AbstractID: 7655 Title: 2-D Lag and Ghosting Corrections for Dynamic IMRT Verification Using an EPID

**Purpose:** To measure and correct the two dimensional lag and ghosting effects of an a-Si EPID for dynamic MLC delivery in IMRT verification.

**Method and Materials:** Varian's aS500 EPID was used to acquire portal images at an SID of 105 cm with 2 cm solid-water build-up. Each image was averaged over 8 frames acquired in 'continuous acquisition' mode with *Varis Portal Vision's* service monitor (IAS3) to construct lag and signal-to-MU curves. To quantify lag, images were acquired post-irradiation by inhibiting the M-holdoff-In signal, for a range of MUs. The resulting lag and signal-to-MU curves were used to calculate cumulative lag and cumulative dose-response curves. Both these cumulative curves were used to correct the 2-D lag and ghosting effects of the EPID images.

**Results:** We found that the 2D effects of lag and ghosting can be corrected by measuring and then applying lag and signal-to-MU curves. This technique provides a maximum correction of approximately 1% for dynamic head-and-neck IMRT deliveries.

**Conclusion:** Two-dimensional lag and ghosting effects of the aS500 EPID can be measured and corrected. This approach can be of particular importance for the EPID IMRT verification of MLC dynamic deliveries.