REGULATION OF THE COUNCIL OF MINISTERS

of 23 December 2002

on the requirements imposed on dosimetry equipment

(Journal of Laws no. 239, item 2032)

Pursuant to art. 28 point 2 of the Atomic Energy Law of 29 November 2000 (Journal of Laws of 2001, no. 3, item 18, no. 100, item 1085, no. 154, item 1800, of 2002, no. 74, item 676 and no. 135, item 1145), the following is ordained:

§ 1. This regulation defines the requirements for dosimetry equipment as presented in an annex hereto.

§ 2. This regulation becomes effective on 1 January 2003 1)

President of the Council of Ministers: *L. Miller*

---

1) 1) This regulation was preceded by a regulation of the Chairman of the National Atomic Energy Agency of 25 January 1988 on the requirements imposed on dosimetry equipment applied for radiation protection and the requirements imposed on the registration of dosimetry measurement results (Polish Official Journal no. 6, item 59) which shall expire on 31 December 2002 pursuant to art. 137 of the Atomic Energy Law of 29 November 2000 (Journal of Laws of 2001, no. 3, item 18, no. 100, item 1085, no. 154, item 1800, of 2002, no. 74, item 676, no. 135, item 1145).

Annex to the Regulation of the Council of
Ministers of 23 December 2002 (item2032)

REQUIREMENTS IMPOSED ON DOSIMETRY EQUIPMENT

I. Requirements imposed on dosimetry equipment applied under standard conditions

1. 1. The structure and fittings of dosimetry equipment[1], applicable to the given type of ionising radiation, shall enable the determination of:
   1) 1) individual dose equivalent[2] – with the use of an individual dosimeter;
   2) 2) spatial dose equivalent [3] or directional dose equivalent[4] – with the use of an environmental dosimeter.

2. An individual dosimeter allows for the evaluation of the ionising radiation dose received by the person wearing the dosimeter.

3. An environmental dosimeter allows for the evaluation of the ionising radiation dose received by persons other than those indicated in section 2.

4. The measurement range of an individual and environmental dosimeter shall cover at least three orders of magnitude in the intervals as per sections 6 and 7 hereof.

5. The structure and fittings of dosimetry equipment shall ensure that:

1) the equipment is fit for application during field works, transport and power supply in accordance with its purpose;

2) radioactive contamination can be easily removed from the equipment;

3) the equipment can be applied without exposing the user to electrical shock and excessive temperature.

6. The structure and fittings of dosimetry equipment designed for the measurement of doses received by personnel employed under exposure to ionising radiation shall enable the determination of individual, spatial or directional dose equivalent in the minimal range of 0.1 mSv to 1 Sv or the strength of those equivalents in the minimal range of 0.01 mSv/h to 1 Sv/h.

7. The structure and fittings of dosimetry equipment designed for the measurement of doses received by the members of the general public shall allow for the determination of the spatial dose equivalent in the natural environment in the minimal range of 1 mSv to 100 mSv or the strength of this equivalent in the minimal range of 0.1 mSv/h to 1 mSv/h.

8. The structure and fittings of dosimetry equipment applied under circumstances in which the strength of the spatial or individual dose equivalent may exceed 1 mSv/h shall allow for the determination of the type of radiation and shall involve light or sound signalling when the threshold measured values, as defined in the instruction manual, are exceeded.

9. The instruction manual or manufacturer's documentation enclosed to dosimetry equipment shall define:

1) type and energy of radiation;
2) measurement values;
3) effective measurement range;
4) energy response characteristics;
5) measurement error for reference energy;
6) point of reference for calibration;
7) environmental conditions for equipment operation.

10. Dosimetry equipment shall be calibrated at least:

1) in case of dosimetry equipment not containing a control radiation source – every 12 months;

2) in case of dosimetry equipment containing a control radiation source – every 24 months.

II. Requirements imposed on dosimetry equipment applied in a radiological emergency

1. Dosimetry equipment shall meet the requirements as per part I, sections 1-3, 5, 8-10.

2. The measurement range of individual and environmental dosimeters shall cover at least three orders of magnitude in the intervals as per section 3.

3. The structure and fittings of dosimetry equipment designed for the measurement of doses received by personnel employed under exposure to ionising radiation and the members of the general public shall enable the determination of the individual dose rate in the minimal range of 0.1 mSv to 10 Sv, or the strength of the individual, spatial or directional dose equivalent in the minimal range of 0.1 mSv to 5 Sv.

Explanatory notes:

[1] – Dosimetry equipment comprises individual dosimeters and environmental dosimeters designed for the measurement of doses (effective and equivalent) resulting from external exposure to ionising radiation, excluding dosimeters applied in the measurement of radiation for medical purposes as per art. 15 of the Atomic Energy Law of 29 November 2000.

[2] – An individual dose equivalent is a dose equivalent in soft tissue at the depth of d, at the given point under the external surface of the body.

[3] – An ambient dose equivalent is a dose equivalent at the given point of the real radiation field which would have been generated by a respective, spread and oriented field in the ICRU sphere at the depth of d, along a radius with a sense opposite to the direction of the oriented field; where the spread and oriented field is defined as the radiation field whose fluency, spatial and energy distribution are identical as for the spread field, but where fluency has a distinctive direction.

[4] – A directional dose equivalent is a dose equivalent at the given point of the real radiation field which could have been generated by a respective, spread field in the ICRU sphere at the depth of d, along a radius with a defined sense, where the spread field is defined as the radiation field whose fluency, spatial and energy distribution is identical to that of the analysed point of the real field.

The dose equivalent, as per explanatory notes 2-4, is the product of the absorbed dose of ionising radiation expressed in Greys (Gy) at the defined tissue point and the co-efficient of radiation quality Q expressed in sieverts (Sv).

The depth of d, as per explanatory notes 2-4, amounts to – subject to the radiation hardness: 10 mm for high radiation hardness, 0.07 mm for weak radiation hardness (skin) and 3 mm for the eye lenses.

The ICRU sphere, as per explanatory notes 3 and 4, and the radiation quality co-efficient Q are defined in the appendix to the Regulation of the Council of Ministers of 28 May 2002 on ionising radiation dose limits of 28 May 2002 (Journal of Laws no. 111, item 969).