



IPLUS®

Take a step forward

IPLUS dosimeter provides X, 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 2 millions people worldwide are monitored with OSL LANDAUER dosimeters.

IPLUS, THE STATE-OF-THE-ART

- Energy range: from 15 keV to 6 MeV for $H_p(10)$
- Linear deviation < 5 % from 0.05 mSv to 10 Sv
- Angular response $\pm 60^\circ$ from 15 keV for photons
- Robust, compact and lightweight
- Ready to use

Select an accredited service!

The IPLUS is part of our COFRAC accreditation scope.

Accreditation in accordance with the recognised international standard NF EN ISO/IEC 17025 demonstrates the technical competence of the laboratory for a defined scope and the proper operation in this laboratory of an appropriate management system.



ACCREDITATION
N°1-1545
SCOPE
AVAILABLE ON
WWW.COFRAC.FR



IPLUS
dosimeter



IPLUS[®], the new reference in passive dos

More efficient, more practical, more customisable

> A DOSIMETER THAT MAKES EVERYDAY MOVEMENTS EASY

Ready to use

The IPLUS dosimeter is ready to use. It requires no assembly upon receipt and no disassembly for return. Saving time everyday!

The IPLUS dosimeter is an all-in-one dosimeter. It includes an Imaging detector and can incorporate a Neutrak[®] neutron detector. IPLUS therefore takes up less space and is more comfortable to wear!

Robust, compact and lightweight

No need for an extra case: the IPLUS is robust, compact and light weight.

It adapts easily to your clothing, thanks to its ergonomic clip and small size. You can decide which way round to wear it (only possible for exposure to X- and gamma rays). It is equipped with a multi-directional clip.

Its sealed, single-use case means you can disinfect and decontaminate it easily.

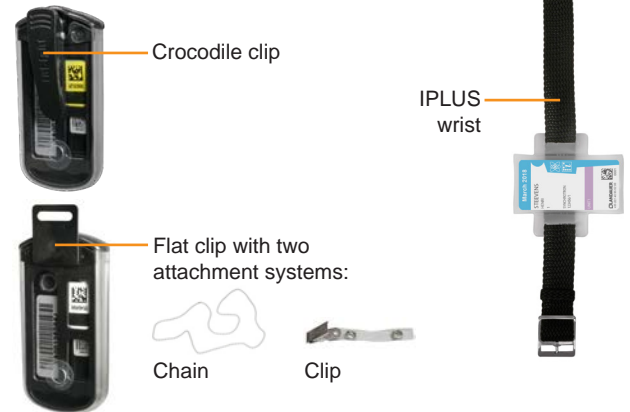
Fully personalised and customisable

You may not be able to see any difference, but the dosimeter casing has been entirely redesigned:

- Colour codes to differentiate months of use and your departments, and now to differentiate worker, atmospheric and control dosimeters too
- Regular or offset three-monthly periods of wear
- Pictograms to identify the dosimeters with neutron monitoring and Imaging detectors

LANDAUER proposes different types of clips depending on where you want to wear the device (chest, wrist, etc.) and your own preferences.

Attachment systems



A brand new label



Wearer, atmosphere and control dosimeters differentiated at a glance



Pictos indicating the presence of an Imaging or Neutrak[®] detector

imaging, proof in pictures

The IPLUS has an additional OSL detector, called Imaging. This detector is placed inside the IPLUS case. It enables the production of 3D graphs.

Imaging shows whether the relative position of the IPLUS has been fixed or mobile in relation to the source. It provides additional proof of whether or not the dosimeter was worn by a wearer during exposure. Imaging is analysed systematically for dosimeters whose dose equivalent $H_p(10)$ exceeds 5 mSv.



LANDAUER, a service accredited by independent organisations for its expertise.

