

THE IMPORTANCE OF TESTING UNDER REAL WORKING CONDITIONS EQUIPMENT USED FOR NORM MEASUREMENTS

Luis S. Quindos Poncela, Carlos Sainz Fernandez, Jose-Luis Gutierrez Villanueva,
Ismael Fuente Merino

*RADON Group, Faculty of Medicine, University of Cantabria, Avda Cardenal Herrera
Oria s/n, 39011 Santander (Spain)*

The new Basic Safety Standards (BSS) are under discussion at the European Council in order to issue a council directive. The Directive includes the exposure of members of the public to indoor radon. The Annex XVI of the document summarizes the list of items to be covered in the national action plan to manage risks from radon exposures. In the case of Spain, the need for a Radon Program includes the existence of laboratories with expertise on radon measurements. Therefore our group in collaboration with ENUSA S.A. (Spanish National Uranium Company) has created a laboratory on natural radiation (LNR) in the facilities of an old uranium mine where radon concentrations are subjected to daily variations due to changes in environmental conditions.

The measurement of NORM includes the determination of radon and its daughters as well as external gamma radiation. These parameters could also be connected and they present an important component of the doses received by workers and the general public. To this aim, it is absolutely necessary to have instruments calibrated and tested. A common way for testing instruments is by means of international intercomparisons. These exercises are usually performed under laboratory conditions with constant values of radon concentrations and external gamma doses. The ambient conditions are constant throughout the test performance too.

Nevertheless the equipment are not used in the real cases under constant radon concentrations and ambient conditions. Thus there is a need for assessing the measurement devices under real working conditions. In this work we present the main results of several intercomparison exercises carried out in this laboratory in terms of radon concentrations and external gamma doses. In addition, the results of an experiment analysing the contribution of radon daughters to the gamma dose are presented too.

Contact e-mail address: quindosl@unican.es