

## The Status of the Deep Space Network for the Cassini Radio Science Experiments

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### *Abstract*

The Deep Space Network (DSN) is operated by the Jet Propulsion Laboratory (JPL) of the California Institute of Technology for the National Aeronautics and Space Administration (NASA). The Frequency and Timing System (FITS) of the DSN as it existed before the Cassini program easily met the requirements for all the NASA deep space missions. These requirements and the performance of the present DSN FITS are given. The requirements of the Cassini Radio Science experiments are greater than that of the present performance of the DSN FITS. These requirements are given and the various changes that are being implemented in the DSN to meet these requirements are given, as well as the expected changes in the DSN FITS performance to meet these requirements. These changes include new frequency standards (Linear Ion Trap with Cryogenic Local Oscillator), improved long term stability (Stabilized Fiber Optic Distribution for the remote antennas), and improved short term stability (L-Band Fiber Optic Distribution with Clean-up Loops for the remote sites.)

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