In recent years, Intensity Modulated Radiation Therapy (IMRT) is used to radiate tumors that are in close proximity to vital organs. Targets consisting of a deep-seated region followed by a superficial one maybe treated with abutting photon and electron fields. However, no systematic study regarding matching of IMRT and electron beams was reported. In this work, a method that improves dose homogeneity between abutting tomographic IMRT and electron fields was developed. In this method, a target region that is covered by IMRT was extended into the superficial target area by ~2.0 cm and electrons radiated rest of superficial target region. Length and shape of IMRT field extension was chosen such that high isodose lines bent away from the region treated by electrons. This reduced the magnitude of hot spots caused by the "bulging effect" of electron field penumbra. To account for the uncertainties in positioning of the IMRT and electron fields, electron field penumbra was modified using conventional (photon) MLC. The electron beam was delivered by in two steps: half of the dose delivered with MLCs in retracted position and another half with MLCs extended to the edge of electron field that abuts IMRT field. The experimental testing of this method has demonstrated that the magnitude of the hot spots was reduced from ~35% to ~5% of the prescription dose. When an error of $\pm$ 1 mm in field positioning was introduced, the dose inhomogeneity in the abutment region did not exceed $\pm$ 10 % of the prescription dose.