

ABSTRACT

Radiation cannot be felt directly by the human senses, so radiation monitoring is needed using a survey meter that aims to know directly the rate of radiation exposure in a work area to ensure the safety and health of radiation workers in accordance with the principle of ALARA (As Low As Reasonably Achievable). To monitor radiation emissions and leaks of X-ray tube containers in radiology equipment standard methods as stipulated in the Decree of the Minister of Health of the Republic of Indonesia. No. 1250/MENKES/SK/XII/2009 On Quality Control Guidelines of Radiodiagnostic Equipment, the author tried to create a survey meter module using a muller geiger sensor equipped with data storage, which can be used when testing the leak of X-ray tube containers and can be used as a radiation protection tool. This module uses geiger muller sensor for X-ray detection, arduino UNO as microcontroller, CHARACTER LCD as display. The research design used is Pre-experimental with a type of After Only Design that uses one group of subjects and only looks at the results without measuring and knowing the initial conditions, but there is already a comparison group. The X-ray tube leak test value that is close to the value produced by the standard tool is a survey meter that uses a circuit both in closed and non-closed conditions of Pb 2mm, which amounted to 0.00097 mGy / h and 0.00092 mGy / h, respectively. The results of the tube leak test using survey meters either circuit, module, or standard survey meter showed a good test pass value that is ≤ 1 mGy / h. So that this research can be useful for Conformity Test Technicians, Calibration Technicians, and Radiographers as x-ray radiation intensity measurement tools.

Keyword : Survey Meter, Geiger Muller, Arduino