We evaluate the use of Varian aS500 amorphous-silicon EPID for verifying IM beam delivery. The superior spatial resolution and potentially high imaging speed of aS500 make it a favorable imaging device for IMRT verification. We use a 15X beam to irradiate the EPID for 25 prostate IMRT fields. The readings of each image are converted to dose rates using the calibration curve and are integrated over time to obtain a “measured” dose profile. We compare the “measured” profile to the “intended” profile (from treatment planning) using a linear-regression model that returns an index $\sigma$ for the goodness of match. The results show that the calibration curve for the 15X beam is perfectly linear. However, strong energy dependence is observed for the 6X beam, making the calibration curve deviate from a straight line for that energy. The phantom scatter of aS500 is more pronounced (>2% for large fields) than that of a water phantom. The EPID-measured dose is linearly correlated with the ion-chamber measurement ($R^2=0.9979$). The measured profiles agree well with the intended profiles (mean $\sigma=3.4\%$, standard deviation=1%). Even for the cases with a higher $\sigma$ (>4%), the plotted intended profiles are very similar to the measured ones, indicating the difference is mainly from the high gradient region. Although the tolerance ($5.4\%=\text{mean } \sigma + \text{two standard deviations}$) based on these data is slightly higher than the acceptable 5.0% tolerance for treatment quality assurance, we believe that this number can be greatly reduced with more careful alignment of the intended and measured profiles.