

Report

Examination of Measurement Characteristics of Handheld Dosimeters

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Summary

We investigated the characteristics of commercial handheld dosimeters of GM type, Si semiconductor type and CsI scintillation type, under the some measurement conditions that were supposed to be in low dose rate area.

Handheld dosimeters of GM type indicated values 1.5 to 1.9 times larger than NaI(Tl) scintillation survey meter (TCS-171B) on the measurement of air dose rate at 1 m above the ground. However, GM type is useful for detecting a partial radioactive contamination site because the value measured by GM type resembles to that of the TCS-171B when dose rate is high. Many of handheld dosimeters of Si semiconductor type showed the mean value similar to TCS-171B in the experiments which assumed the measurement of low dose rate area. However, this type has to calculate a mean of several times because a large variation in the measurements. Handheld dosimeters of CsI scintillation type in general showed measured values which were similar to that of TCS-171B in all measurement condition, and the peculiar tendency was not observed on this type.

When measuring at identical situation, handheld dosimeters examined in this study do not necessarily indicate the same value as the NaI(Tl) scintillation survey meter. But those dosimeters were concluded usable to know the rough dose rate in low dose rate area.

Key Words: Handheld dosimeter, NaI(Tl) scintillation survey meter, Air dose rate,
Radioactive contamination site
