

**HIGH VOLTAGE PERFORMANCE
OF RF TRANSMISSION LINE COMPONENTS ON
THE DIII-D FAST WAVE CURRENT DRIVE SYSTEM***

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The performance of the high voltage RF components of the General Atomics DIII-D Fast Wave Current Drive System have been evaluated under various conditions of insulator configuration, insulator material, insulating gas and gas pressure. The insulator materials that have been investigated are alumina, quartz, steatite, teflon, rexolite, delrin, G-11 fiberglass and others. The results of this evaluation are discussed in this paper. Additionally General Atomics has developed a RF high potter to aid in the evaluation of RF high voltage components. The high potter consists of a 50 ohm, 1/4 wavelength cavity with a variable position short and a 50 ohm matched tap at one end of the cavity. This configuration has been able to generate RF voltages in excess of 100 kVp in the frequency range 30 to 60 MHz.

*Work supported by U.S. DOE Contract Nos. DE-AC03-89ER51114 and W-7405-ENG-48.

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**ABSTRACT SUBMISSION FORM
16th IEEE/NPSS Symposium on
Fusion Engineering**

September 30 — October 5, 1995
Champaign, Illinois, USA

Paper Title: **High Voltage Performance
of RF Transmission Line Components
on the DIII-D Fast Wave Current
Drive System**

Technical Topic Number: **6**

Keywords:

- (1)
- (2)
- (3)

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