DETECTOR DEVICE, DUAL ENERGY CT SYSTEM AND DETECTION METHOD USING THE ~~SAME~~SYSTEM

CROSS-REFERENCE TO RELATED APPLICATION

This application claims the benefit of Chinese Patent Application No. 201410291326.4 filed on June 25, 2014 in the State Intellectual Property Office of China, the whole disclosure of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

Field of the Invention

The present disclosure relates to the technical field of dual energy CT detection, in particular, relates to a detector device for a dual energy CT system, a dual energy CT system including the detector device and a detection method using the dual energy CT system.

Description of the Related Art

At present, a computer tomography technology (hereinafter referred to as CT technology) based on X-ray radiation imaging is widely used for security inspection, in particular, for inspecting suspicious articles in baggage. In the CT scanning technology based on X-ray radiation imaging, data for characteristic distribution of an object to be scanned in the tomography imaging is obtained by CT data reconstruction. Analysis of such characteristic data contributes to identification of common suspect substance in the baggage. A conventional CT apparatus includes an X-ray source, a collimating device, a rotatable slip-ring, detection units, a dedicated computer system for data calculation, power and control subsystems, etc..

In a conventional dual energy CT structure, the detection unit usually comprises detection crystal units having different energy responses, that is, detection crystal units having a first energy response (e.g., low energy detection crystal units) and detection crystal units having a second energy response (e.g., high energy detection crystal units). Usually, the number of the detection crystal units having a first energy response is equal to that of the detection crystal units having a second energy response. The two types of detection crystal units are provided on two sides of a printed circuit board, respectively. When viewed from incidence direction of the ray, the two types of detection crystal units are aligned with each other (i.e., overlapped) with the printed circuit board being sandwiched therebetween, and the respective detection crystal units having a first energy response corresponds to the