

Radiation Dosimetry Report - Legend

Included as the last page of the Radiation Dosimetry Report, current as of 2014. This page differs for Spanish, UK and Canadian versions.

Annual Radiation Exposure Limits (mrem) :

Whole body, blood forming organs, gonads	5,000
Lens of Eye	15,000
Extremities and Skin	50,000
Fetal (Gestation period)	500
General Public	100

Based on the US NRC Regulations, Title 10, Part 20, Code of Federal Regulations and adopted by many states. Certain state and other regulatory agencies may adhere to different limits.

Control Dosimeter: A control dosimeter is included with each shipment of dosimeters for monitoring radiation exposure received during transit. At the customer's facility, store the control in a radiation free area during the wear period.

Minimal Dose Equivalent Reported: Dose equivalents below the minimum measurable quantity for the current monitoring period are recorded as "M." The minimal reporting levels vary by the dosimeter type and radiation quality. "SL" is an elective option for the minimal dose equivalent reported where exposures less than 10 mrem report as "SL" (excludes fetal dosimeters), and/or exposures at or more than 10 mrem begin reporting at 10 mrem and report in increments of 10 mrem.

Dosimeter Type	M (DDE,LDE,SDE)	M (SDE Only)	SL (DDE,LDE,SDE)
Luxel+ [®]	1	-	10
InLight [®]	5	-	10
Whole Body Beta	-	10	10
Ring	-	30	-
Neutrak [®] Neutron Fast	20	-	-
Neutrak [®] Neutron Thermal/Fast	10	-	-

Special Calculations: Special dose calculations can be applied to radiation workers who wear lead aprons.

EDE 1 - two dosimeters: one worn at the waist level under lead apron and one worn at the collar level outside lead apron. $1.5 \text{ (Waist DDE)} + 0.04 \text{ (Collar DDE)} = \text{Assigned Deep Dose Equivalent}$.

EDE 2 - one dosimeter: one worn at the collar level outside lead apron. $0.3 \text{ (Collar DDE)} = \text{Assigned Deep Dose Equivalent}$.

EDE 122 - one dosimeter: one worn at the collar level outside lead apron. $\text{Collar DDE} / 5.6 = \text{Assigned Deep Dose Equivalent}$.

Calc3 - Lens of Eye dosimeter. $0.5 \text{ (Lens of Eye LDE)} = \text{Assigned Lens of Eye Dose Equivalent}$.

Lens:175 - Lens of Eye dosimeter. $0.175 \text{ (Lens of Eye LDE)} = \text{Assigned Lens of Eye Dose Equivalent}$.

EDE1-NTC EDE1 without Thyroid Collar assigned deep dose equivalent = $0.06 \times (\text{collar dose} - \text{waist dose}) + \text{waist dose}$

EDE1-TC EDE1 with Thyroid Collar assigned deep dose equivalent = $0.02 \times (\text{collar dose} - \text{waist dose}) + \text{waist dose}$

The "ASSIGNED" line follows all of the original whole body dosimeter doses with the EDE 1 or EDE 2 calculation results or Landauer's standard Dose Assessment Protocol (deep and shallow whole body dose from the highest reading whole body dosimeter, lens dose from dosimeter closest to the eye).

Ring Dosimeter Reading: Ring dosimeter readings report as a shallow dose.

Fetal Dosimeter: A declared pregnant worker will possess a fetal exposure on an extra page of the report based upon the whole body dosimeter worn closest to the fetus. The fetal dose is reported for the current wear period, plus the estimated dose from conception to declaration (if provided by customer), and the total dose from declaration to present.

