

ABSTRACT

The slice spacing parameter in CT scans plays an important role in maintaining the accuracy of volumetric representation in reconstructed images. IndoQCT V26d software provides a feature for slice spacing measurement; however, its accuracy and performance still require evaluation. This study aimed to evaluate the capability of IndoQCT V26d in measuring slice spacing on Neusoft phantom images consisting of a head physical layer, head water layer, and body water layer. Data were acquired using a Siemens Somatom 128-slice CT scanner with tube voltage variations of 80, 110, and 130 kV and field of view (FOV) variations of 250, 301, 400, and 500 mm, using a slice thickness of 1 mm. Slice spacing measurements were performed using the centroid-based method in IndoQCT V26d and compared with DICOM reference values to calculate measurement errors. The results showed that for tube voltage variations, the mean measurement error was $(11.65 \pm 1.61)\%$ for automatic measurements and $(13.43 \pm 1.22)\%$ for manual measurements. For Field Of View variations, the mean measurement error was $(12.20 \pm 6.45)\%$ for automatic measurements and $(13.59 \pm 1.38)\%$ for manual measurements. IndoQCT V26d demonstrated stable performance against tube voltage variations but showed sensitivity to changes in field of view due to decreased spatial resolution. Overall, IndoQCT V26d was able to measure slice spacing with acceptable accuracy and can be utilized as a supporting tool to maintain volumetric accuracy in CT images.

Keywords : *Slice Spacing, IndoQCT, Neusoft Phantom, CT-Scan, Field Of View, Tube Voltage*