

## **Quality Management System of Radiation Metrology Laboratory of Radiation and Nuclear Safety Authority - STUK, Finland**

### **Background**

#### **The Mutual Recognition Arrangement (CIPM MRA) of National Metrology Institutes**

The Mutual Recognition Arrangement by International Committee for Weights and Measures (CIPM MRA) is the framework through which National Metrology Institutes demonstrate the international equivalence of their measurement standards and the calibration and measurement certificates they issue [1]. Approved Calibration and Measurement Capabilities (CMCs) and supporting technical data are publicly available in the CIPM MRA database [1]. Under CIPM MRA the participating National Metrology Laboratories (NML) are regarded either as a National Metrology Institute (typically CIPM MRA signatory body in a country) or as Designated Institute when maintaining national standards in a specific area of measurement quantities (e.g. ionizing radiation). The CIPM MRA is signed by most of the member states under the Metre Convention. In Europe the responsible organization for implementing the CIPM MRA is the European Association of National Metrology Institutes (EURAMET e.V.) [2].

Published CMCs require acceptable results of calibration and measurement comparisons and implemented/reviewed Quality Management System (QMS). QMS shall fulfil the requirements of the ISO Quality Standard 17025 [3]. The recognition of the QMS can be based either on the Third Party Accreditation or on Self-declaration approach including reviews by technical experts.

#### **Implementation of CIPM MRA in Finland**

As a National Metrology Institute in Finland and a representative of all Finnish NMLs VTT MIKES Metrology (MIKES) has signed the MRA in 1999 [4]. The approvals of QMSs of most NMLs in Finland are based on the Self-declaration approach.

#### **STUK as a National Metrology Laboratory**

According the Finnish legislation STUK is responsible for maintaining the National Metrology Standards of ionizing radiation in Finland (Radiation Act 859/2018). Radiation Metrology Laboratory (RML) of STUK maintains the measurement standards directly traceable to the Standards of the Primary Standard Dosimetry Laboratories (PSDLs). The RML of STUK is a member the EURAMET and the WHO/IAEA network of Secondary Standards Dosimetry Laboratories (SSDLs) [5]. The QMS of the RML of STUK is consistent with the requirements of ISO 17025 and QMS is approved through periodic reviews and following the Self-Declaration approach since the first approval in 2003.

Quality of RML of STUK is assured by successful results of several international measurement and calibration comparisons in recent years. The CMCs of STUK under the CIPM MRA are presented in the database of CIPM MRA [1].

Radiation Practices Regulation  
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In addition to the calibration services as a NML under the CIPM MRA, the Radiation Metrology Laboratory of STUK provides testing of diagnostic X-ray equipment and additional type of calibrations. The quality of these services is based on the expertise required for personnel at STUK as a national authority for radiation use and on the QMS system of the RML as a National Metrology Laboratory.

A handwritten signature in blue ink, appearing to read "Antti Kosunen", is positioned above a horizontal line.

Antti Kosunen  
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## References

- [1] Bureau International des Poids et Mesures (BIPM), web-site: <https://www.bipm.org/en/cipm-mra/>
- [2] EURAMET web-site: <https://www.euramet.org/about-euramet/>
- [3] European Standard EN ISO/IEC Standard 17025, General requirements for the competence of testing and calibration laboratories, 2017.
- [4] VTT MIKES metrology (MIKES) web-site: <https://www.mikes.fi/en>
- [5] IAEA/WHO Secondary Standard Dosimetry Laboratory network, web-site: <https://ssdl.iaea.org/>