LANDAUER®

InLight® Complete Dosimetry System Solution

nanoDot™ Dosimeter

InLight nanoDot dosimeters are for use in single point radiation assessment applications, and are engineered to be read out by the smallest InLight reader available—microStar.® The nanoDot offers complete reanalysis, requires no dosimeter preparation, and the sensitivity is built in the 2D bar code for accurate dose results.

Overview

Authorities agree that reducing radiation errors in diagnostic radiology and radiation oncology is a priority, but question how to go about doing it. LANDAUER's OSL technology, featuring nanoDot dosimeters and microStar® readers, provides a universal, simple and flexible solution to this complex problem. Boost productivity and contain costs with microStar and nanoDot—and accurately measure patient radiation dose.

For 15 years, OSL technology has been trusted to measure occupational radiation dose for millions of healthcare professionals across the globe. OSL is used by over 80% of hospitals in the United States, and is the focus of more than 30 published scientific papers. The same technology is now available for patients.

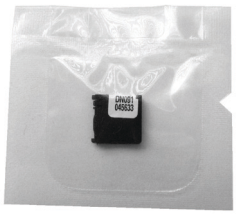
nanoDots are the most effective tool to comply with existing or emerging patient dose monitoring regulations, and provide an inexpensive insurance policy to mitigate litigation risk for your facility.

nanoDot carriers slide in and out of the adapter (2D bar code facing front) for read-out in a microStar reader.

Front of nanoDot carrier with alphanumeric sensitivity code and serial number (DN091=0.91 sensitivity). Either the front or back of the carrier can face toward the radiation source during exposure.

Back of open nanoDot carrier with 2D bar code that includes sensitivity code and serial number.

Each nanoDot is shipped enclosed in a plastic packet that protects against contamination.



The InLight Dosimetry System is an example of LANDAUER Fleximetry, the industry's most flexible dosimetry program. This flexibility allows you to manage your dosimetry program in the way that best suits your unique needs.

InLight® nanoDot™

LANDAUER provides a set of calibration dosimeters for 80 kVp (44 keV average) on a PMMA phantom at normal incidence. By properly calibrating the microStar reader, in just four easy steps, accurate dosimetry measurements can be performed. And because the microStar reader can be calibrated to any specifications you desire, you can create calibration sets that are customized to your unique environment.

CALIBRATION SET	MAMMOGRAPHY (~32 kVp)	COMPUTED TOMOGRAPHY (~120 kVp)	CS-137 (662 keV)
80 kVp*	1.39	1.12	3.04

*The 80 kVp technique is known as RQR6 with a HVL of 2.9 mm of Al

Features and benefits

- Wide energy range (5keV–20+MeV) makes nanoDots an ideal solution in multiple settings, including diagnostic radiology, nuclear medicine, interventional procedures, radiation oncology* or any single point radiation measurement requirement
- Complete reanalysis capabilities
  - Non-destructive readout allows for reanalysis and electronic data archiving, dose verification and intermittent analysis for total dose accumulation
  - No post-measurement correction factors required
- Dosimeter preparation eliminated
  - No annealing
  - No heating parameters to maintain
  - No gas required
  - Engraved 2D bar code contains dosimeter sensitivity and serial number for chain of custody
- No angular or energy dependence
  - Ideal for measuring skin dose, even in challenging clinical conditions
  - Curved surface dose (eye, breast)
  - Can be used for in- and out-of-field measurements, including pacemaker and eye dose, without recalibrating the reader
  - Ideal for surface dose and electron measurements
  - Ideal for RapidArc® or TomoTherapy®, total electron skin treatments, HDR Brachytherapy or other complex treatments
- Dosimeter can be placed anywhere on the body, is wireless, and radiolucent, therefore non-obstructive for patients or technologists

*Separate calibrations are used for diagnostic and therapeutic energies

Technical specifications

Operation:	Linear response up to 300 rad (cGy); software-supported non-linear calibration up to 1500 rad (cGy)
LLD:	10 mrad
Reporting dose:	10 mrad to 1500 rad (cGy)
Energy range:	From 5 keV to 20+ MeV
Minimal reporting:	Gamma, x-ray, beta 50 µSv (5 mrem)
Accuracy:	+/- 5% with standard nanoDot; +/- 2% with screened nanoDot
Minimal dose rate dependence	
No temperature dependence	

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