

Radiosounding of Jupiters Atmosphere with EJSM-Laplace

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Abstract

The feasibility and performance of a radio science experiment on EJSM-Laplace for the sounding of Jupiters atmosphere and ionosphere (occultation experiment) has been studied. The experiment intends to use two downlink frequencies provided by the spacecraft radio subsystem and stabilized by an Ultrastable Oscillator (USO). Opportunities and performance based on the technical provisions and the baseline orbit will be shown. Solutions have been developed for the hardening and shielding of the USO versus the harsh radiation in Jupiters environment. As an option or alternative an uplink experiment has been studied in parallel which may be of advantage for certain constellations.