



0210

- High Quality
- UKAS calibrations
- Quality Repair Section
- Quick turnaround
- Consultation
- Training
- Bespoke calibration systems

Radiation Measurement Units

Dosimetry

■ Gy.h⁻¹

Air kerma, absorbed dose to water etc

■ Sv.h⁻¹

Shallow/superficial, Penetrating/personal,
Directional/ambient

Radiation Measurement Units Contamination

- **Counts per second**
- **Counting efficiency**
 2π or 4π
- **Response to contamination**
 $\text{p.s}^{-1}/\text{Bq}$ or cps/Bq
 $\text{p.s}^{-1}/\text{Bq.cm}^{-2}$ or $\text{cps}/\text{Bq.cm}^{-2}$

Radiation Measurement Units Factors

Response factor

Calibration Factor

3rd Contamination monitor inter-comparison

In this inter-comparison we requested

cps/(s⁻¹.cm⁻²)

and a conversion to

cps/(Bq.cm⁻²)

Probe Sensitivity

The fundamental assessment of probe sensitivity is

2π efficiency

Defined as:

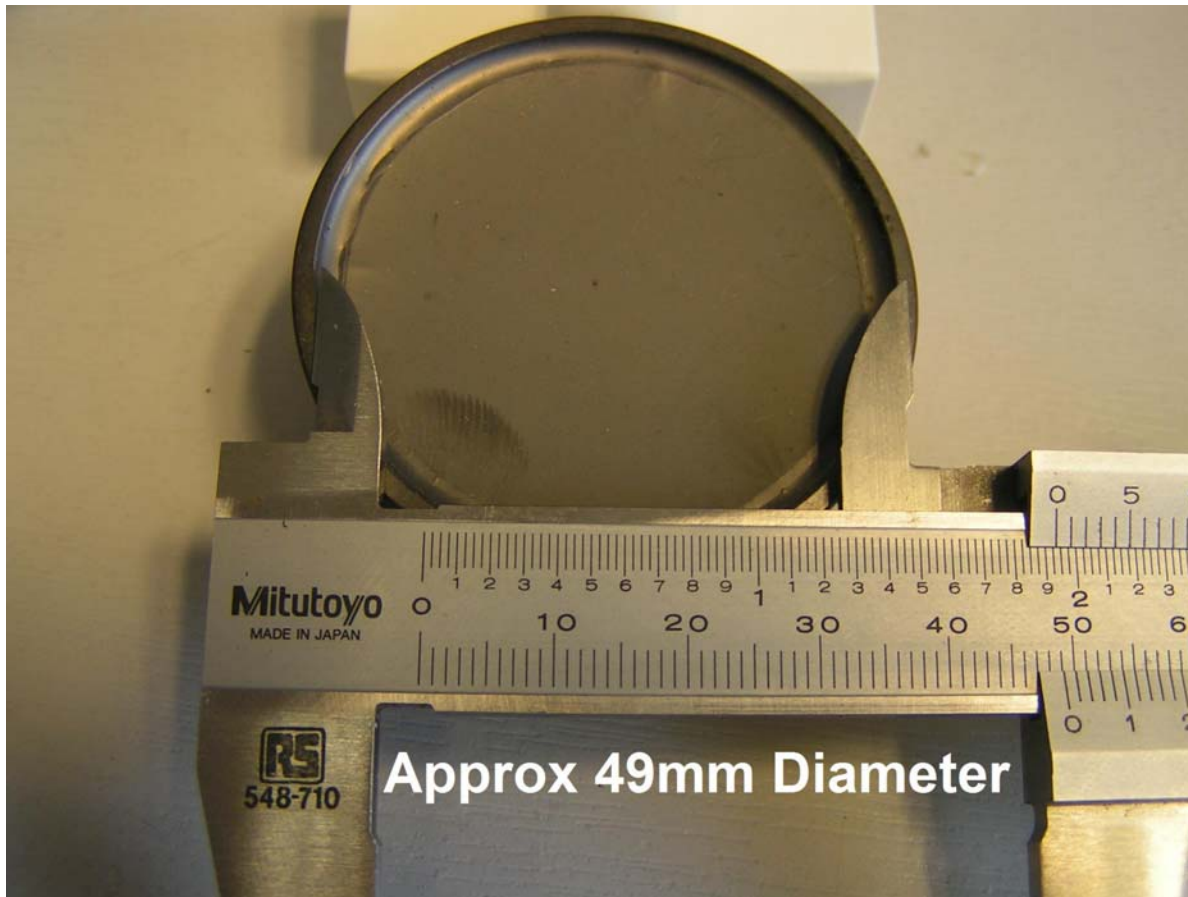
Probe response, (in counts per second), divided by
the

