

Perbandingan karakteristik scanner vidar dosimetrypro advantage dan epon perfection v700 berbasis dosimetri film radiochromic ebt2 = Characteristics comparison of vidar dosimetrypro advantage and epon perfection v700 scanner based on radiochromic ebt2 film dosimetry

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Abstrak

Telah dilakukan penelitian untuk menentukan karakteristik dasar dari scanner yang digunakan untuk dosimetri film radiochromic EBT2. Dalam penelitian ini digunakan scanner Vidar DosimetryPro Advantage dan Epson Perfection V700. Pengujian yang dilakukan meliputi uji konsistensi scanner, uji variasi film to film, uji uniformitas scanner, uji efek orientasi film, uji suhu ruang penyimpanan film, uji fading film dan uji noise film/scanner. Scanner diuji menggunakan film EBT2 yang telah dipapar radiasi menggunakan Linac dengan modalitas foton 6 MV. Film mempunyai 8 buah lapangan berukuran 3 cm x 3 cm dengan dosis dari 31,31 - 250,48 cGy. Software yang digunakan untuk menganalisa hasil bacaan scanner adalah ImageJ dan FilmQA Pro. Dari hasil pengujian didapatkan konsistensi Vidar mode Logarithmic lebih baik dengan standar deviasi (SD) kurang dari 0,06%, sedangkan standar deviasi Epson mencapai 0,40%. Uniformitas Vidar juga lebih baik dengan SD kurang dari 0,76% dibandingkan Epson yang mencapai 1,16%. Orientasi film cukup berpengaruh terhadap hasil bacaan, terutama pada Epson, sehingga orientasi film harus konstan selama pemindaian. Pengujian noise film/scanner menunjukkan bahwa Epson menghasilkan noise yang lebih kecil sebesar 0,10% dibandingkan Vidar yang menghasilkan 0,33%. Performa Vidar secara keseluruhan lebih bagus daripada Epson terutama saat red channel saja yang dianalisa.

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Has been done measurement of basic characteristic of Vidar DosimetryPro Advantage and Epson Perfection V700 scanner based on radiochromic EBT2 film dosimetry. The tests were consist of the consistency test, film to film variation test, scanner uniformity test, effect of film orientation test, room storage temperature test, film fading test and scanner noise test. The scanners performance were tested using The scanners performance were tested using EBT2 with eight separated 3 x 3 cm² fileds to doses ranging from 31.31 - 250.48 cGy which was irradiated using photon beam of Linac 6 MV. For evaluation, ImageJ and FilmQA Pro were used. The performance of Vidar scanner is higher in consistency and unifromity with standard deviation of measurement 0.06% and 0.76% compare with with Epson scanner with standard deviation of 0,40% and 1.16%. The film orientation effect made a big different result especially in Epson that reached 10.65% differences between portrait and landscape orientation. The scanner noise was small: 0.10% in Epson and 0.33% in Vidar. The overall measurements of Vidar was better than Epson, especially because only red channel that was analyzed.