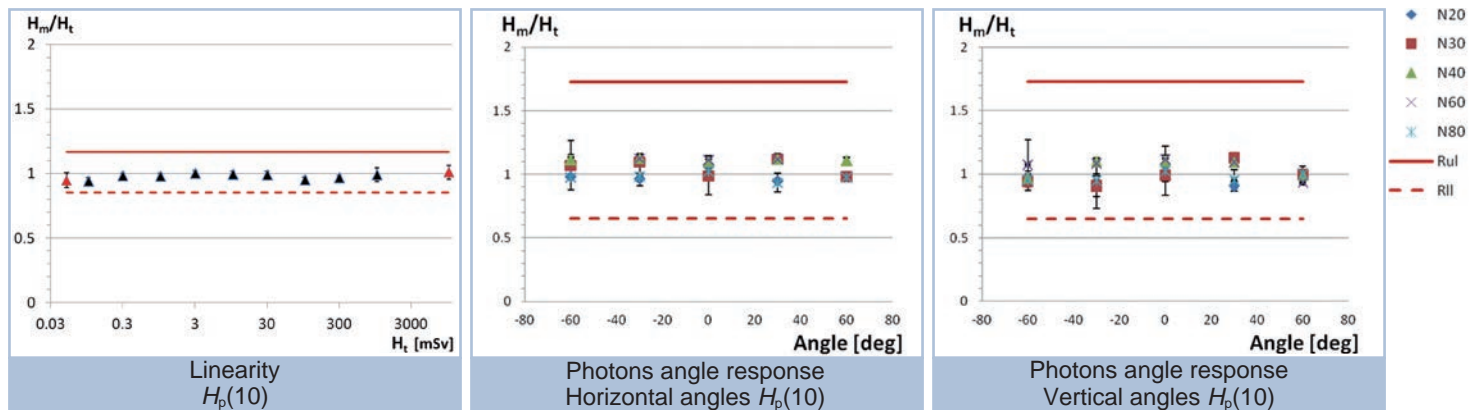
IPLUS, SIMPLY MORE EFFICIENT

A new detection system

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

Higher performances

IPLUS complies with all of the EN 62387:2016 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 15 keV to 6 MeV. Then IPLUS has an excellent angular response up to $\pm 60^\circ$ for the photons.



Rul et Rll : acceptable limits defined in the EN 62387:2016 standard. H_m : measured value. H_t : conventional value (true value)

TECHNICAL PERFORMANCE

	Result of the IPLUS dosimeter		
	Whole body and wrist		Area
Type of measured radiation	Photons	Beta	Photons
Personal dose equivalent	$H_p(10)$ and $H_p(0.07)$	$H_p(0.07)$	$H^*(10)$
Dose range	0.05 mSv to 10 Sv		
Linearity response	0.05 mSv to 10 Sv - Standard deviation < 5 %		
Measurement reproducibility	< 5 %		
Energy response (mean energy)	$H_p(10)$: 15 keV to 6 MeV $H_p(0,07)$: 15 keV to 1.33 MeV	0.24 to 0.8 MeV (E_{mean})	24 keV to 1.33 MeV
Energy dependency	better than 11 %		
Angular response (horizontal and vertical angles)	$H_p(10)$: $\pm 60^\circ$ from 15 keV to 6 MeV $H_p(0,07)$: $\pm 60^\circ$ from 15 keV to 1.33 MeV	$\pm 45^\circ$ from 0.24 to 0.8 MeV (E_{mean})	$\pm 60^\circ$ from 24 keV to 1.33 MeV
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 %
Light exposure	Tested up to 1,000 W/m ²

GENERAL CHARACTERISTICS

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



GN detector

Detector different filters

- Open window
- Aluminium
- 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 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. A dose equivalent estimation algorithm is then applied to the measurement.

COMPLIANCE WITH STANDARDS

EN 62387:2016 - Passive integrating dosimetry systems for personal and environmental monitoring of photons and beta radiation - Radiation protection instrumentation.

QUALIFICATIONS OF OUR LABORATORY

- Participation in national and international inter-comparisons
- Characterisation of dosimeters carried out by an independent referenced laboratory : The French National Laboratory Henri Becquerel (LNHB) - CEA.
- Quality management system under NF ISO 17025