Number of particles or photons per second entering
the

Sensitive part of the detector, times 100.

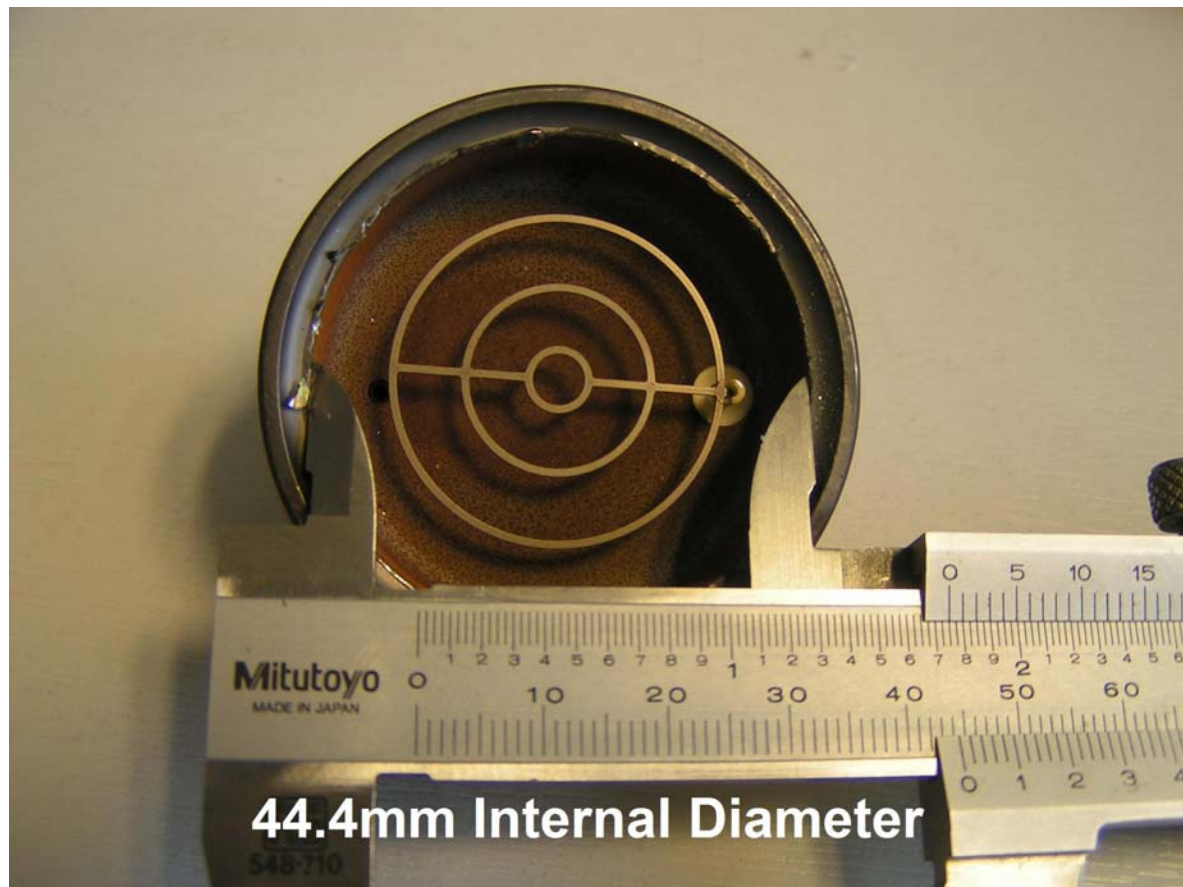
$$[(\text{cps}) \cdot \text{s}^{-1}] \times 100\%$$

