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Construction and test of a high-gradient, high rep rate C-band RF Gun

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The new C-Band RF gun, developed in the context of the European I.FAST and INFN Commission V TUAREG projects, has been realized. It is a 2.6 cell standing wave cavity with a four-port mode launcher, designed to operate with short rf pulses (300 ns) and cathode peak field larger than 160 MV/m. The gun has been realized with the new technology without brazing, developed at INFN, that allows to assemble the gun cells with special gaskets and to proceed, after the vacuum test, directly to the rf characterization. In the paper we illustrate the realization procedure and the results of the vacuum and low power RF tests. The gun has been installed at PSI (Switzerland) and is now ready for the high power test

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