

Ionizing Radiation, Norway, NRPA (National Radiation Protection Authority)

Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty					Reference Standard used in calibration		NMI Internal Service Identifier	Comments
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		

DOSIMETRY

Air kerma rate	Radiotherapy dosimeters	Calibration free in air	2.00E-03	1.0E-02	Gy s ⁻¹	Co-60	IAEA 277	0.9	%	2	not specified	Yes	Two secondary standard ionization chambers	BIPM	EUR-RAD-NRPA-1001	Approved on 13 February 2007
Absorbed dose rate to water	Radiotherapy dosimeters	Calibration in water phantom	2.00E-03	1.0E-02	Gy s ⁻¹	Co-60	IAEA 398	1.0	%	2	not specified	Yes	Two secondary standard ionization chambers	BIPM	EUR-RAD-NRPA-1002	Approved on 13 February 2007
Air kerma	Radiotherapy dosimeters	Calibration free in air	4.00E-01	5.00E+01	Gy	Co-60	IAEA 277	0.9	%	2	not specified	Yes	Two secondary standard ionization chambers	BIPM	EUR-RAD-NRPA-1003	Approved on 13 February 2007
Absorbed dose to water	Radiotherapy dosimeters	Calibration in water phantom	4.00E-01	5.00E+01	Gy	Co-60	IAEA 398	1.0	%	2	not specified	Yes	Two secondary standard ionization chambers	BIPM	EUR-RAD-NRPA-1004	Approved on 13 February 2007
Air kerma rate	Radiotherapy, radiodiagnostic dosimeters	Calibration free in air	1.00E-04	1.50E-02	Gy s ⁻¹	X-ray, 10 kV to 50 kV	10 kV to 50 kV, Rapport BIPM 01/04	1	%	2	not specified	Yes	Secondary standard ionization chamber	BIPM	EUR-RAD-NRPA-1005	Approved on 13 February 2007
Air kerma rate	Radiotherapy, radiodiagnostic dosimeters	Calibration free in air	1.00E-04	3.00E-02	Gy s ⁻¹	X-ray, 50 kV to 420 kV	100 kV, 135 kV, Rapport BIPM 01/04	1	%	2	not specified	Yes	Secondary standard ionization chamber	BIPM	EUR-RAD-NRPA-1006	Approved on 13 February 2007
Air kerma rate	Radiotherapy, radiodiagnostic dosimeters	Calibration free in air	1.00E-05	3.00E-03	Gy s ⁻¹	X-ray, 50 kV to 420 kV	180 kV, 250 kV, Rapport BIPM 01/04	1	%	2	not specified	Yes	Secondary standard ionization chamber	BIPM	EUR-RAD-NRPA-1007	Approved on 13 February 2007
Air kerma rate	Radiodiagnostic dosimeters and dosimeters	Calibration free in air	1.00E-03	3.00E-01	Gy h ⁻¹	X-ray, 10 kV to 50 kV	10 kV to 40 kV ISO 4037-1 narrow beam	1.6	%	2	not specified	Yes	Secondary standard ionization chamber	VSL	EUR-RAD-NRPA-1008	Approved on 13 February 2007

