

Tanate Suksompong 2009: Development of Data Storage System for Portable Multichannel Analyzer using SD Card. Master of Science (Applied Radiation and Isotopes), Major Field: Applied Radiation and Isotopes, Department of Applied Radiation and Isotopes. Thesis Advisor: Assistant Professor Wanwisa Sudprasart. Ph.D. 95 pages.

The development of data storage system for portable multichannel analyzer (MCA) focused on the application of SD card as a storage device instead of the older devices that could not easily extend their capacity. The entire work consisted of two parts: the first part was the study for pulse detection by designing the input pulse detecting circuit. The second part dealt with the accuracy testing of data storage system for portable MCA, consisting of the design of connecting circuit between microcontroller and SD card, the transfer of input pulse data into SD card and the ability of data storage system for radiation detection.

It was found that the input pulse detecting circuit could detect the input pulse with the maximum voltage, then the signal was transferred to microcontroller for data processing. The microcontroller could connect to SD card via SPI MODE. The portable MCA could perfectly verify the input signal ranging from 0.2 to 5.0 volts. The SD card could store the data as “.xls” file which could easily be accessed by the compatible software such as Microsoft Excel or Open Office. The energy spectrum of the measured radionuclide could accordingly be generated.

Student's signature

Thesis Advisor's signature

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