

รายงานเปรียบเทียบของ APMP เกี่ยวกับอัตราปริมาณรังสีที่ดูดกลืนในเนื้อเยื่อสำหรับการฉายรังสีปีตา

(BIPM KCDB: APMP.RI(I)-S2)

APMP supplementary comparison report of absorbed dose rate in tissue for beta radiation

(BIPM KCDB: APMP.RI(I)-S2)

ช่วงเวลาดำเนินการ ปี พ.ศ. 2560

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ตำแหน่ง รักษาการผู้เชี่ยวชาญเฉพาะด้านการประเมินค่ากัมมันตภาพรังสี

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รายละเอียดสรุป

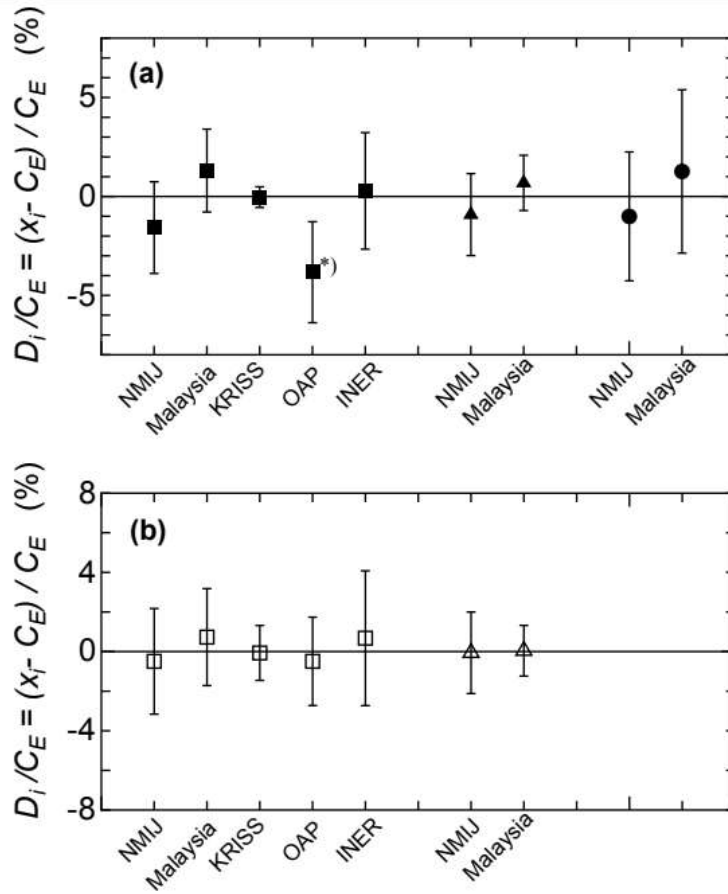
The supplementary comparison of absorbed dose rate in tissue for beta radiation (APMP.RI(I)-S2) was performed with five national metrology institutes in 2013 and 2014. Two commercial thin window ionization chambers were used as transfer instruments and circulated among the participants. Two of the NMIs measured the calibration coefficients of the chambers in reference fields produced from Pm-147, Kr-85 and Sr-90/Y-90, while the other three measured those only in Sr-90/Y-90 beta-particle field. The degree of equivalence for the participants was determined and this comparison verifies the calibration capabilities of the participating laboratories. In addition, most of the results of this comparison are consistent with another international comparison (EUROMET.RI(I)- S2) reported before this work.

