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Working point optimization towards high intensity beam commissioning at CSNS-RCS

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China Spallation Neutron Source (CSNS) is the pulse facility that aims to provide hundreds kilowatt beam power for users. The Rapid Cycling Synchrotron (RCS) is a important part that under 25Hz to accelerate and accumulate beam energy to 1.6 GeV from 80 MeV. As a high intensity facility, the resonance dominated by space charge is very serious for the RCS. Towards to high intensity beam commissioning, the orbit matrix methods were used to calibrate lattice functions. After the working point is corrected to design mode, the working point is carefully optimized to reach high effective beam transmission and low beam loss.

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