

Abstract Submitted
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Subsystem Validation for the HJ1 Plasma Accelerator¹ ANDREW CASE, EDWARD CRUZ, ROBERT BECKER, MARCO LUNA, SAMUEL BROCKINGTON, ADAM COOK, F. DOUGLAS WITHERSPOON, Hyperv Technologies & HyperJet Fusion Corporation (United States) — The HJ1 plasma coaxial gun under development by HyperJet Fusion Corporation and HyperV Technologies Corp. for the PLX- α project at LANL requires integration of a number of critical subsystems each of which has to perform reliably over many shots. In addition to the coaxial electrode assembly and capacitor bank, there are a high speed high mass gas valve, six high current switches per gun, and a pre-ionizer system, Each must perform within tight specifications in order to achieve optimal performance of the gun. We present the results from independent testing of the switches and gas valve, each on a dedicated instrumented test stand which allows for precise measurement of performance. We also present results from testing of the preionization system which is done on the fully assembled gun with a dedicated set of diagnostics. The gas valve test stand allows us to carefully quantify repeatability from shot to shot and valve to valve, which are the primary considerations for this subsystem. Of primary concern for the switches is reliable operation, jitter, and lifetime, all of which are addressed using the test stand developed for that purpose.

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