

Purpose: To describe the commissioning process of a treatment planning system with proton therapy capability. **Materials and Methods:** Simple proton beam arrangements can deliver very precise and highly conformal dose distributions to complex targets and simultaneously conformally avoid critical structures in the vicinity of the target. But proton treatment planning is quite challenging and less forgiving to errors, so commissioning a proton therapy treatment planning system presents its own challenges. Recently, we commissioned a new treatment planning system (OdysseyTM-4.01). This treatment planning system has both proton and photon planning capability. We will present the process and results of our experience with commissioning the proton-planning component of this system. **Results:** In the non-dosimetric part of commissioning, various tools and features of the treatment planning system were tested for specifications and were found to be within specs. The fidelity of the data and image transfer from CT to the treatment planning system and from treatment planning system to the treatment rooms was checked and found to be accurate. The treatment devices (compensator boluses and apertures) created by the planning system were checked for accuracy. In the dosimetric commissioning we compared depth dose profiles and beam profiles generated by the treatment planning system with the measured data for regular fields. Dose distributions generated by patch and match field arrangements, and for small stereotactic radio-surgery (SRS) fields were verified by direct measurements in a phantom. The dose monitor units from treatment planning and hand calculations agreed within 2% for fields larger than 5 cm. Smaller fields needed portal specific calibration. **Conclusions:** All tests performed as part of commissioning were within specifications. For patch and match fields, dosimetric verification of the plan generated dose distributions is highly recommended.