

Minimum uncertainties at Radiation Metrology Laboratory, STUK

Black uncertainties/radiation qualities are part of STUK's CMCs according to CIPM MRA

[Blue uncertainties/radiation qualities do not belong into STUK's CMCs according to CIPM MRA:](#)

Uncertainties are expressed as relative expanded uncertainties (k=2, 95% confidence level).

Uncertainties are estimated individually for each case, the table presents the minimum uncertainties for services.

Quantity/calibration	Air kerma	H*(10)	Hp(10)	Hp(0.7)	Hp(3)	Absorbed dose	Fluence	Surface emission rate	KAP	KLP	Reference air kerma rate	Irradiation in terms of air kerma	Traceability
Radiation quality													
⁶⁰ Co	3.0	5.0	5.0	5.0	5.0	3.0						3.0	PTB
⁶⁰ Co	0.47					0.51							BIPM
¹³⁷ Cs	3.0	5.0	5.0	5.0	5.0							3.0	PTB
ISO N < 50 kV	4.0	7.0		7.0	7.0							4.0	PTB
ISO N > 50 kV	3.1	5.2	5.2	5.2	5.2							3.1	PTB
Beta, ⁹⁰ Sr/ ⁹⁰ Y				4.0	4.0	4.0							STUK
Beta, ⁸⁵ Kr				4.0		4.0							STUK
Beta, ¹⁴⁷ Pm				9.1		9.1							STUK
RQR < 50 kV	2.8												PTB
RQR > 50 kV	2.8								2.6				PTB
²⁴¹ Am	4.1	4.9	4.9	4.9	4.9							4.1	NPL
¹⁹² Ir											1.3		NPL
ISO H < 50 kV	2.7	5.0											PTB
ISO H > 50 kV	1.5	4.7											PTB
RQT	1.5									2.2			PTB
MAM	1.9												PTB
RQC	2.1								2.6				PTB
²⁵² Cf		5.3	5.1				4.9						CMI
²⁴¹ Am ⁹ Be		9.5	9.4				5.1						CMI
Planar sources								7.0					PTB (via Eckert Ziegler)
CCRI (50 kV - 420 kV)*	2.5												BIPM
CCRI (10 kV-50 kV)*	2.0												BIPM

* available only upon special request