Use	Description	Use	Description
AREA	Area Monitor	OEXTRM	Other Extremity
CHEST	Chest	OWHBDY	Other Whole Body
CNTRL	Control	RANKLE	Right Ankle
COLLAR	Collar	RFINGR	Right Hand Ring
EYE	Eye	RUARM	Right Upper Arm
FETAL	Fetal	RULEG	Right Upper Leg
LANKLE	Left Ankle	RWRIST	Right Wrist
LFINGR	Left Hand Ring	SPECL	Special Purpose
LUARM	Left Upper Arm	UPBACK	Upper Back
LULEG	Left Upper Leg	WAIST	Waist
LWBACK	Lower Back	WHBODY	Whole Body
LWRIST	Left Wrist		

Code	Radiation Quality Description (Type and/or Energy)
B	beta
BH	beta high energy, e.g. Strontium, Phosphorus
BL	beta low energy e.g. Thallium, Krypton
BS	Strontium beta
BT	Thallium beta
BU	Uranium beta
BN	beta, neutron mixture
NF	neutron fast
NT	neutron thermal
P	photon (x or gamma ray)
PB	photon, beta mixture
PBN	photon, beta, neutron mixture
PH	photon high energy greater than 200 keV
PL	photon low energy less than 40 keV
PM	photon medium energy 40 keV to 200 keV
PN	photon, neutron mixture

First Line Explanation

Participant Number: Unique number assigned by Landauer.

Name: Participant to whom the dosimeter is assigned.

Dosimeter: Badge type according to radiation monitoring needs.

Dosimeter	Code	Type of Radiation Monitored				
		Photons			Neutrons	
		X	Gamma	Beta	Fast	Fast/Thermal
InLight Basic	B1P	Yes	Yes	Yes		
InLight Basic	B4P	Yes	Yes	Yes		
InLight Basic	B2C	Yes	Yes	Yes		
InLight Basic	B4C	Yes	Yes	Yes		
InLight LDR	L2P	Yes	Yes	Yes		
InLight LDR	L2J	Yes	Yes	Yes		
InLight LDR	L2T	Yes	Yes	Yes		Yes
InLight LDR	L2D	Yes	Yes	Yes	Yes	Yes
InLight LDR	L4P	Yes	Yes	Yes		
Luxel+	Pa	Yes	Yes	Yes		
Luxel+	Ja	Yes	Yes	Yes	Yes	
Luxel+	Ta	Yes	Yes	Yes		Yes
Luxel+ Escort	Pa	Yes	Yes			
Neutrak	N				Yes	
Neutrak	E					Yes
Ring, Single TLD	U	Yes	Yes	Yes		

Deep, Eye and Shallow Dose Equivalents: Deep dose equivalent (DDE) applies to external whole body exposure at a tissue depth of 1 cm (1000 mg/cm²). Eye dose equivalent (LDE) applies to external exposure of the lens at a tissue depth of 0.3 cm (300 mg/cm²).

Shallow dose equivalent (SDE) applies to the external exposure of the skin or extremity at a tissue depth of 0.007 cm (7 mg/cm²) averaged over an area 1 cm².

Deep, eye and shallow dose equivalents report for the time frame indicated by "For Monitoring Period." These doses represent the dose received only for the account/subaccount specified. Individual radiation component results and combined totals report in separate lines.

Quarterly accumulated results reflect total dose received within a calendar 3-months time frame and the customer defined start day. (Note: Quarterly accumulated columns are eliminated for bimonthly service or display "Not applicable.") Year to date accumulation totals dose received from the beginning of the current year to report date. Lifetime accumulation totals all dose received from inception date of dosimeter service to report date, and could include earlier dose history if supplied by customer. Reported quarterly, annual and lifetime dose accumulations represent the doses totaling from all account/subaccount dosimeters to be reported at the customer level.

Inception Date: The date Landauer began keeping dosimeter records for a given dosimeter for a badging participant on the current customer.

Serial Number: Dosimeter serial number.

Second Line Explanation

Participant's personal information consisting of ID number and birth date. This information can be suppressed on "Duplicate and Original Reports" for privacy and/or posting needs.

Notes: Text messages explaining any abnormalities or comments. The notes with message appears on a separate line below all dosimeter exposure information.

U.S. Patents

6,316,702; 6,127,685; 5,892,234