

**Purpose:**The dosimetric verification of large IMRT fields is crucial, if the target length is not entirely covered by the two-dimensional detector arrays, due to its limited active area for the measurements. Therefore, our aim is to overcome this limitation by doing the measurements at shorter SSDs, where the treatment field size is smaller compared to the field size at isocenter.

**Methods:**Four cervical carcinoma patient plans with large IMRT fields (PTV Length-20.50, 21.50, 22.50 and 24.00cm) were chosen, where PTV length was not entirely covered by I'matriXX two-dimensional array (Active area 24×24 cm<sup>2</sup>) placed at the isocenter. To overcome this, for each patient, IMRT plans (6MV, Sliding window) were verified at 95cm (array at isocenter), 90cm, 85cm and 80cm SSDs using I'matriXX and EDR-2 films. The dose planes measured with I'matriXX and EDR-2 films were compared with their effective dose planes at TPS. For gamma index analysis, 3%/3mm criteria were used. Initially, I'matriXX and films were calibrated at corresponding SSDs.

**Results:**For I'matriXX Vs TPS, as the SSD decreases, significant improvement in pass rate of gamma was observed. At shorter SSDs, gamma was improved up to 4.4%. This is due to the improved coverage of the fields at I'matriXX plane at shorter SSDs and it is consistent for all the cases. For I'matriXX, the average pass rate of gamma was 97.75±2.63%, 98.96±0.86%, 99.36±0.50% and 99.52±0.33% for 95cm, 90cm, 85cm and 80cm SSDs, respectively. I'matriXX showed better results at shorter SSDs than EDR-2 films. For film, which is field size independent, the average pass rate was 97.66±0.80%, 97.16±1.14%, 96.57±1.62% and 94.43±2.30% for 95, 90, 85 and 80cm SSDs. Both I'matriXX and films are sensitive to calibration and correction factors at different SSDs.

**Conclusions:**By using proper calibration and correction factors, I'matriXX may be used at shorter SSDs for the verification of larger IMRT fields.