Table 1. Participating laboratories and their contact persons for the APMP.RI(I)-S2 supplementary comparison

Participating Laboratory	Acronym or Abbreviation, Country	Contact Person
National Metrology Institute of Japan	NMIJ, Japan	Masahiro Kato Norio Saito
Institute of Nuclear Energy Research	INER, Taiwan	Chien-Hau Chu
Korea Research Institute of Standards and Science	KRISS, Korea	Chul-Young Yi
Malaysian Nuclear Agency	Nuclear Malaysia, Malaysia	Taiman Bin Kadni
Office for Atoms for peace	OAP, Thailand	Vithit Pungkun

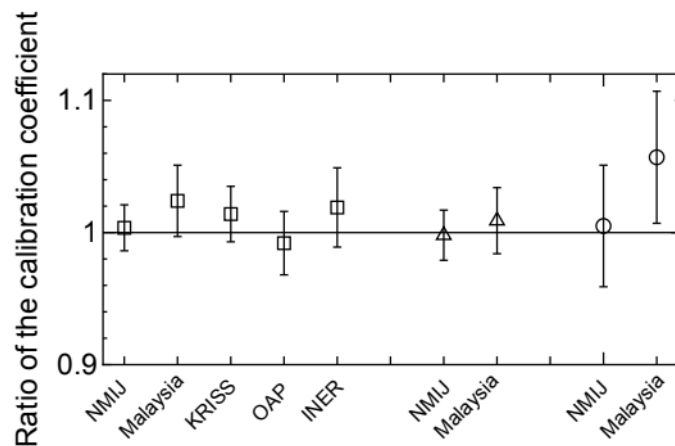
Table 2: Schedule of APMP.RI(I)-S2 comparison

Participant	Date of chambers leaving NMIJ for participant	Measurement duration at the laboratory	Date of chambers leaving
NMIJ	-	Stability test	
Nuclear Malaysia	7-Jan-2013	21-Jan-2013 to 25-Jan-2013	28-Jan-2013
NMIJ		Stability test	
KRISS	3-Jun-2013	17-Jul-2013 to 21-Jul-2013	24-Jun-2013
NMIJ		Stability test	
OAP	28-Oct-2013	11-Nov-2013 to 15-Nov-2013	18-Nov-2013
NMIJ		Stability test	
INER	15-Dec-2013	6-Jan 2014 to 10-Jan-2014	27-Jan-2014
NMIJ		Stability test	-



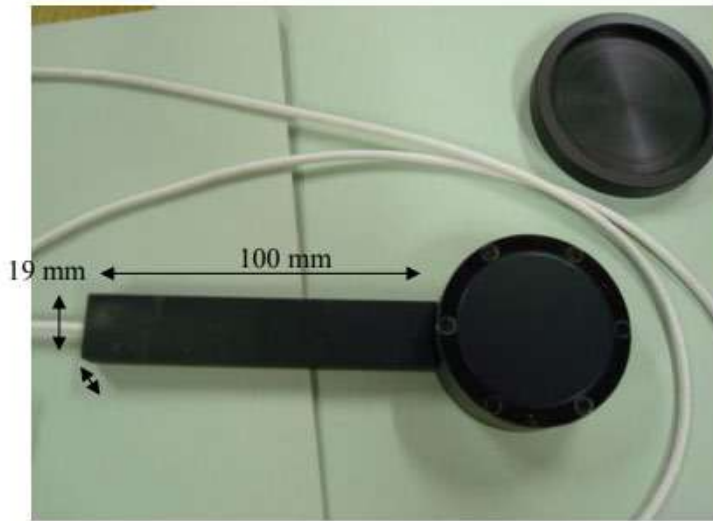
Degree of equivalence  $D_i$  of each laboratory relative to the reference value  $C_E$ . (a) Magna(Exradin s/n D07313), (b) CE-II.(Ooyogiken s/n 2803290). The error bars refer the uncertainty of the degree of equivalence with the coverage factor  $k=2$ . Square: Sr-90/Y-90, Triangles: Kr-85, Circles: Pm-147. The reference value for CE-II chamber in Pm-147 reference field could not be determined (See section 3.2).

\*) This value was not used for determining the reference value.



Ratio of the calibration coefficient for each participating laboratory relative to the reference value in the EUROMET.RI(1)-S2. The error bars refer the expanded uncertainty of the ratio of the calibration coefficient with the coverage factor  $k=2$ . Open square: Sr-90/Y-90, Open triangles: Kr-85, Open circles: Pm-147.

EXRADIN Magna



Oyogiken CE-II

