

Karakter fantom in-house dalam akuisisi citra menggunakan digital radiography philips tipe wireless dan philips tipe stasioner = In-house phantoms characters in image acquisition using digital radiography philips wireless type and stationary philips type

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Abstrak

Penelitian ini membahas karakter dua digital radiography (MobileDiagnost wDr dan Essenta DR Compact) menggunakan fantom in-house dan fantom pro-digi dilihat dari kualitas citranya. Parameter kualitas citra direpresentasikan sebagai koefisien linearitas (CL) yaitu korelasi antara Signal Difference to Noise Ratio (SDNR) dengan kedalaman obyek, dan koefisien variasi (CV) yaitu konsistensi nilai SDNR obyek terhadap perubahan ukuran. Selain itu, Modulation Transfer Function (MTF) juga dievaluasi sebagai parameter tambahan. Pengambilan citra dilakukan dengan empat variasi filter (0 mm Al, 1 mm Al + 0.1 mm Cu, 1 mm Al + 0.2 mm Cu, dan 2 mm Al) juga dengan dan tanpa antiscatter grid. Penelitian ini menunjukkan desain dari fantom in-house dapat digunakan untuk Quality control (QC) pada sistem DR tetapi penggunaannya tidak dapat digeneralisasi pada semua DR dikarenakan setiap alat memiliki karakteristik masing-masing.

.....This study aims to discuss the characteristics of two digital radiography systems, namely Mobile Diagnosis WDR and Essenta DR Compact using in-house phantoms and Pro-Digi in terms of image quality. Proposed image quality parameters are linearity coefficients (CL), namely the correlation between the Signal Difference to Noise Ratio (SDNR) and the depth of the object, and the coefficient of variation (CV), namely the consistency of the SDNR value of an object to size change. In addition, Modulation Transfer Function (MTF) was also evaluated as additional parameter. Phantom images were taken with four filter variations (0 mm Al, 1 mm Al + 0.1 mm Cu, 1 mm Al + 0.2 mm Cu, and 2 mm Al) with and without antiscatter grid. This study shows that the in-house phantom can be utilized for Quality Control (QC) in the DR system but its use cannot be generalized to all DRs due to unique characteristics of each devices.