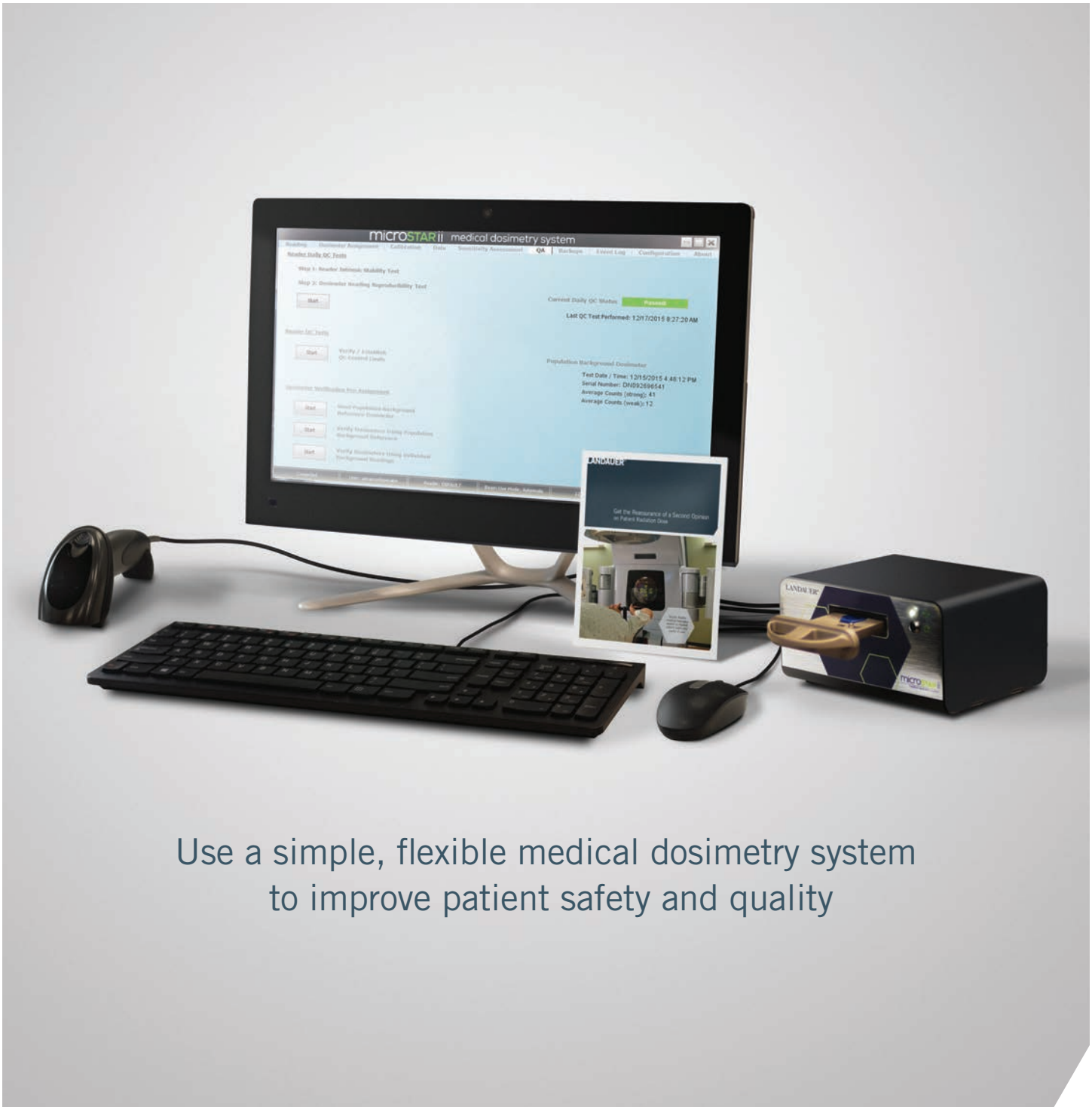
LANDAUER®

Get the Reassurance of a Second Opinion with

microSTAR®ii and nanoDots™



Use a simple, flexible medical dosimetry system
to improve patient safety and quality

Why Measure Patient Dose?

