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High Repetition Rate Crab Cavity Prototype for an Electron-Ion Collider[1] ALEJANDRO CASTILLA, JEAN DELAYEN, Old Dominion University/Jefferson Lab — A 750 MHz superconducting rf dipole cavity has been studied as part of the crab crossing correction system for a large crossing angle (50 mrad) and high current electron-ion collider (0.5/3 A per bunch). The crab cavity prototype for Jefferson Lab's Medium Energy Electron-Ion Collider (MEIC) has been built at Niowave, Inc. In this talk we will present the principal rf properties of the design such as a broad separation of the Higher Order Modes (HOM) with respect to the operating (fundamental) mode, high quality factor, balanced surface electric and magnetic fields and low multipacting barriers, along with the results and experimental analysis of the cavity performance at 4 K and 2 K during tests realized at the Jefferson Lab facilities.

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