

## Key comparisons BIPM.RI(II)-K1.Zn-65 and CCRI(II)-K2.Zn-65

### Key comparison BIPM.RI(II)-K1.Zn-65

**MEASURAND** : Equivalent activity of  $^{65}\text{Zn}$

$x_i$ : 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
<b>NIST</b>	29680	190	2001-11-27
<b>BARC</b>	29130	310	2006-11-29

## Key comparisons BIPM.RI(II)-K1.Zn-65 and CCRI(II)-K2.Zn-65

### Key comparison CCRI(II)-K2.Zn-65

MEASURAND : Equivalent activity of <sup>65</sup>Zn

$x_i$ : result of measurement carried out at laboratory  $i$   
converted to the equivalent activity through the SIR measurements (see Final Report)

$u_i$ : combined standard uncertainty of  $x_i$

Lab $i$	$x_i$ / kBq	$u_i$ / kBq	Year of measurement
BEV	29670	330	2003
CMI	29850	170	2003
CNEA	30030	130	2003
ENEA-INMRI	29660	120	2003
IFIN-HH	29550	150	2003
IRA	29720	140	2003
IRMM	29661	68	2003
KRISS	29780	130	2003
LNE-LNHB	29810	130	2003
LNMRI/IRD	30040	160	2003
MKEH	29590	120	2003
NMIJ	29700	150	2003
NMISA	29870	110	2003
NPL	29990	110	2003
PTB	29710	130	2003
SMU	29200	670	2003
VNIIM	29727	87	2003

## Key comparisons BIPM.RI(II)-K1.Zn-65 and CCRI(II)-K2.Zn-65

MEASURAND : Equivalent activity of  $^{65}\text{Zn}$

**Key comparison reference value: the SIR reference value for this radionuclide is  $x_R = 29\,740$  kBq with a standard uncertainty,  $u_R = 43$  kBq (see Section 4.1 of the Final Report).**

**The value  $x_i$  is the equivalent activity for laboratory  $i$ .**

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, and  $U_i = 2((1 - 2w_i)u_i^2 + u_R^2)^{1/2}$  when each laboratory has contributed to the calculation of  $x_R$ .

When required, 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  $U_{ij} \sim 2(u_i^2 + u_j^2)^{1/2}$  may be used for the computation.

Linking CCRI(II)-K2.Zn-65 (2003) to BIPM.RI(II)-K1.Zn-65

**The value  $x_i$  is the equivalent activity for laboratory  $i$  participant in CCRI(II)-K2.Zn-65 whose ampoule was also measured in the SIR (see Final report).**

The degree of equivalence of laboratory  $i$  participant in CCRI(II)-K2.Zn-65 with respect to the key comparison 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 and

$U_i = 2((1 - 2w_i)u_i^2 + u_R^2)^{1/2}$  when each laboratory has contributed to the calculation of  $x_R$ .

When required, the degree of equivalence between two laboratories  $i$  and  $j$ , one participant in BIPM.RI(II)-K1.Zn-65 and one in CCRI(II)-K2.Zn-65, or both participant in CCRI(II)-K2.Zn-65, is given by a pair of terms:  $D_{ij} = D_i - D_j$  and  $U_{ij}$ , its expanded uncertainty ( $k = 2$ ), both expressed in MBq, where the approximation  $U_{ij} \sim 2(u_i^2 + u_j^2)^{1/2}$  may be used.

## Key comparisons BIPM.RI(II)-K1.Zn-65 and CCRI(II)-K2.Zn-65

MEASURAND : Equivalent activity of <sup>65</sup>Zn

Degrees of equivalence relative to the BIPM.RI(II)-K1.Zn-65 key comparison reference value

