

4 MW UPGRADE TO DIII-D FWCD SYSTEM: SYSTEM COMMISSIONING AND INITIAL OPERATION*

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The initial installation of the 4 MW fast wave current drive (FWCD) upgrade started over two years ago with the purchase of two ABB/Thomcast AG RF power amplifiers. These amplifiers cover the frequency range of from 30 MHz to 120 MHz. A maximum output power of over 2 MW between 30 MHz and 80 MHz and 1 MW at 120 MHz were the specification requirements. The system as installed is comprised of the two mentioned RF amplifiers, coaxial transmission and matching components, RF phase and amplitude monitoring, and a SUN SparcStation 10 control system.

Due to various reasons almost every major component in the system required redesign and engineering in order to meet the system requirements. The failures, probable cause and the final redesigns will be discussed as well as some thoughts on how better to specify system requirements for future systems.

*Work supported by U.S. DOE Contract Nos. DE-AC03-89ER51114, W-7405-ENG-48, and DE-AC05-84OR21400.

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

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

Paper Title: **4 MW Upgrade to DIII-D
FWCD System: System Commissioning
and Initial Operation**

Technical Topic Number: **6**

Keywords:

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

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ABSTRACT

The initial installation of the 4 MW fast wave current drive (FWCD) upgrade started over two years ago with the purchase of two ABB / Thomcast AG rf power amplifiers. These amplifiers cover the frequency range of from 30 MHz to 120 MHz. A maximum output power of over 2 MW between 30 MHz and 80 MHz and 1 MW at 120 MHz were the specification requirements. The system as installed is comprised of the two mentioned rf amplifiers, coaxial transmission and matching components, rf phase and amplitude monitoring, and a SUN SparcStation 10 control system.

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