

Annotation

The diploma project consists of annotations, introduction, analytical review, sensor calculations, presentation of structural and functional schemes, selection of components and conclusions.

The total length of the explanatory note is 50 pages, including: 28 illustrations, 8 tables, 4 drawings, 20 references and 10 formulas.

The topic of the diploma project is related to determining the quality of the environment, which directly affects the quality of life. It is known that the main factors that require constant monitoring are the level of radiation. The effects of radiation may not appear immediately, but decades later in future generations. This manifestation can be in the form of cancer, genetic mutations, etc.

The appearance of radiometers and dosimeters in free sale allowed to ensure good radiation safety of citizens. Also with the introduction of new technologies there is an opportunity to improve existing systems, make them more affordable, reduce the size to acceptable for everyday use. This project is dedicated to the development of a device based on a microcontroller designed to monitor ionizing particles. This device can record radiation, transmit data to a mobile device, and process it. The designed system determines the accumulated radiation dose for a certain period, and also gives alarm signals when the power of the equivalent dose is exceeded. High reliability of this system is provided by operative response to emergency situations.

Keywords: Radiation control, smartphone, SBM-20 handset, microcontroller, sensor.