

Ionizing Radiation, Japan, NMIJ (National Metrology Institute of Japan)

Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty					Reference Standard used in calibration			
Quantity	Instrument or Artifact	Instrument Type or Method	Minimum value	Maximum value	Units	Parameter	Specifications	Value	Units	Coverage factor	Level of Confidence	Is the expanded uncertainty a relative one?	Reference standard	Source of traceability	Comments	NMI Internal Service Identifier

NEUTRON MEASUREMENTS

Fluence rate	Neutron sensitive device	Irradiation in a calibrated field	5.0E+01	1.0E+04	cm ⁻² s ⁻¹	Thermal neutron distribution	Cf-252 or Am-241/Be-9 source located at center of graphite pile with average neutron temperature between 310 K and 330 K, inside or outside of the graphite pile (1.9 x 1.9 x 2.3 m), ISO 8529-1	2.8	%	2	not specified	Yes	Au foil activation	AIST	Approved on 03 October 2006	APM-RAD-AIST-3001
Fluence	Neutron sensitive device	Calibration relative to a calibrated long counter	1.0E+03	1.0E+07	cm ⁻²	Mono-energetic reaction (at 0.7 m to 2 m from the source)	144 keV Li-7 (p,n) Be-7, ISO 8529-1	4.4	%	2	not specified	Yes	Recoil proton proportional counter	AIST	Approved on 03 October 2006	APM-RAD-AIST-3002
Fluence	Neutron sensitive device	Calibration relative to a calibrated long counter	1.0E+03	1.0E+07	cm ⁻²	Mono-energetic reaction (at 0.7 m to 2 m from the source)	565 keV Li-7 (p,n) Be-7, ISO 8529-1	4.4	%	2	not specified	Yes	Recoil proton proportional counter	AIST	Approved on 03 October 2006	APM-RAD-AIST-3003
Fluence	Neutron sensitive device	Calibration relative to a calibrated long counter	1.0E+03	1.0E+07	cm ⁻²	Mono-energetic reaction (at 0.7 m to 2 m from the source)	5.0 MeV D (d,n) He-3 reaction, ISO 8529-1	6.2	%	2	not specified	Yes	Recoil proton detector	AIST	Approved on 03 October 2006	APM-RAD-AIST-3004
Fluence	Neutron sensitive device	Calibration relative to a primary standard instrument (associated particle detector)	1.0E+03	1.0E+07	cm ⁻²	Mono-energetic reaction (at 0.7 m to 1.5 m from the source)	14.8 MeV T (d,n) He-4 reaction, ISO 8529-1	3.2	%	2	not specified	Yes	Associated alpha particle counting	AIST	Approved on 03 October 2006	APM-RAD-AIST-3005

Ionizing Radiation, Japan, NMIJ (National Metrology Institute of Japan)

Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty					Reference Standard used in calibration		Comments	NMI Internal Service Identifier
Quantity	Instrument or Artifact	Instrument Type or Method	Minimum value	Maximum value	Units	Parameter	Specifications	Value	Units	Coverage factor	Level of Confidence	Is the expanded uncertainty a relative one?	Reference standard	Source of traceability		
Fluence	Neutron sensitive device	Irradiation with a calibrated neutron source	1.0E+03	1.0E+07	cm ⁻²	Neutron spectrum (at 0.7 m to 2 m from the source)	bare Cf-252, ISO 8529-1	3.6	%	2	not specified	Yes	Calibrated Am-Be source	NPL	Approved on 03 October 2006	APM-RAD-AIST-3006
Fluence	Neutron sensitive device	Irradiation with a calibrated neutron source	1.0E+03	1.0E+07	cm ⁻²	Neutron spectrum (at 0.7 m to 2 m from the source)	bare Am-241/Be-9, ISO 8529-1	2.8	%	2	not specified	Yes	Calibrated Am-Be source	NPL	Approved on 03 October 2006	APM-RAD-AIST-3007
Emission rate	Neutron source	Measurement of thermal neutron fluence rate in a standard graphite pile relative to a calibrated neutron source	1.0E+03	1.0E+07	s ⁻¹	Cf-252	sealed neutron source	3.2	%	2	not specified	Yes	Calibrated Am-Be source	NPL	Approved on 03 October 2006	APM-RAD-AIST-3008
Emission rate	Neutron source	Measurement of thermal neutron fluence rate in a standard graphite pile relative to a calibrated neutron source	1.0E+03	1.0E+07	s ⁻¹	Am-241/Be-9	sealed neutron source	3.0	%	2	not specified	Yes	Calibrated Am-Be source	NPL	Approved on 03 October 2006	APM-RAD-AIST-3009