Conclusions: DC is capable of successfully reconstruct the dose distribution in the patient from the EPID measured exit fluences. In our experience, systematic in vivo dosimetry demonstrated to be a valid tool for quality assurance, both in detecting systematic errors and in giving an effective way of estimating the accuracy of treatment delivery.

EP-1413
Dosimetry verification of mixed-energy IMRT plans using Verisoft and Octavius 4D System
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Purpose/Objective: After introducing IMRT technique, several studies showed that 6 MV should be first choice of energy. However, our clinical practice and some research made on prostate cancer plans, shows that mixing energies plans allow to use advantages of higher energy with minimizing negative impact at the same time. Pre-treatment verification of mixed-energy plans seems to be more complicated because splitting these plans to two single energies plans gives two sets of data for separate evaluation with adequate calibration. The purpose of this work was to test quite an easy way of evaluating mixed-energy IMRT pre-treatment verification plans. Octavius 4D system for measurements and Verisoft (PTW) for evaluation were used.

Materials and Methods: For 35 patients, with different cancer location, mixed-energy IMRT (6MV and 15MV) plans have been prepared. RT plans were prepared on Eclipse TPS with sliding window technique. For each plan, three pre-treatment verification plans were: one plan with all beams, and two separate plans for each photon energy beam. Verification plans were evaluated for separate energies at first. Than, after 3D dose calculation, measurements were exported into dicom files. Mixed-energy verification plan was compared with sum of RT dose dicom files for separate energies (summed plan). Each comparison was done with gamma 3D evaluation for summed plans and weighted average result for separate energies as well. Wilcoxon signed-rank test was used.

Results: In Figure 1 you can see results of gamma evaluation with 33max and 33local criteria for separate energies, summed plans and weighted average for separate energies as well. Wilcoxon signed-rank test confirmed null hypothesis of no significant differences between gamma results weighted average for single energy plans and summed plans (p-values were: 0.92 for 33max; 0.63 for 33local).

Conclusions: Proposed by us method of summing up dicom RT dose files for single-energy plans is easy to use and gives one single result of gamma comparison, which is quite easy to interpret. Although there is no significant difference for 33max, 33local we highly recommend to use gamma evaluation for summed plans.

EP-1414
The effect of depth and control point number for MLC transmission and dosimetric leaf gap
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Purpose/Objective: MLC transmission (MLCT) and dosimetric leaf gap (DLG) in Treatment Planning System (TPS) are were calculated, where number of fields with each energy served as weight. Result of gamma 3D evaluation for summed plan and weighted average result were compared. Wilcoxon signed-rank test was used.

Results: In Figure 1 you can see results of gamma evaluation with 33max and 33local criteria for separate energies, summed plans and weighted average for separate energies as well. Wilcoxon signed-rank test confirmed null hypothesis of no significant differences between gamma results weighted average for single energy plans and summed plans (p-values were: 0.92 for 33max; 0.63 for 33local).