Medical Radiation Measurements

RaySafe 452 Survey Meter

The RaySafe 452 Survey Meter is used for measuring ionizing radiation (alpha, beta, gamma, and X-ray), and it is compliant with IEC 60846-1.

It has high sensitivity combined with a wide and flat energy response enabling measurements in a broad range of applications.

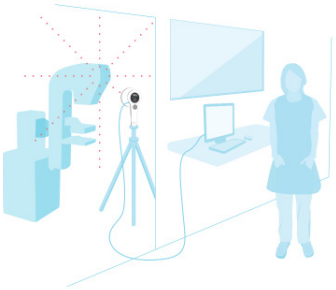
The durable design, and extensive temperature range, in combination with the IP64 classification (dust-proof and water resistant), makes the RaySafe 452 suitable for both indoor and outdoor usage. It can even be wiped with a wet cloth or washed under rinsing water.

The RaySafe 452 does not require any corrections or manual settings, just turn on the instrument and in seconds you are ready to measure.

One device for every situation means less to carry, learn and handle, which equals less expense, more efficiency and time savings.

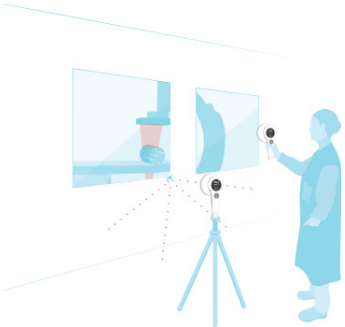
RaySafe 452 measures radiation in a variety of applications

Tube Leakage



Tube leakage is the radiation emitted from the machine outside the primary beam. All X-ray tubes have some radiation leakage. Measurements are made around the tube housing, at positions where personnel typically stand during a surgery. From tube leakage measurements, calculations are made to estimate an operator's body radiation dose, for a single exposure or over an extended period.

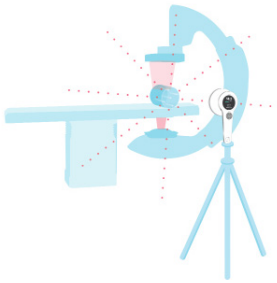
Wall Leakage



Wall leakage measurements are performed at installation of new X-ray machines or after renovations of X-ray rooms to ensure radiation is not leaking through the walls and exceed critical limits outside the room. The upper part of the wall, corners, windows, doors, etc are typically areas of interest. Measurements are made across the wall while the X-ray machine is operating, often with a worst-case setting applied (high kVp and/or mAs). It is critical to know if the location is a controlled or public access area.

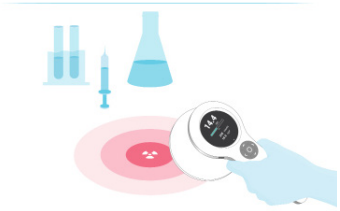
RaySafe 452 measures radiation in a variety of applications (continued)

Scattered Radiation



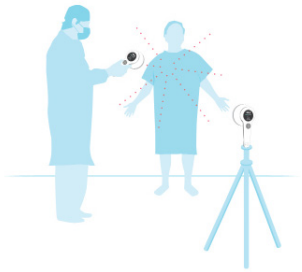
At an examination, a portion of the X-rays that hit the patient and the table are scattered and travel in all directions in the room. Measurement of scattered radiation is important to ensure a safe work environment for personnel who work close to the X-ray machine.
For such measurements, a phantom is placed in the primary X-ray beam to simulate a patient.
Several measurements are made around the X-ray machine at positions where personnel typically stand during a procedure. From the measurements, calculations are made to estimate an operator's body radiation dose, for a single exposure or over an extended period of time.

Radioactive Spill



In nuclear medicine, radioactive substances are used for imaging and treatment of patients. Since radioactive substances are only active for a certain amount of time, drugs must be prepared at the hospital right before the examination. At preparation, it is important to ensure that no radioactive substances have been spilled on surfaces, or on the radiopharmacist preparing the drugs. A survey meter is typically used to scan for spills on surfaces, as well as gloves and hands of the radiopharmacist. Since the spill can be small and hard to detect, the survey meter should be moved slowly and close to the surface.

Control of Radioactive Drugs in Patients



In nuclear medicine, radioactive drugs are used for imaging and treatment. Small amounts of radioactive material is ingested by the patient, typically by inhalation, swallowing, or injection into the bloodstream. Patients undergoing nuclear medicine treatments can be a source of radiation exposure for staff, family and the public. Survey meters are used to monitor the radiation from the radioactive drugs in the body. The measurement results indicate if the patient needs to be quarantined or if it is safe for staff and family to be near the person. Patients may be monitored for several days after a treatment, and data needs to be logged.
For repeatability reasons, it is common to measure radiation at a certain distance from the patient. The survey meter can be hand-held or mounted on a tripod.

RaySafe
We empower our everyday heroes to focus only on protecting lives.

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