

Mode Launcher Design for the Multi-moded DLDS*, K. KO, Z. LI, S. TANTAWI, SLAC - The DLDS (Delay Line Distribution System) power delivery system proposed by KEK [1] combines several klystrons to obtain the high peak power required to drive a TeV scale linear collider. In this system the combined klystron output is subdivided into shorter pulses by proper phasing of the sources, and each subpulse is delivered to various accelerator sections via separate waveguides. A cost-saving improvement suggested by SLAC [2] is to use a single multi-moded waveguide to deliver the power of all the subpulses. This scheme requires a mode launcher that can deliver each subpulse by way of a different waveguide mode through selective phasing of the sources when combining their power. We present a compact design for such a mode launcher that converts the power from four rectangular waveguide feeds to separate modes in a multi-moded circular guide through coupling slots. Such a design has been simulated and found to satisfy the requirements for high efficiency and low surface fields.

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- [1] H. Mizuno, Y. Otake, "A New Rf Power Distribution System For X Band Linac Equivalent To An Rf Pulse Compression Scheme Of Factor 2^{*N} ," 17th International Linac Conference (LINAC94), Tsukuba, Japan, Aug 21 - 26, 1994.
- [2] S.G. Tantawi, et. al., "A Multi-Moded RF Delay Line Distribution System for the Next Linear Collider (NLC)", this conference.