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Mechanical design of the D-II injection striplines

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Transparent injection is a key goal of the upgrade of Diamond Light Source to a fourth-generation synchrotron, Diamond-II. This work presents the mechanical design of the Diamond-II K01 straight, which includes three pairs of injection stripline modules, and highlights the following aspects of the design: the general layout (covering the location of the modules, vacuum pumping, and protection from synchrotron radiation); detailed design and assembly of the stripline modules; and lessons learned from the testing of the stripline prototype on the existing machine. The general layout ensures that the modules are optimally positioned to maximize efficiency and minimize interference from synchrotron radiation. The detailed design and assembly process involved rigorous testing and refinement to ensure that each component met the high standards required for operation in a high-energy environment. Lessons learned from the prototype testing provided valuable insights into potential improvements and adjustments needed for the final design, ensuring that the system will perform reliably under operational conditions.

Footnotes

Funding Agency

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