AbstractID: 9609 Title: Multiple MLC Carriage Groups and Single Point IMRT QA Measurements

Purpose: To investigate the discrepancy between reported and measured doses of individual subfields in multiple MLC carriage groups for IMRT QA using the Varian system. **Method and Materials:** The Varian leaf motion controller splits large fields into multiple MLC carriage groups for dynamic delivery. This process is handled automatically by the treatment planning system at time of transfer to the R&V system without requiring dose recalculation. As such, the reported point doses can be different from measured point doses for the individual subfields. Fifty IMRT fields that were split into two or more subfields were examined. The large fields were calculated and delivered on an IMRT verification phantom. To further investigate the point dose contribution from individual subfields, the fields created by the export process were recalculated. The reported and measured point doses were compared for each subfield individually and for the original large-field as a whole. **Results:** Comparisons of the reported point doses and measured point doses for the original large-field as a whole are typically within a few percent. However, the reported point doses for the individual subfields are inconsistent with the measured point dose for the original plan. In some instances, this difference can be orders of magnitude. Point dose contributions from the subfields as reported in the recalculated plans are more intuitive and consistent with the measured point doses. **Conclusion:** The reported dose of large-fields with multiple MLC carriage groups as a whole is understood and in acceptable agreement with measurements. However, the origin of the reported point dose contribution of each individual subfield in the original plan is unclear and may not be correct. The use of this dose in comparison with measurements is not recommended without recalculation.