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Air kerma rate	Radiodiagnostic dosimeters and dosimeters	Calibration free in air	3.00E-04	1.00E-01	Gy h ⁻¹	X-ray, 50 kV to 420 kV	60 kV to 300 kV ISO 4037-1 narrow beam	1.7	%	2	not specified	Yes	Secondary standard ionization chamber	VSL	EUR-RAD-NRPA-1009	Approved on 13 February 2007
Air kerma rate	Radioprotection dosimeters	Calibration free in air	1.80E-01	2.00E+00	Gy h ⁻¹	Co-60	ISO 4037-1	1.1	%	2	not specified	Yes	Secondary standard ionization chamber	BIPM	EUR-RAD-NRPA-1010	Approved on 13 February 2007
Air kerma rate	Radioprotection dosimeters	Calibration free in air	3.00E-04	1.50E-02	Gy h ⁻¹	Cs-137	ISO 4037-1	2	%	2	not specified	Yes	Secondary standard ionization chamber	BIPM	EUR-RAD-NRPA-1011	Approved on 13 February 2007
Ambient dose equivalent rate	Radioprotection dosimeters	Calibration free in air	1.80E-01	2.00E+00	Sv h ⁻¹	Co-60	ISO 4037-1	5	%	2	not specified	Yes	Secondary standard ionization chamber	BIPM	EUR-RAD-NRPA-1012	Approved on 13 February 2007
Ambient dose equivalent rate	Radioprotection dosimeters	Calibration free in air	3.00E-04	1.50E-02	Sv h ⁻¹	Cs-137	ISO 4037-1	5	%	2	not specified	Yes	Secondary standard ionization chamber	BIPM	EUR-RAD-NRPA-1013	Approved on 13 February 2007
Ambient dose equivalent rate	Radioprotection dosimeters	Calibration free in air	3.00E-04	1.00E-01	Sv h ⁻¹	X-ray, 50 kV to 420 kV	60 kV to 300 kV ISO 4037-1 narrow beam	5	%	2	not specified	Yes	Secondary standard ionization chamber	VSL	EUR-RAD-NRPA-1014	Approved on 13 February 2007
Directional dose equivalent rate	Radioprotection dosimeters	Calibration free in air	1.80E-01	2.00E+00	Sv h ⁻¹	Co-60	ISO 4037-1	5	%	2	not specified	Yes	Secondary standard ionization chamber	BIPM	EUR-RAD-NRPA-1015	Approved on 13 February 2007
Directional dose equivalent rate	Radioprotection dosimeters	Calibration free in air	3.00E-04	1.50E-02	Sv h ⁻¹	Cs-137	ISO 4037-1	5	%	2	not specified	Yes	Secondary standard ionization chamber	BIPM	EUR-RAD-NRPA-1016	Approved on 13 February 2007
Directional dose equivalent rate	Radioprotection dosimeters	Calibration free in air	3.00E-04	1.00E-01	Sv h ⁻¹	X-ray, 50 kV to 420 kV	60 kV to 300 kV ISO 4037-1 narrow beam	5	%	2	not specified	Yes	Secondary standard ionization chamber	VSL	EUR-RAD-NRPA-1017	Approved on 13 February 2007

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Personal dose equivalent rate, penetrating	Dosimeters	Irradiation or calibration on a ISO water slab or ISO rod	1.80E-01	2.00E+00	Sv h ⁻¹	Co-60	ISO 4037-1	5	%	2	not specified	Yes	Secondary standard ionization chamber	BIPM	EUR-RAD-NRPA-1018	Approved on 13 February 2007
Personal dose equivalent rate, penetrating	Dosimeters	Irradiation or calibration on a ISO water slab or ISO rod	3.00E-04	1.50E-02	Sv h ⁻¹	Cs-137	ISO 4037-1	5	%	2	not specified	Yes	Secondary standard ionization chamber	BIPM	EUR-RAD-NRPA-1019	Approved on 13 February 2007
Personal dose equivalent rate, penetrating	Dosimeters	Irradiation or calibration on a ISO water slab or ISO rod	3.00E-04	1.00E-01	Sv h ⁻¹	X-ray, 50 kV to 420 kV	60 kV to 300 kV ISO 4037-1 narrow beam	5	%	2	not specified	Yes	Secondary standard ionization chamber	VSL	EUR-RAD-NRPA-1020	Approved on 13 February 2007
Personal dose equivalent rate, superficial	Dosimeters	Irradiation or calibration on a ISO water slab or ISO rod	1.00E-04	1.20E-01	Sv h ⁻¹	X-ray, 10 kV to 50 kV	10 kV to 40 kV ISO 4037-1 narrow beam	6	%	2	not specified	Yes	Secondary standard ionization chamber	VSL	EUR-RAD-NRPA-1021	Approved on 13 February 2007
Personal dose equivalent rate, superficial	Dosimeters	Irradiation or calibration on a ISO water slab or ISO rod	1.00E-04	1.20E-01	Sv h ⁻¹	X-ray, 50 kV to 420 kV	60 kV to 300 kV ISO 4037-1 narrow beam	5	%	2	not specified	Yes	Secondary standard ionization chamber	VSL	EUR-RAD-NRPA-1022	Approved on 13 February 2007