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HOM analysis and HOM coupler preliminary design for CEPC

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A 5 cell cavity was chosen for CEPC Preliminary Conceptual Design Report (pre-CDR) design. The higher order mode (HOM) power for each cavity is 3.6 kW. The waveguide couplers were chosen for HOMs damping. After the completion of pre-CDR, the CEPC study group starts to the conceptual design report (CDR). A 2 cell cavity design is chosen for CEPC partial double ring (PDR) scheme. The HOM power is calculated based on the beam parameters. To keep the beam stable, the thresholds for the longitudinal and transverse impedance are also given. In order to extract the higher order modes and reach the damping requirements for beam stability, the HOM coupler designing scheme is given.

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