

NEW

IPLUS®

OSL-based system dosimeter

IPLUS dosimeter provides X- and gamma rays, and beta radiation monitoring with Optically Stimulated Luminescence (OSL) technology.

IPLUS can be used for occupational, area/environmental, and emergency response monitoring, in any kind of facilities. More than 1.8 million people in the world are monitored with OSL LANDAUER dosimeters.

IPLUS, THE STATE-OF-THE-ART

- Excellent energy range: from 16 keV to 6 MeV
- Linear deviation < 5 % from 0.05 mSv to 10 Sv
- Angular response $\pm 60^\circ$ from 16 keV
- Full reanalysis capabilities
- No calibration required, sensitivity engraved on detectors

IPLUS allows you to get easily and quickly the ISO/CEI 17025 accreditation.

IPLUS dosimeters are provided in combination with readers, annealers, softwares and so on, for a total turnkey dosimetry solution.



IPLUS dosimeter



IPLUS[®], the new reference in dosimetry

More practical, more efficient, more reliable

DISCOVER NEW PERFORMANCES FOR OCCUPATIONAL MONITORING

A complete dosimetry system

IPLUS dosimeters work with a complete dosimetry system for onsite dosimetry. LANDAUER OSL solution offers badges, readers, annealers, softwares and so on. Scalable, it can be configured to complement your current in-house dosimetry program. With IPLUS, you will get easily and quickly the ISO/CEI 17025 accreditation!

Full reanalysis of the dosimeter

The optical stimulation keeps more than 99 % of the information in the detector making possible multiple readings and the archiving of the dosimeter for later investigation.

No calibration required

The sensitivity of IPLUS is determined during their manufacturing process by an ISO/CEI 17025 accredited laboratory. The sensitivity value engraved on the detector support is automatically considered during the reading process.

Stable sensitivity over time

Another advantage of the OSL dosimeters is that their sensitivity is defined forever.

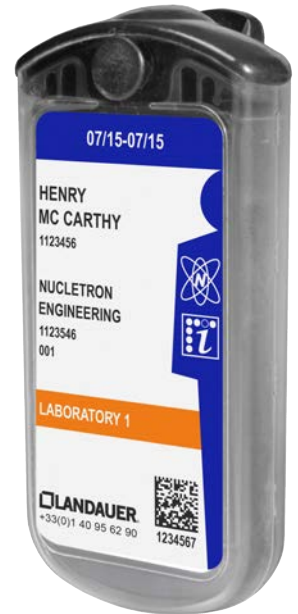
The stability of the material under any environment condition makes unchanged this sensitivity during all dosimeter's life.

No fading

IPLUS dosimeters make extended wear period possible without corrections for fade.

Robust, compact and lightweight dosimeter

Fully personalised and customisable



LDR200
Automatic Reader



50A
Annealer

To settle your own program, take the advantage of the experienced and worldwide dosimetry leader in passive dosimetry monitoring.

