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Development of Bunch Selector Modules for Double Bunch Operation in PAL-XFEL BPM Systems

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PAL-XFEL is preparing for double bunch operation scheduled for 2027 by upgrading various systems, including the BPM (Beam Position Monitor) infrastructure. However, the existing BPM electronics are optimized for single bunch signals, and when double bunches are injected, signal overlap occurs, making accurate position measurements difficult. To address this issue without significantly modifying the existing electronics, an RF switch module was externally added to suppress one of the two bunches. This approach was adopted based on the beam physics group's assessment that accurate monitoring of a single bunch allows for reliable estimation of the second bunch's position.

To implement this approach, a bunch selector module was developed and applied to the system, and this paper presents the prototype development process and its application results in BPM systems.

Footnotes

Funding Agency

I have read and accept the Conference Policies

Yes

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