

## AbstractID: 9107 Title: Comparison of Mapcheck and EDR2 film for IMRT QA

**Purpose:** To evaluate and compare the results of IMRT QA measurements taken using MapCheck and EDR2 film on a 6MV linac (21-EX). **Method and Materials:** 10 Head & Neck IMRT treatment plans (ADAC Pinnacle) were evaluated. The treatment beams were placed on a QA phantom and a coronal dose distribution at 5cm depth was selected. This selected dose distribution was used as a reference to compare with identical dose profile measurements taken using EDR2 film and MapCheck. Three dose distribution comparisons were performed: between treatment plan & film, between treatment plan & MapCheck, and between MapCheck & film. The percentage of pixels with  $\gamma \leq 1$  was used to evaluate film results and the percentage of passed data points was used to evaluate MapCheck results. 5% dose/3 mm distance-to agreement and 3% dose/2 mm distance-to-agreement tolerance conditions were used. A similar procedure was followed using EDR2 film with actual patient treatment beams angles. The mean percentage of points passing for all beams within a plan was calculated. **Results:** For EDR2 film vs. plan analysis, the mean pass rate is 99.8 % for (5%, 3mm) tolerance and 94.8% for (3%, 2 mm) tolerance condition. For MapCheck vs. plan: 99.9% for (5%, 3mm) tolerance and 96.5% for (3%, 2 mm) tolerance. MapCheck vs. film: 99.9% for (5%, 3mm) tolerance and 97.7% for (3%, 2 mm) tolerance. For actual gantry angle of treatment EDR2 film vs. plan: 93.3% with (5%, 3mm) tolerance and 78.2% for (3%, 2 mm) tolerance. **Conclusion:** IMRT QA performed using EDR2 film & MapCheck show similar results. IMRT QA performed using EDR2 film for non-zero gantry angles result in up to a 12% increase in failing pixels relative to QA performed with all beams at 0 gantry.