

Pickups for High Bandwidth Applications

Like in a typical beam position monitor, the electro-optical bunch arrival-time monitor (EO-BAM) in an x-ray free-electron laser (XFEL) comprises pickups. Although the data acquisition is differing, both cases have some similar design requirements. Especially, in the case of the EO-BAM a strong demand for a wide bandwidth. The cone-shaped button-type pickups, implemented and used for many years in various XFEL, have a bandwidth of at least 40 GHz. In this presentation, we will show the 40 GHz pickups with special attention to the mechanical design of the pickup and its feedthrough. Additionally, we will introduce our current work on pickups realized on a printed circuit board with an integrated combination network, which are planned to surpass 100 GHz.

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