Patient safety in radiation oncology is the focus of public attention and regulatory scrutiny. Greater complexity of treatments and evolving standards are further raising the bar for radiation safety and increasing risk to health care organizations.

There are many reasons to independently verify planned dose during or prior to the first fraction of radiation treatment as part of a patient quality assurance program, including compliance with professional practice guidelines, risk reduction, and improved safety and quality of care.

Patient-specific dose measurements offer you important information for early identification and correction of potential errors or deficiencies in the delivery of prescribed dose. LANDAUER's Optically Stimulated Luminescence (OSL) technology, featuring nanoDot medical dosimeters and the microSTARii medical dosimetry system[1] offer a simple, flexible, wireless alternative to diodes or mosfets for in vivo[2] dosimetry and can also be used with a QA phantom to verify machine output.

LANDAUER's OSL-Based Dosimeters, the most trusted technology for measuring occupational radiation dose, is customized for medical dosimetry applications

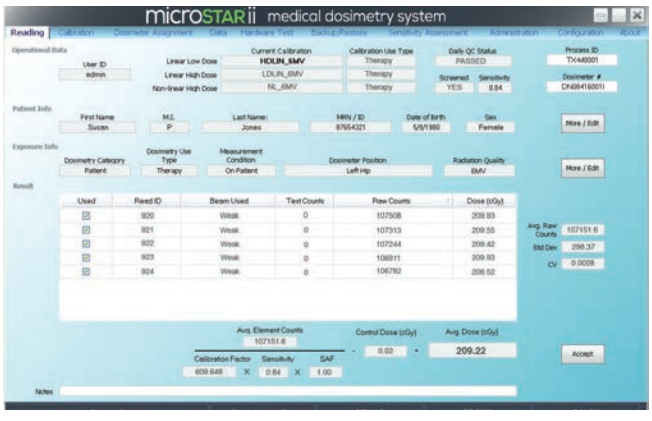
microSTARii Medical Dosimetry System

The microSTARii Medical Dosimetry reader using nanoDots is simple and efficient

- Immediate, independent verification of planned dose using nanoDot dosimeters
- Improved readout precision and durability with state-of-the-art pulsed OSL technology
- Fast, efficient single dosimeter readout near point of use
- Compact, lightweight and portable
- Operates with a PC or laptop running Windows 7 provided by LANDAUER

Software customized to medical dosimetry applications for streamlined analysis, reporting and reimbursement

- Built-in and automated QC functionality for efficient implementation of the LANDAUER microSTAR reader Quality Assurance Program
- Patient-centric workflow, with additional fields for patient and exposure information automated re-reading capability for improved accuracy and efficiency
- Built-in dose reports to streamline reimbursement



[1] microSTAR®ii is registered with FDA as a Class I, 510 (K) exempt (registration number 3008426232) Radiological Quality Assurance Device and should not be used to adjust the radiation dose delivered to a patient.

[2] In vivo refers to superficial dose.

nanoDOT Dosimeters

A simple, flexible solution for measuring patient radiation dose

Since 1998, OSL technology has been trusted to measure occupational radiation dose for millions of health care professionals across the globe. OSL dosimeters are used for occupational dose monitoring in more than 80% of U.S. hospitals and are the focus of more than 30 published peer-reviewed scientific publications.

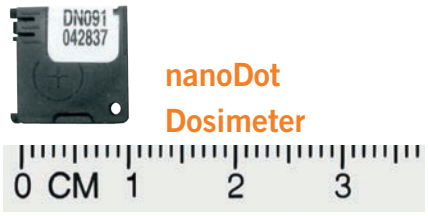
LANDAUER's nanoDot dosimeters, developed using proven OSL technology and the microSTARii medical dosimetry system is the most effective tool for independent secondary verification of the quantity of dose delivered during radiation treatments. It provides an inexpensive insurance policy to mitigate risk for your facility.

