MIRION TECHNOLOGIES

SOR/R™ & SOR/T™

Military Electronic Personal Dosimeter (EPD)

The SOR/R (R for Residual) unit measures the occupational and residual gamma dose and dose rate, and provides safety alarms. The SOR/T (T for Tactical) unit also measures the gamma and neutron INR doses from a nuclear detonation.

FEATURES

- Unique thin, small form factor, limiting any burden for the soldier
- The SOR operates in the extreme conditions of the CBRN battlefield environment
- Rugged field reader (XOM)
- Contactless assignment and collection of the residual/occupational dose, through clothes
- Exercise mode for training sessions
- Pre/post-assignment of doses
- Assignment to individuals or teams
- Compliant with NATO D104 / AEP-75 for gamma occupational/residual dosimetry (SOR/R and SOR/T) and combat dosimetry (gamma/neutron INR, SOR/T)
- Compliant with IEC 61526 and ANSI N42.20 for gamma occupational dosimetry
- Transportable by road, rail, and air without restrictions

DESCRIPTION

The SOR device is an electronic dosimeter with alarming and direct screen readout, designed to be seamlessly worn. The SOR dosimeter is part of the dosimetry system for contactless field readers and software, to monitor the dose of personnel, tactical decisions, and health protection for operations other than war, and medical records.

It's specially designed for military forces and their missions:

- Non-combat operations including the occupational dose monitoring for personnel safety, and alarming to prevent excessive exposure (ALARA)
- Combat operations including the INR (Initial Nuclear Radiation) dose monitoring (SOR/T) and residual dose (fallouts) monitoring.

The SOR dosimeter is suitable for all forces: land, Navy, air, and civil defense

The SOR dosimeter has been selected by most of the NATO countries. Country-specific NATO Stock Numbers (NSN) are available.

RADIOLOGICAL CHARACTERISTICS

Residual/Occupational (SOR/R and SOR/T) dosimeters

- $H_p(10)$ gamma dose equivalent
- Accuracy at the calibration energy (Cs-137): +/-10%
- Energy range and accuracy over the energy range: -15% to +40%
- Variation of the relative dose response due to dose and dose rate: from 1 µSv to 10 Sv, and from 0.05 µSv/h to 10 Sv/h: -17% to +25%
- Radiation energy and angle of incidence 60 keV to 6 MeV, 0° to 60°: -29% to +67%
- Also compliant with ANSI N42.20 angular response (different from IEC 61526 requirement)
- Display:
  - Units: mSv, cGy, mrem
  - Display range: 0.001 mSv to 9999.9 mSv
  - Display saturation indication: above 9999.9 mSv/h
- Factory calibration: approved under ISO/IEC 17025, COFRAC accreditation N° 2-1663. www.cofrac.fr
- Alarming: dose and dose rate alarms; dose and dose rate pre-alarms (acknowledgeable)

Initial Nuclear Radiation (SOR/T) dosimeter

- Separate gamma and neutron detectors
- Gamma flash dose up to 10 Gy
- Neutron flash dose up to 10 Gy

FUNCTIONAL CHARACTERISTICS

- LCD display: six digits:
  - Assignment displayed on six characters
  - Dose or dose rate displayed with five digits + unit + indicators
  - User-configurable (assignment, dose, dose rate, backlight, unit)
  - Built-in tests
- Push button: display selection, backlight, acknowledgement of pre-alarms
- Audible alarm, 80 to 90 dBA at 30 cm (can be muted)
- Contactless communications: range of approx. 40 cm, through clothes
- Safe storage of dose history
- SOR/R dosimeter assigned and read contactless (XOM or other LDM dosimeter reader)
- SOR/T dosimeter assigned by insertion and read contactless; insertion only if a flash has been detected.
- Exercise mode (enabled by the XOM reader)

ENVIRONMENTAL CHARACTERISTICS

- Operating temperature range: -20 °C to +50 °C
- Storage temperature range: -40 °C to +71 °C
- Water ingress: 1 meter for 2 hours
- Vibrations, shocks, drop resistant (1.5 m on concrete)
- Electromagnetic environment: MIL-STD 461F
  - RS103: Electric field 10 kHz to 7 GHz, 200 V/m
  - RS101: Magnetic field according to the standard
- Maritime environment (salt fog 96 h)
- Altitude 4500 m
- Nuclear survivability: NEMP, TREE, heat wave, shock wave according to AEP-04.
- Decontamination by CBR agents (dry, wet, DS2)

MECHANICAL AND ELECTRICAL CHARACTERISTICS

- Dimensions: 80.4 x 48 x 9.7 mm (3.2 x 1.9 x 0.4 in.)
- Weight: ≤ 50 g (1.8 oz)
- Battery replacement with no special tool required (coin)
- Battery: CR2450, typical 9.5 months battery life.

SERVICES

- Periodic factory calibration (COFRAC accredited) of customer's fleet of dosimeters
- Comprehensive Integrated Logistic Support (Engineering, Documentation, Training, Spare parts)
- Customized initial configuration

ACCESSORIES AND RELATED PRODUCTS

- Optional accessories: lanyard, clip, arm-band pouch
- Packaged individually or by kit with a transportation case
- Related products:
  - XOM field reader
  - DosiXOM dose analysis and XOM management
  - DosiPROFILE exercise mode scenario composer
  - DosiDEF dosimetry management system for armed forces
  - Calibration tool

XOM Reader in transportation case

XOM Reader

SOR worn round the neck

SOR inside the arm-band pouch

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