

Performance evaluation of selected medical imaging equipment using standard and locally fabricated test tools

Y. A. A. Kumarayapa and S. R. D. Rosa

Department of Physics, University of Colombo, Colombo 3

Quality degraded diagnostic imaging equipments over expose patients, staff and public and also results in retakes and film wastage. A simple electronic fault of X-ray generator timer circuit could be a reason for above but the standard performance evaluation methods of medical imaging equipment need very expensive, less available test tools. This work describes the performance evaluation of selected diagnostic imaging equipments with view to fabricate low cost test tools.

For CT Scanner, Evaluation of CT numbers to assess the quality, and SNR evaluations are novel experiments conducted locally. Ring artifacts due to performance degraded Xenon transducers were visible in the image obtained for constructed wooden phantom. For the older X-ray generator, errors of time setting and fine focal spot were found. The constructed automatic spinning top gave accurate results. Approximate MTF for focal spot and screen film system and the resolving power of X-ray generator were evaluated using constructed resolving target with pinhole image. For Radiologists, above parameters will give ideas; ?amount of information lost from the system? and ?the resolving ability? of organ imaging. Gamma camera performance was also verified.