones and making sure the radiological input data is reliable in anticipation of maintenance projects

Preparation of worksites and ALARA studies

- **Cattenom NPP:** Provision of 3D mapping as part of the ALARA study for the Steam Generator replacement worksite
- **Fessenheim NPP:** Participation in the ALARA study for maintenance activities
- **CEA Marcoule:** Simulation of worksite layout based on 3D mapping
- **Orano La Hague:** Radiological mapping as part of the preparation work for a dismantling project

Design studies

- **Tricastin NPP:** 3D mappings performed as part of the project to modify biological protection

Contact us to discover the range of possible applications and services with MANUELA™

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