

Mobile Cargo Container Inspection System Using 450kVp X-ray

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Abstract

X-ray inspection system has been used for the inspection of illegal drugs, agricultural products and other contraband in custom application, and for the inspection of weapons and explosives in security application. This paper presents how to design and construct mobile cargo container inspection system using medium energy X-ray from the generic generator operated at 450 kVp. Particularly, X-ray detector design is treated relatively in detail, since there are few papers on X-ray detector design for rapid and nonintrusive container inspection system. From the image obtained with the inspection system developed in this paper, it turns out that the system can distinguish the object of 5mm in size and of 4% difference in density from the background. The design method of this study may be applied to X-ray inspection system using higher energy.

SrCl₂:Eu²⁺, Na⁺ 영상판의 광자극발광 특성

Photostimulated Luminescence of SrCl₂:Eu²⁺, Na⁺ Imaging Plate

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요약

SrCl₂:Eu²⁺, Na⁺ 광자극발광 영상판을 제작하여 그 특성을 조사하였다. 이 영상판은 디지털 X-선 영상에 사용할 수 있으며, 방사선에 대한 감도가 높고, 넓은 동적영역을 가진다. SrCl₂:Eu²⁺, Na⁺ 영상판의 광자극발광 스펙트럼 파장범위는 380 ~ 440 nm 이었으며, 최대 피크 파장은 407 nm 이었다. 영상판의 광자극발광 강도는 상온에서 120 분 동안 약 40% 감소하였으며, 공간분해능은 2.1 lp/mm 이었다.