A 3D treatment-planning system (TPS) for stereotactic intensity-modulated radiotherapy (SIMRT) using a micro multi-leaf collimator has been made available by Radionics. In this work, we report our comprehensive quality assurance (QA) procedures for commissioning this TPS. First, the CT-to-electron density conversion curve used in the TPS was verified for the material of a QA phantom. Using this phantom, the radiological pathlengths against known geometrical depths were verified to ensure the accuracy of the ray-tracing algorithm. The result has revealed a limitation of the current TPS which incorrectly accounts for the CT couch in the dose calculation. Thus, we have limited our application to head/neck tumors for which a special carbon-fabric board was used in CT scans. Various IMRT treatment plans in patient CT images were performed and the optimized fluence maps were applied to the QA phantom for dose verification. Chamber and film measurements in the QA phantom were carried out. For any discrepancy larger than 3%, we investigated the contributing factors, such as collimator and phantom scatters. The isodose distributions measured on film were compared with the planned distributions. Good agreements for the high dose levels (100%, 90% 80%) were observed. The discrepancy (5%) for intermediate dose levels (50%) was further investigated. To ensure that adjacent organs-at-risk (OARs) receive dose within the expectation, we used the Monte Carlo method to calculate dose distributions and dose-volume histograms for these OARs. The Monte Carlo calculations confirmed the measured dose distributions. Our comprehensive procedures have facilitated clinical implementation of the SIMRT program.