EP15 GM tube, Intact



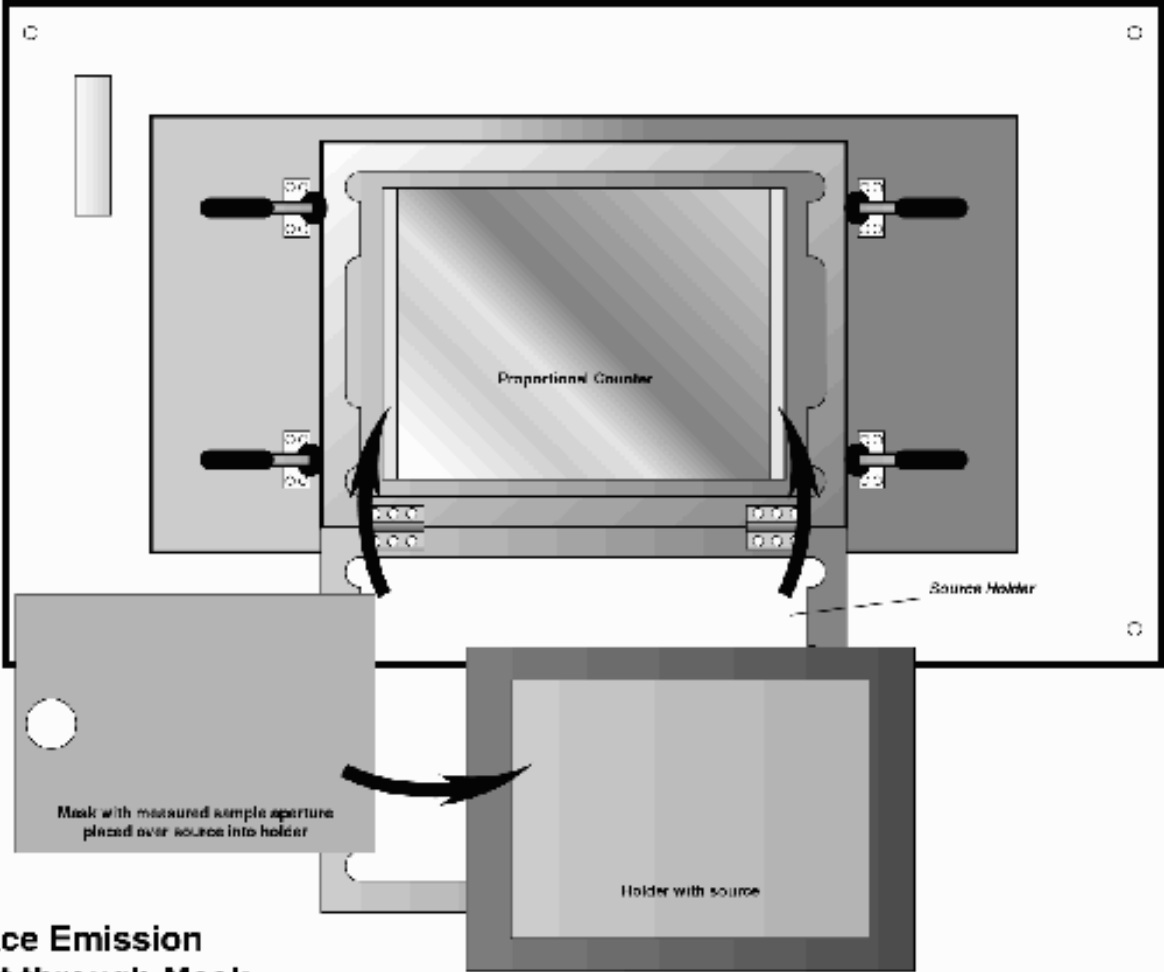
Active area cursory
examination
2in, 20 cm²
50 mm, 19.6cm²

