Position Averaging Circuit for Toshiba Gammacamera

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PURPOSE

In measuring patients with Gammacamera, it is very important and troublesome to set the detector view field to the desired portion of a patient.

Usually the relationship between the portion and marks is taken using point sources such as ^{57}Co.

But the image of the point source is always accompanied with blur, and sometimes unable to be recognized as a mark among the image of organs.

Then with a idea that the position signals which indicate a point source have statistical fructuction, the distinct marks are recorded after averaging the position signals of a certain number of scintillations.

CIRCUIT

Position signals of X and Y axes sent from Gammacamera detector are made into deflection signals on CRT through integrators respectively.

After brightness signals are counted by a certain number of scintillations, a new brightness signal is sent to CRT.

These three kinds of signals indicate a mark with the averaged position which coincides with the position of a point source.

RESULTS

POSITION AVERAGING CIRCUIT has been developed as a adaptor of TOSHIBA GAMMACAMERA which is able to indicate a distinct mark of a point source without blur.

Isosensitive Scintigram Based on Subtraction Tecknique Using Two Radionuclides

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It is important for analyzing and processing scintigram data that distribution of radioactivity in the body is detected quantitatively, but the quantitative detection is difficult ordinarily because γ-ray is absorbed by the tissue and is attenuated by the distance. In the case of isosensitive-scanning where opposed two detector's scanner is used, distribution of radioactivity is detected independent of depth of activity. But in the case of scintiphotography with sciticamera, isosensitive image can not be obtained. It was aimed by authors to take isosensitive scintigram with scinticamera by the method where two radionuclides were used and subtraction between two nuclide images was performed so that attenuation due to distance and absorption by tissue could be corrected.

If two nuclides emitting γ-ray of different energies (or a nuclide radiating two γ-rays or more of different energies) concentrate in one organ, the relation of $N_{XH} - KN_{XL} =$ constant was found independent of depth of tissue, where N_{XH} is counting rate at arbitrary depth (X cm) of body, K is constant that depends on γ-ray energy as well as