**Purpose:** To compare the IMRT QA pass/fail rates of a 2D diode array system MapCHECK™ and a cylindrical 3D diode array system Delta4®, and to investigate the benefit of DVH-based IMRT QA. **Methods and Materials:** Eight treatment plans totaling 62 IMRT fields were measured using both MapCHECK and Delta4. The data were compared to the treatment planning data using Gamma analysis. Passing criteria was defined as 95% of measured points had to have a gamma value ≤1.0 using a distance to agreement of 4mm, a 5% dose window, and a 10% dose threshold. Structures, including GTV and organs at risk (OAR), and dose volume histograms (DVHs) were exported from the treatment planning system to Delta4® for comparison to measured DVHs. **Results:** QA with Delta4® used an average of 466 detector points per field. Using gamma analysis, 60/62 (96.8%) IMRT fields passed with an average of 98.9% of detector points within a gamma value ≤1.0 when measured on the Delta4®. QA with MapCHECK used an average of 88 detector points per field. Application of the same gamma analysis resulted in 14/62 (22.6%) IMRT fields passing with an average of 91.3% of detector points with a gamma value ≤1.0 as measured by MapCHECK. Further analysis of IMRT fields that failed using MapCHECK QA, indicated that the measured data was within 1-2% of the treatment plan. Planned GTV DVHs corresponded with the Delta4® measured GTV DVHs, however measured OAR DVHs differed from their planned DVHs. **Conclusions:** This study suggests that QA results acquired with Delta4® correspond more accurately to the actual treatment plan as compared to MapCHECK. Incorporating Delta4® into routine QA will decrease the overall QA analysis time. The increased pass rate with Delta4® may result from the increased amount of detectors per treatment field.