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The SPIDER Pulse Plant Configuration Environment

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At the ITER Neutral Beam Test Facility, the Source for the Production of Ions of Deuterium Extracted from Radio frequency plasma (SPIDER) has been in operation since 2018 aiming at prototyping the heating and diagnostic neutral beam appliances in view of the ITER demanding requirements for plasma burning conditions and instabilities control.

For the sake of safety, machine protection and efficiency it is necessary to follow an accurate planning strategy and approval action of the experiment parameter settings. Although the initial tools available for the SPIDER integrated commissioning and early campaigns offered the basic functionality to perform the necessary tasks, there were a set of relevant issues that were identified as needing improvements for an efficient and safe configuration environment. Namely, the fact that there were no tools indicating the parameters change since the previous pulse, or the lack of a comparison tool between a new set of parameters and a previous setup, demanded a tedious and error prone verification of all parameters in the sequence. Moreover, several verifications should be automated according to the machine safety limits, increasing the safety check by human and automated machine (algorithmic) validation.

This contribution depicts (i) the approval sequence designed for SPIDER safe operation; (ii) the configuration environment requirements according to the SPIDER pulse preparation procedure; (iii) the decision of the development tools used for implementation and design; (iv) the implementation details and preliminary tests of the global environment.

Minioral

Yes

IEEE Member

No

Are you a student?

No

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