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## Design and Layout of TDS System for DALS-pre

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In 2018, an Advanced Electron Test Facility, named Dalian Advanced Light Source (Pre-research) was proposed and approved, which consists of an electron source, two cryomodules based on superconducting technology, a Transverse Deflecting Structure (TDS) system, and beam dumps. As an eminently practical instrument, TDSs are used for longitudinal and transverse phase-space analysis in Free Electron Laser facilities like EXFEL, SXFEL, LCLS and DCLS. Four TDSs (three for phase-I) operating at the frequency of 2997.222 MHz are expected to be used for the two beam-lines of DALS-pre, including both X-direction and Y-direction. A set of klystron-based pulsed microwave power source consist of a klystron, a modulator, a high-voltage power supply, will be used to provide high RF power in S-band. To transmit the RF power from power source to TDSs, a group of waveguides are designed, including variable power splitter, phase shifter, E-bends, H-bends, waveguide switches, ceramic windows, waveguide absorbing loads, directional couplers, vacuum pumping waveguides and straight waveguides. In this manuscript, the design of TDS system and layout of waveguide system will be presented in detail.

### Funding Agency

### Footnotes

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Yes

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