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DIRECT THRUST MEASUREMENTS OF MULTIDIRECTIONAL PLASMA THRUSTER OPERATED
IN KRYPTON

Abstract

The results on the direct thrust measurements of the thruster with multiple thrust vectoring capability operated in Kr are presented. The thruster tested is capable of creating thrust vectors in two directions. The thruster is 2U size system. The multidirectional thruster tested includes the thruster head - consisting of the set of electromagnets, open-ended gas discharge chamber, and antenna, - in-built rf generator creating 9 MHz current applied to the antenna, and in-built current sources for electromagnets. During the thrust measurements, the magnitude and configuration of the external constant magnetic field determined by the current applied to the electromagnets, propellant flow rate, and power modes are changed. The magnetic field magnitude is regulated in the range of 0.5...5 A. The propellant flow rate is regulated in the range of 2...10 sccm. The power modes are regulated in the range of 50...250 where the value 250 corresponds to a power of 100 W. The dynamic background pressure in the vacuum chamber is 0.1 mPa at 10 sccm.