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FTP/P7-22: Optimization of JT-60SA Plasma Operational Scenario with Capabilities of Installed Actuators

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Assessment of plasma operation scenarios and possible operation spaces in JT-60SA has been carried out with emphasis on controllability with actuators, including not only heating and current drive but also fueling and pumping system. The main target of this assessment is high normalized pressure (β_N) steady-state scenario, which requires careful control. It is confirmed that the safety factor profile, which is believed to play an important role for confinement improvement, can be prepared appropriately at the plasma current (I_p) ramp-up phase in a wide extent within capability of the installed ECRF system. At the flat-top of a high normalized pressure and high bootstrap current plasma, it is also confirmed that the installed NB system can modify the safety factor profile and the confinement property within the planned capabilities. It is confirmed that impurity seeding in the SOL and the divertor region can maintain the heat flux within the divertor heat tolerance keeping the separatrix density level acceptable.

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