Lab <i>i</i> ↓	$D_i$	$U_i$
	/ MBq	
<b>NIST</b>	-0.06	0.39
<b>BARC</b>	-0.61	0.61

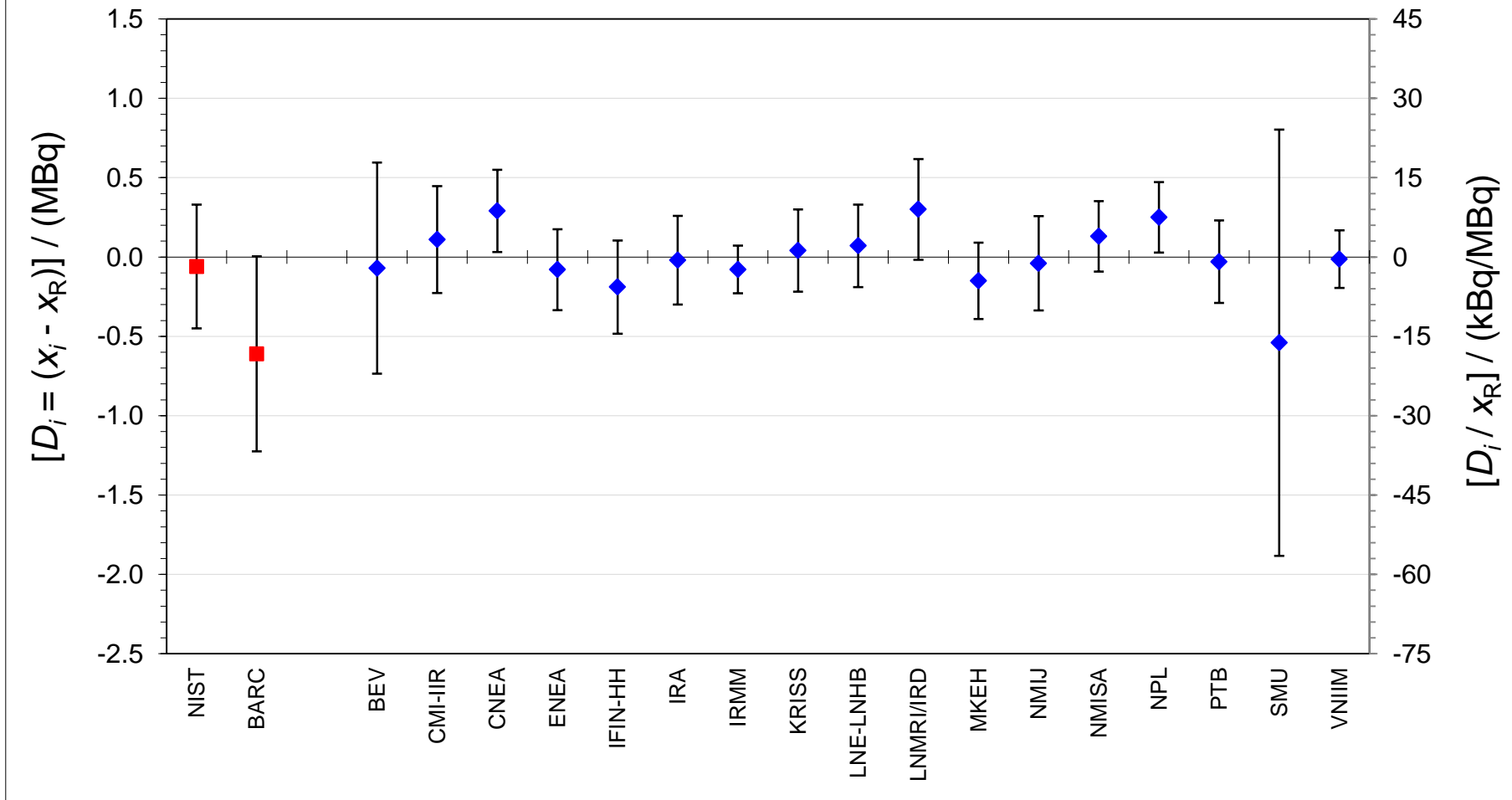
**Red:** participants in BIPM.RI(II)-K1.Zn-65

**Blue:** participants in CCRI(II)-K2.Zn-65

<b>BEV</b>	-0.07	0.67
<b>CMI</b>	0.11	0.34
<b>CNEA</b>	0.29	0.26
<b>ENE-INMRI</b>	-0.08	0.25
<b>IFIN-HH</b>	-0.19	0.29
<b>IRA</b>	-0.02	0.28
<b>IRMM</b>	-0.08	0.15
<b>KRISS</b>	0.04	0.26
<b>LNE-LNHB</b>	0.07	0.26
<b>LNMRI/IRD</b>	0.30	0.32
<b>MKEH</b>	-0.15	0.24
<b>NMIJ</b>	-0.04	0.30
<b>NMISA</b>	0.13	0.22
<b>NPL</b>	0.25	0.22
<b>PTB</b>	-0.03	0.26
<b>SMU</b>	-0.54	1.34
<b>VNIIM</b>	-0.01	0.18

**BIPM.RI(II)-K1.Zn-65 and 2003 CCRI(II)-K2.Zn-65**

Degrees of equivalence for equivalent activity of <sup>65</sup>Zn



**Red squares:** participants in BIPM.RI(II)-K1.Zn-65  
**Blue diamonds:** participants in CCRI(II)-K2.Zn-65 (carried out in 2003)  
 The right hand axis shows approximate values only