



CALIBRATION FACTOR OR CALIBRATION COEFFICIENT?

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The IAEA/WHO network of SSDLs was set up in order to establish links between SSDL members and the international measurement system [1]. At the end of 2001, there were 73 network members in 63 Member States. The SSDL network members provide calibration services to end-users at the national or regional level. The results of the calibrations are summarized in a document called calibration report or calibration certificate [2]. The IAEA has been using the term calibration certificate and will continue using the same terminology.

The most important information in a calibration certificate is a list of calibration **factors** and their related uncertainties that apply to the calibrated instrument for the well-defined irradiation and ambient conditions. The IAEA has recently decided to change the term calibration **factor** to calibration **coefficient**, to be fully in line with ISO [ISO 31-0], which recommends the use of the term **coefficient** when it links two quantities A and B (equation 1) that have different dimensions. The term **factor** should only be used for k when it is used to link the terms A and B that have the same dimensions

$$A = k.B \quad (1)$$

However, in a typical calibration, an ion chamber is calibrated in terms of a physical quantity such as air kerma, dose to water, ambient dose equivalent, etc. If the chamber is calibrated together with its electrometer, then the calibration refers to the physical quantity to be measured per electrometer unit reading. In this case, the terms referred have different dimensions.

The adoption by the Agency of the term **coefficient** to express the results of calibrations is consistent with the "International vocabulary of basic and general terms in metrology" [4] prepared jointly by the BIPM, IEC, ISO, OIML and other organizations. The BIPM has changed from **factor** to **coefficient**.

The authors believe that this is more than just a matter of semantics and recommend that

the SSDL network members adopt this change in terminology.

REFERENCES

- [1] International Atomic Energy Agency, the SSDL Network Charter, IAEA, Vienna, (1999)
- [2] International Atomic Energy Agency, Calibration of Dosimeters Used in Radiotherapy, TRS-374, IAEA, Vienna, (1994)
- [3] International Organization for Standardization, Quantities and Units-Part 0: General Principles, International Standards 31-0, ISO, Geneva, (1992)
- [4] International Vocabulary of Basic and General Terms in Metrology, BIPM, ISO, IEC, IFCC, IUPAC, IUPAP, OIML, (1994)