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RF DESIGN OF THE PULSE COMPRESSION SYSTEM FOR THE KLYSTRON-BASED CLIC MAIN LINAC

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A pulse compression system based on double-height waveguides was designed for the Klystron-based CLIC main linac. The system has been optimized to achieve a power gain of 3.81 with the specific pulse shape required for the CLIC-K accelerating structure. This pulse compression system is composed of a main pulse compressor based on the Barrel Open Cavity (BOC) design and 4 correction cavities based on the bowl cavity design. The BOC pulse compressor operates in the $TM_{1,1,32}$ mode and has a Q_0 of 2.35×10^5 and a β of 6.6. To simplify the machining process, a novel coupling waveguide network was designed for the BOC pulse compressor. The correction cavities are based on the bowl cavity operating in the $TE_{2,2,3}$ mode, with a Q_0 of 7.5×10^4 and a β of 1.95.

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