If we have available two dose rate meters it can happen their indications differ significantly, not just by a small percentage but the difference can be up to several times. This is also case other operational devices, e.g. surface contamination meters both portable and installed or equivalent dose rate meters. We can get the consideration: the first what is the real value measured and the further, which of the devices is defective. Usability of meters in terms of legal metrology is defined according to technical standard requirements (usually IEC standards). Based on the standard tests both this meters may be accurate. Requirements from some of the standards to gauge accuracy are listed in this work.

In terms of physical principles of measurement and operational characteristics of meters this standards cannot be called overly liberal. Exact measurements (particularly in the normal radiation background) are very time-consuming and need expensive high end instruments. For the purposes of this paper I consider by operational meters those designed for “fast and easy measurements”. Technical standards requiring high precision could not be justified at least for radiation protection purposes.

The objective of this paper is to draw attention to possible discrepancies in the measuring the quantities of ionizing radiation mainly in natural environment, that cannot be explained by faulty gauges. In addition I would like to draw the attention to these issue radiation protection researchers, document that uncertainties in estimating the impact of exposure and transfer them into the language of used meters tolerances.

REFERENCES
[2.] IEC 60846-1: Radiation protection instrumentation - Ambient and/or directional dose equivalent (rate) meters and/or monitors for beta, X and gamma radiation - Part 1: Measurement of ambient dose equivalent (rate) and/or directional dose equivalent (rate) from external beta, X and gamma radiation
[3.] IEC 61526 Radiation protection instrumentation - Measurement of personal dose equivalents Hp(10) and Hp(0,07) for X, gamma, neutron and beta radiations - Direct reading personal dose equivalent meters and monitors
[4.] IEC 62363 Radiation Protection Instrumentation - Portable photon contamination meters and monitors
[5.] IEC 651098 Radiation protection instrumentation – Installed personnel surface contamination monitoring assemblies
[6.] IEC 60325 Radiation protection instrumentation – Alpha, beta and alpha/beta (beta energy > 60 keV) contamination meters and monitors