EP15 GM Tube, under the mica



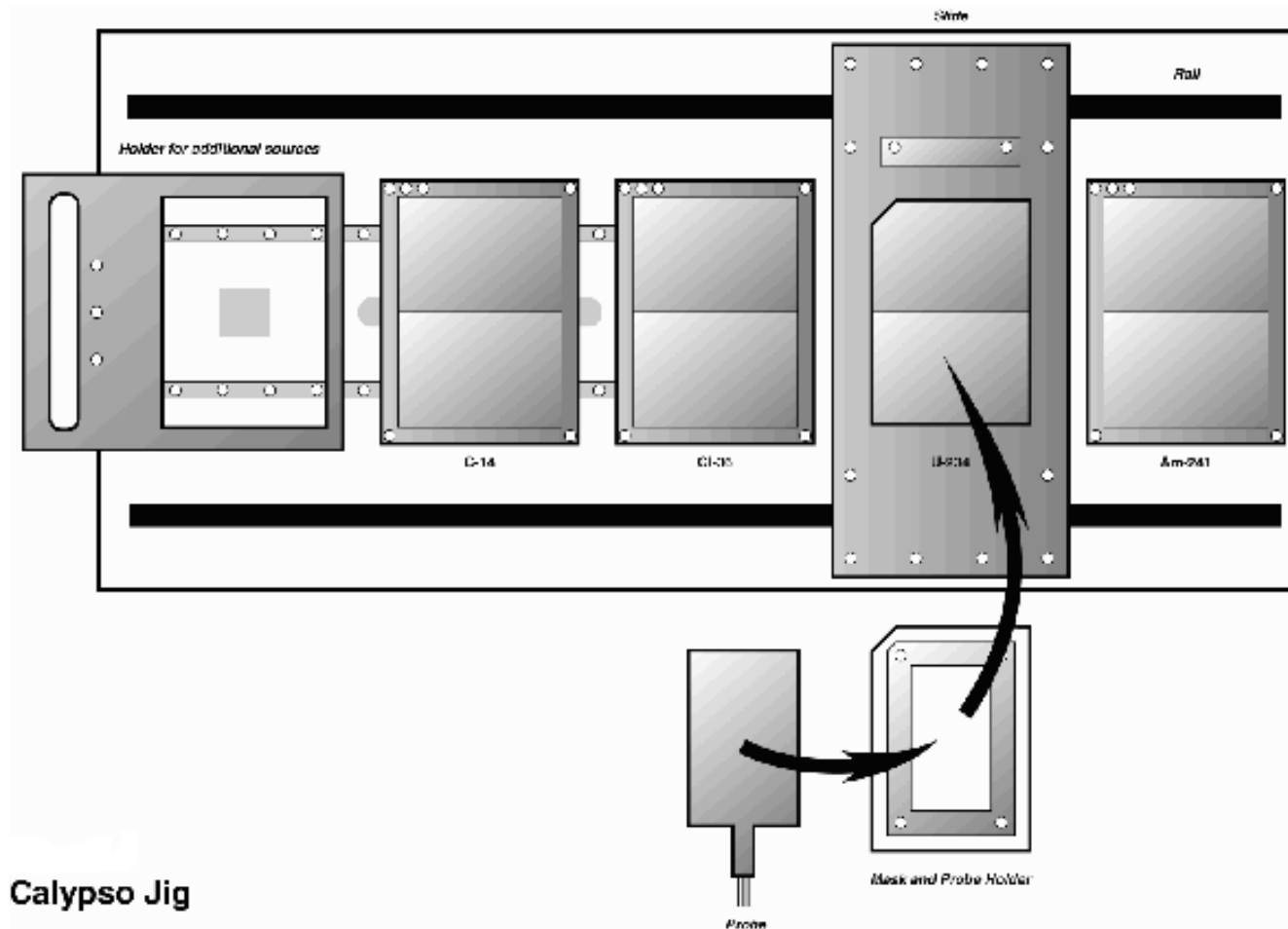
True active area
44.4 mm
15.5cm²

Measurement of emission rate through mask.



