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Vertical tests of the 166.6 MHz HOM-damped Prototype SRF Cavities for HEPS

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The storage ring of the High Energy Photon Source will be driven by five higher-order-mode-damped 166.6 MHz beta=1 quarter-wave superconducting cavities operating at 4 K. Three prototype cavities were manufactured in Beijing and the surface preparations were conducted in Ningxia and Beijing. The cavities were subsequently vertical tested at PAPS in Huairou (Beijing). The cavity Q_{ext} at design voltage of 1.5 MV reached 3.8×10^9 at 4 K, exceeding the design goal of 1×10^9 . One cavity was subsequently welded with a helium jacket and vertical tested at 2 K achieving an RF performance comparable to the undressed cavities. No chemical polishing was conducted for the jacketed cavity.

Funding Agency

Footnotes

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Yes

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