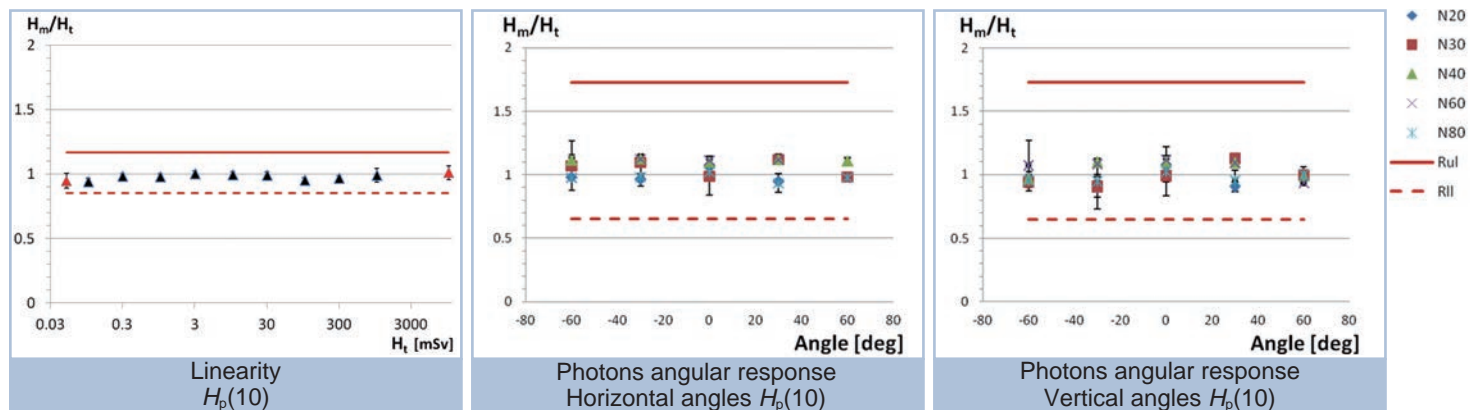
IPLUS, SIMPLY MORE EFFICIENT

A new detection system

Developed by our R&D team in France, the dosimeter IPLUS is based on a new detector and a new generation of dose equivalent estimation algorithm. With IPLUS, you get a more accurate estimation of the dose equivalent at very low doses.

Higher performances

IPLUS complies with all of the IEC 62387-1: 2012 standard. Its characterisation by an independent laboratory (LNHB) shows metrological performances higher than the standard requirements: linear deviation < 5 % from 0.05 mSv to 10 Sv, energy dependency < 11 % from 16 keV to 18 MeV, angular dependency < 13 % for the photons and < 14 % for the beta. Then IPLUS has an excellent angular response to $\pm 60^\circ$ for the photons.



Rul et Rll : acceptable limits defined in the IEC 62387-1: 2012 standard. H_m : measured value. H_t : conventional value (true value)

TECHNICAL PERFORMANCE

Type of measured radiation	Result of the IPLUS dosimeter	
	Photons	Beta
Personal dose equivalent	$H_p(10)$ and $H_p(0.07)$	$H_p(0.07)$
Dose range	0.05 mSv to 10 Sv	
Linearity of the response	0.05 mSv to 10 Sv - Standard deviation < to 5 %	
Measurement reproducibility	< 5 %	
Energy response (mean energy)	$H_p(10)$: 16 keV to 6 MeV ($E_{max} = 18$ MeV)	$H_p(0.07)$: 250 keV to 1 MeV ($E_{max} = 2.2$ MeV)
Energy dependency	Weak, < 11 % from 16 keV to 6 MeV	
Angular response (horizontal and vertical angles)	$\pm 60^\circ$ from 16 keV	$\pm 45^\circ$ from 250 keV
Angular dependency	Excellent - Average deviation < 6 %*	
Fading	< 1.5 % / month	
Neutrons detection	Insensitive to neutrons	

* Average gap beside the true response

ENVIRONMENTAL RESISTANCE CHARACTERISTICS

Operating and storage temperature	-10 °C to 40 °C
Humidity	0 % to 90 % Our laboratory reads regulary dosimeters after a shift in the washing machine
Light exposure	Tested up to 1,000 W/m ² - Compliant with the standard requirements.

GENERAL CHARACTERISTICS

Manufacturer	LANDAUER
Types of measured radiation	Photons (X- and gamma rays) and beta
Detector	GA, new detector
Materials	Aluminum oxide. doped with carbone, Al ₂ O ₃ :C
Filters	Open window, aluminum, titanium, tin
Dimensions without clip	35 mm x 74 mm x 10 mm
Weight	17 g



GA detector

Detector different filters

- Open window
- Aluminum
- Titanium
- Tin



MEASUREMENT METHOD

The read out process uses a LED (light emitting diode) to stimulate the detectors. The light emitted by the OSL material is detected and measured by a photomultiplier tube (PMT) using a high sensitivity photon counting system. The amount of light released during optical stimulation is directly proportional to the radiation dose and the intensity of the stimulation light. A dose equivalent estimation algorithm is then applied to the measurement.

COMPLIANCE WITH STANDARDS

IEC 62387-1:2012 - Passive integrating dosimetry systems for personal and environmental monitoring of photons and beta radiation - Radiation protection instrumentation.

QUALIFICATIONS OF OUR LABORATORY

- Involvement in national and international inter-comparisons.
- Characterisation of dosimeters carried out by an independent referenced laboratory : The French National Laboratory Henri Becquerel (LNHB) - CEA
- LANDAUER OSL systems are already used in Europe by nearly ten ISO/CEI 17025 accredited laboratories (France, Sweden, Belgium, Slovenia, Portugal, and so on) for occupational dosimetry monitoring.

