

Key comparison BIPM.RI(II)-K1.Ce-144

MEASURAND : **Equivalent activity of ^{144}Ce**

x_i : **result of measurement carried out in the SIR for the sample submitted by laboratory i**

u_i : **combined standard uncertainty of x_i**

Lab i	x_i / kBq	u_i / kBq	Date of measurement
CMI-IIR	284100	2200	78-06-20
NPL	280780	1430	84-06-21
LNE-LNHB	283760	1100	88-10-12
NIST	284940	1280	90-01-23
OMH	281850	1600	90-06-11

Key comparison BIPM.RI(II)-K1.Ce-144

MEASURAND : Equivalent activity of ¹⁴⁴Ce

Key comparison reference value: the SIR reference value for this radionuclide x_R is 282.8 MBq, with a standard uncertainty u_R of 0.7 MBq.

x_R is computed from the mean of the participants' results including a result from Canada (see the Final Report).

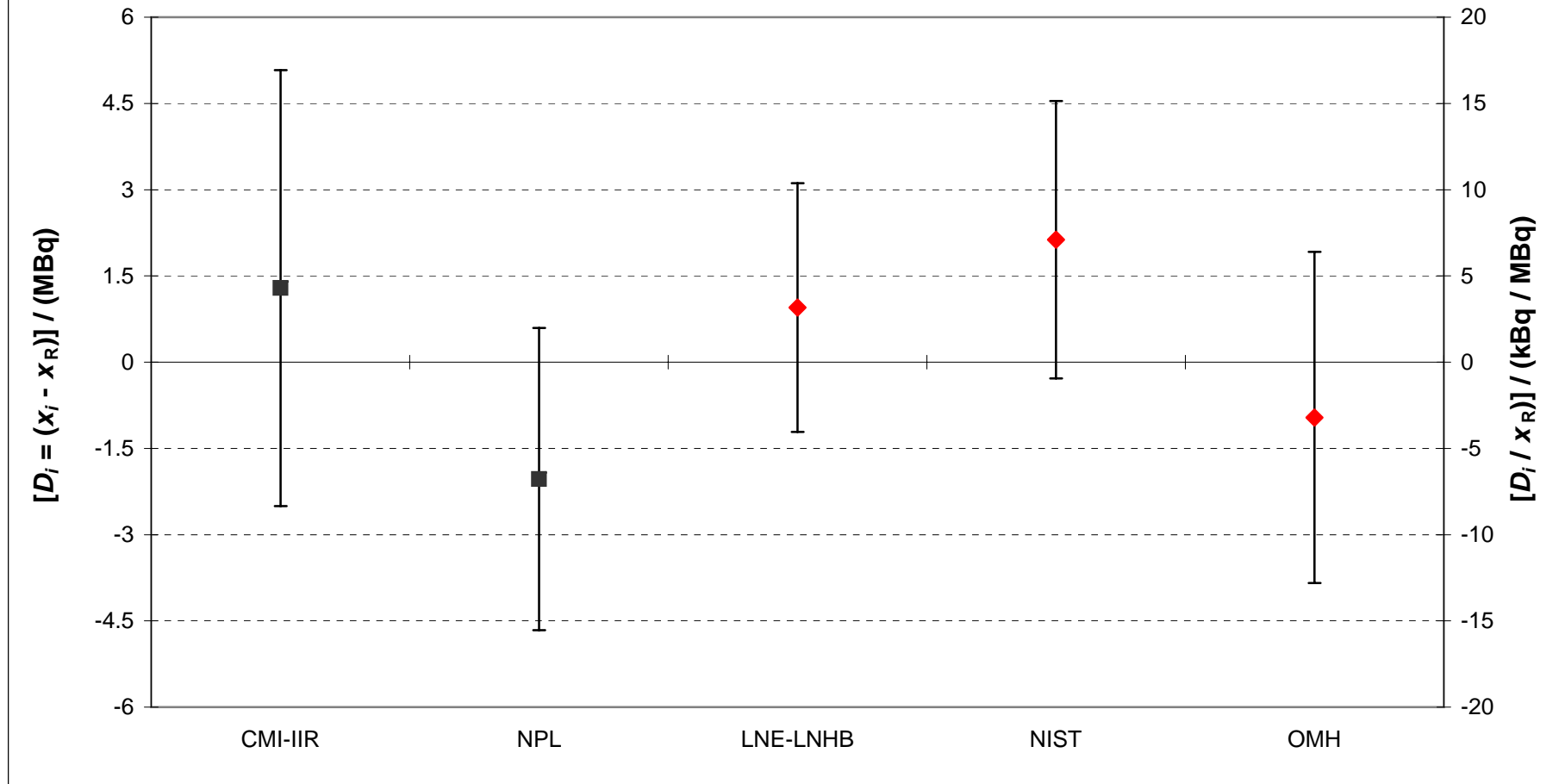
The degree of equivalence of each laboratory with respect to the reference value is given by a pair of terms: $D_i = (x_i - x_R)$ and U_i , its expanded uncertainty ($k = 2$), both expressed in MBq, with n the number of laboratories, $U_i = 2[(1 - 2/n)u_i^2 + (1/n^2)\sum u_i^2]^{1/2}$ when only these laboratories have contributed to the x_R (see Appendix 1 of (see [Metrologia](#), 42, 140-144)).

The degree of equivalence between two laboratories is given by a pair of terms: $D_{ij} = D_i - D_j = (x_i - x_j)$ and U_{ij} , its expanded uncertainty ($k = 2$), both expressed in MBq. The approximation $U_{ij} \sim 2(u_i^2 + u_j^2)^{1/2}$ is used in the following table.

Lab j →

Lab i ↓			CMI-IIR		NPL		LNE-LNHB		NIST		OMH	
	D_i	U_i	D_{ij}	U_{ij}	D_{ij}	U_{ij}	D_{ij}	U_{ij}	D_{ij}	U_{ij}	D_{ij}	U_{ij}
	/ MBq		/ MBq		/ MBq		/ MBq		/ MBq		/ MBq	
CMI-IIR	1.3	3.8			3.3	5.2	0.3	4.9	-0.8	5.1	2.3	5.4
NPL	-2.0	2.6	-3.3	5.2			-3.0	3.6	-4.2	3.8	-1.1	4.3
LNE-LNHB	0.9	2.2	-0.3	4.9	3.0	3.6			-1.2	3.4	1.9	3.9
NIST	2.1	2.4	0.8	5.1	4.2	3.8	1.2	3.4			3.1	4.1
OMH	-1.0	2.9	-2.3	5.4	1.1	4.3	-1.9	3.9	-3.1	4.1		

BIPM.RI(II)-K1.Ce-144
Degrees of equivalence for equivalent activity of ¹⁴⁴Ce



Black squares: participant's results prior to 1985
 Note: the right-hand axis shows approximate relative values only.