Edge localized modes (ELMs) are a concern for future magnetic fusion devices, such as ITER, due to the large transient heat loads they generate on the plasma facing components. A very promising method of ELM suppression is an application of resonant magnetic perturbations (RMP); however, such application leads to localized places of higher heat fluxes called footprints. Both ELMs and RMP could limit the operational lifetime of the device. In this thesis, we analyze the temporal and spatial distribution of footprints using the tangle distance method in the aim to prevent a transient overheating. We also analyze quasi-double-null configuration of the ITER plasma which can be expected to be the most susceptible to overheating of the upper wall. Based on the modelling, the potentially dangerous configurations of the RMP have been shown. Using the ELM filament model included in the LOCUST GPU code, we study temporal and spatial distribution of the heat fluxes caused by ELMs in the axially symmetric and the asymmetric magnetic field. The results are compared with published experimental observations.