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## Study of HOM couplers for the c-band accelerating structure

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Cryo-cooled C-band (5.7 GHz) copper distributed-coupling cavities are a new approach to the structure-based accelerators for the future multi-TeV energy range linear collider. It provides numerous degrees of freedom to optimize the cavity geometry to achieve high gradient and high-power in the linear collider. In this study, we analyze the dipole modes of C-band 20-cells cavity and calculate the wall loss  $Q$ -factors, shunt impedance, and the impact of transverse wakefields in the frequency range up to 40 GHz by using ACE3P code (Omega3P and ACD tools). Next, we equip each cavity with four waveguide manifolds with damping loads to suppress undesirable higher-order-modes (HOM). The results of ACE3P simulations are compared with the CST microwave studio simulations.

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### Footnotes

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