

Perbandingan Metode kalibrasi Silang Detektor Plane Paralel Markus terhadap Detektor Silindris Farmer antara Protokol IAEA TRS 381 dan TRS 398

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Abstrak

Telah dilakukan sebuah studi perbandingan metode kalibrasi silang detektor plane paralel Markus terhadap detektor silindris Farmer antara protokol IAEA TRS 381 dan TRS 398. Pengukuran dilaksanakan pada medium udara dan air menggunakan kamar ionisasi tipe Farmer PTW 30013 kedap air dan kamar ionisasi plane paralel Markus PTW 233343 kedap air. Hasil pengukuran faktor kalibrasi dosis dalam air adalah $N_{ppD,air} = 0.4338$ Gy/nC dan $N_{ppD,w} = 0.4967$ Gy/nC. Hasil pengukuran faktor kalibrasi dosis di udara adalah $N_{ppK} = 0.4474$ Gy/nC dan $N_{ppD,air} = 0.4394$ Gy/nC. Faktor kalibrasi yang diperoleh kemudian digunakan untuk mengukur dosis dan menghasilkan deviasi dosis cukup kecil (0.52%).

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A study on comparison between IAEA protocols TRS 381 and TRS 398 on cross calibration method of Markus plane parallel chamber and Farmer cylindrical chamber has been done. Measurements were done both in air and water phantom using water tight Markus plane parallel chamber PTW 233343 and water tight Farmer cylindrical chamber PTW 30013. Dose calibration factors in water were found to be $N_{ppD,air} = 0.4338$ Gy/nC and $N_{ppD,w} = 0.4967$ Gy/nC. Dose calibration factors in air were found to be $N_{ppK} = 0.4474$ Gy/nC and $N_{ppD,air} = 0.4394$ Gy/nC. These factors were then used to determine dose in water resulting in acceptably small deviation within 0.52%.