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Design, fabrication and cold-test of an x-band accelerating structure for linearizer

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X-band high gradient accelerating technology is a challenging and important technology in advanced electron linear accelerator facilities. The X-band accelerating structure can provide harmonic compensation to eliminate non-linear energy spread and realize linear compression of bunch in linac. In this paper, a special X-band traveling-wave accelerating structure is designed for linearizer, with accelerating gradient of 20 MV/m under the input power below 5 MW according to the requirement of Dalian Coherent Light Source. The fabrication and cold-test of the structure are successfully completed and the transmission efficiency of power is about 0.38.

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