CAEN SyS
Systems and Spectroscopy Solutions

metorX

HAND-FOOT-CLOTHES GAMMA MONITOR

VITRUVIUS 8220

MAIN FEATURES

- Four plastic scintillator detectors for high
- sensitivity measurements of gamma
- contamination
- Pre-recorded voice messages
- Detachable probe for clothes monitoring
- MDA: 0.3 Bq/cm^2 for ^{60}Co in 10 s; 0.4 Bq/cm^2 for ^{137}Cs in 10 s
- Stainless steel structure for easy
- decontamination
- Management and visualization software
- Automatic background subtraction with
- background follower
- User defined alarm thesholds
- Audible and visual alarm annunciation
- Colour LCD graphic display 7”
- External keyboard for system set-up
- Ethernet interface

DESCRIPTION

The hand-foot-clothes monitor **VITRUVIUS 8220** is an instrument specifically designed for checking gamma contamination on the body of workers operating in areas where it’s possible to come into contact with radioactive material.
In particular, **VITRUVIUS 8220** monitor performs the measurement of gamma contamination of hands, feet and clothes of the operator.

VITRUVIUS 8220

The contamination is measured by means of plastic scintillator detectors, located at hands/feet positions and coupled to photomultipliers and related amplification electronics for signal conditioning.
The detector at the right hand position can be detached from the structure in order to measure clothes in a close counting geometry.
A possible contamination is indicated both visually and acoustically by the software application that manages the monitor.

A pre-recorded voice guides the operator through all the measurement procedure, giving also warning messages should an anomaly or an alarm occur.
The operator interacts with the monitor through control/ management panels and virtual self-explaining buttons.

TECHNICAL SPECIFICATIONS

Detectors

- Detector type: Plastic Scintillator PVT
- 2 Hand detectors, dimensions: (WxHxD) 25x15x2 cm^3, 375 cm^2 (each)
- 2 Foot detectors, dimensions: (WxHxD) 35x15x2 cm^3, 525 cm^2 (each)
- Clothes detector (right hand): weight = 3 kg, cable length = 220 cm

Processing electronics

- Low ripple HV circuit
- Low electronic noise preamplifier
- Discriminator circuit with adjustable thresholds

Mechanical structure

- Stainless steel

Acquisition and control unit

- CPU unit for data processing and storage
- Windows operating system
- Ethernet interface
- Colour LCD graphic display 7”

Management software

- Automatic background subtraction
- Alarm threshold adjustable for each detector
- Separate parameter set (thresholds, calibration factor, etc.) for each
- detector and user defined isotope
- Measurement display in cps or Bq/cm2
- Visual and audible indication when the alarm threshold is crossed
- Pre-recorded voice messages management

Performance(*)

- Efficiency ISO 7503-1 hands/clothes detectors:
  - 32% for ^{60}Co
  - 18% for ^{137}Cs
- MDA hands/clothes detectors:
  - 0.3 Bq/cm^2 of ^{60}Co
  - 0.4 Bq/cm^2 of ^{137}Cs
- Efficiency ISO 7503-1 feet detectors:
  - 23% for ^{60}Co
  - 7% for ^{137}Cs
- MDA feet detectors:
  - 0.2 Bq/cm^2 of ^{60}Co
  - 0.7 Bq/cm^2 of ^{137}Cs

Power supply, weight and dimensions

- Power supply: 220 V, 50 Hz AC
- Dimensions: (WxHxD) 62x128x80 cm3
- Weight: 60 kg

(*) Source surface 150 cm^2 and 10 seconds measurement time.

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