Features and benefits of nanoDot Dosimeters

- Wide operating energy range (5 keV to 20 MeV) makes nanoDot medical dosimeters an ideal solution for dose verification in radiation oncology and other point dose measurement applications
  - Linear dose response with dose up to 3 Gy, software-supported non-linear calibration up to 15 Gy
- Reanalysis capabilities (non-destructive readout)
- Dosimeter preparation eliminated with single-use dosimeters
- Dosimeters are bar-coded for complete chain of custody
- Minimal angular or energy dependence in Megavoltage energy range
- Accurate within ± 5.5% for photons and electrons from 5 MeV - 20 MeV*
- Dosimeter can be placed anywhere on the body, is wireless, and radiolucent
- Ideal for measuring dose at a point of interest, even in challenging clinical conditions
- Can be used for in- and out-of-field measurements, including pacemaker dose
- Can be used without buildup to make surface dose measurements or with buildup to make measurement at depth.**

* When reader is calibrated per recommended protocols and microSTAR QA program is implemented

** The reader calibration must be consistent with the clinical use mode in terms of build-up characteristics



nanoDot Dosimeter

The nanoDot Medical Dosimeter is a compact, robust medical dosimeter ideal for a variety of dosimetry applications, such as secondary dose verification in radiation oncology and other point dose measurements

Radiation Safety is a Team Effort

Your Clinical Team

- Provide quality patient care and outcomes
- Execute Quality Assurance program that reinforces patient safety initiatives
- Build trust in your community

microSTARii Medical Dosimetry System

- Establish a continuous patient and instrumentation quality assurance program for radiological procedures
- Independently verify planned dose
- Simple, flexible, wireless solution for patient-specific dose measurements
- Tested and adopted by leading credentialing authorities for radiation dose measurement

LANDAUER Implementation and QA Program Support

- In-house experts available for consultation to assist medical physicists implementing a new OSL-based medical dosimetry system
- For facilities without in-house medical physics expertise, LANDAUER's team of Qualified Medical Physicists can provide guidance on implementation of a medical dosimetry QA program that fits the unique requirements of your facility

Radiation Oncology

Join leading radiation oncology authorities by choosing LANDAUER's state-of-the-art OSL technology for dose verification

Radiological Physics Center

For more than 30 years, the Radiological Physics Center in partnership with the National Cancer Institute has used a thermoluminescent dosimeter (TLD) for remote audits of photon and electron beam output, and energy verifications for electron beams, monitoring more than 1,700 radiation therapy facilities worldwide and measuring more than 13,000 beams annually. In 2010, after conducting a multi-year clinical evaluation of the technology, the RPC converted to use of OSL dosimeters in more than 90% of its remote audit program.

"If I could only buy one dose verification system, I would buy OSLD, because OSLD can do every measurement that TLD and diodes can do, plus measurements they cannot accurately capture."
— Paul A. Jursinic

Paul A. Jursinic, Ph.D., noted physicist in quality assurance work, investigated a wide range of technologies for efficiency and precision. He compared measured dose with calculated dose output and concluded that OSLDs are a superior substitute for TLDs and diodes for in vivo dosimetric measurements, particularly for surface dose measurements.[3, 4]

Dose Verification System Compared

TLD

- Labor Intensive
- Time Consuming

Diodes & Mosfets

- Procedure-specific (multiple diodes needed for multiple energies)
- Wires may be obtrusive during use
- Not durable

OSLD

- Energy independent in therapy range
- Ideal for point dose measurements
- Proven superior accuracy and precision
- Simple, flexible and wirefree

nanoDot OSLD

Individually bar-coded nanoDot dosimeters enable complete chain of custody

[3] Jursinic, P.A., (2007) Characterization of optically stimulated luminescent dosimeters, OSLDs, for clinical dosimetric measurements. Medical Physics, 34(12):4594-604

[4] Jursinic, P.A., (2015) Angular dependence of dose sensitivity of nanoDot optically stimulated luminescent dosimeters in different radiation geometries. Medical Physics, 42(10):5633-41

Learn More

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LANDAUER: Setting the Pace of Radiation Safety™