TSPC - Surface Emission Measurement through Mask

Measurement of probe response



Calypso Jig

Harwell and Winfrith results

2π efficiency %

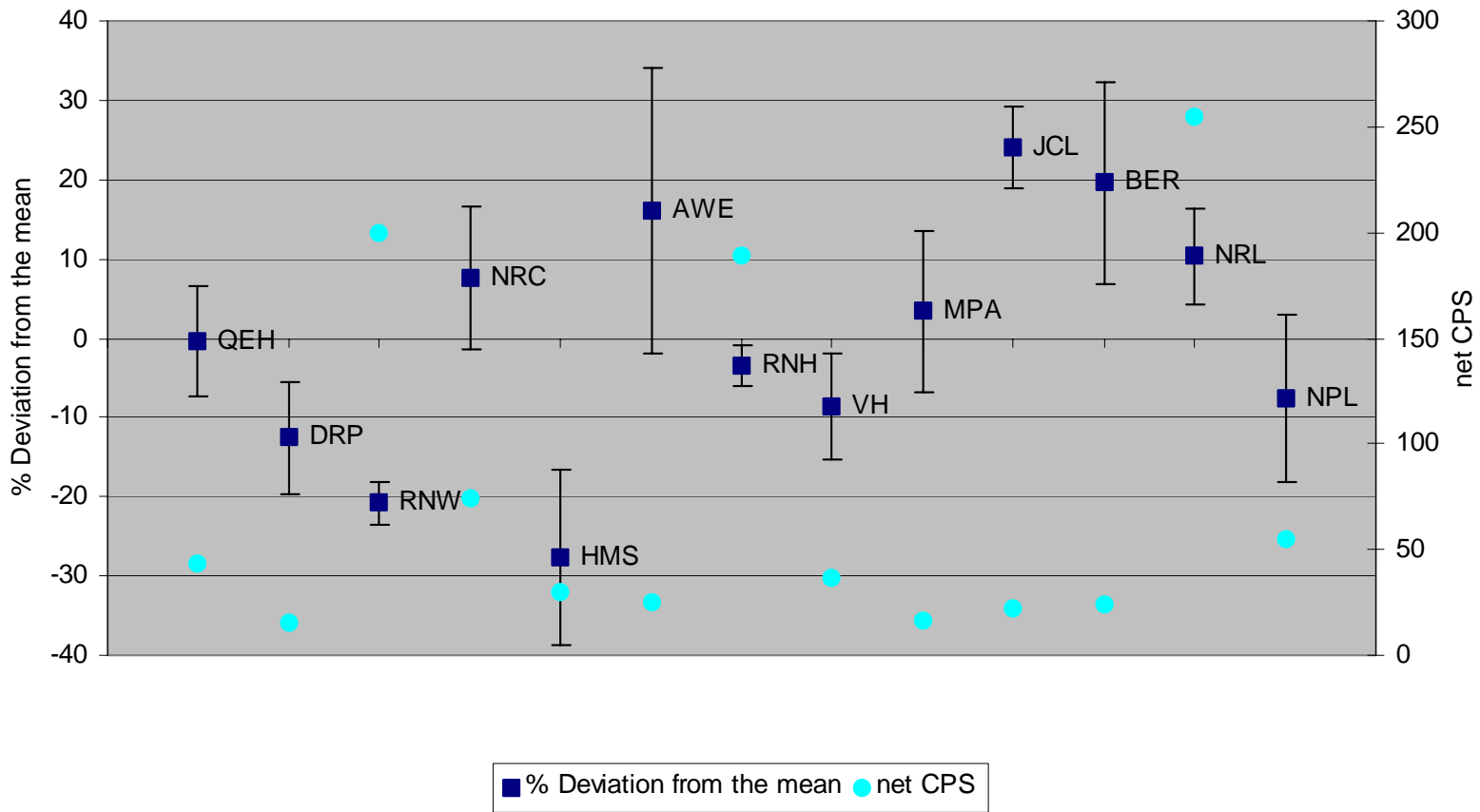
Nuclide	Harwell %	Winfrith %
C-14	15	14
Cl-36	44	43
Am-241	27	26

Harwell and Winfrith results Bq.cm²

Nuclide	Harwell cps/(s⁻¹cm⁻²)	Winfrith cps/(s⁻¹cm⁻²)	Harwell x (15.5/19.6) cps/(s⁻¹cm⁻²)
C-14	2.8	2.3	2.2
Cl-36	8.5	6.9	6.7
Am-241	5.1	4.1	4.0

IC3 Data

Mini EP15 - ^{14}C



END