

SPACE PROPULSION SYMPOSIUM (C4)
Electric Propulsion (4)

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ELECTRIC PROPULSION DEVELOPMENT FOR DFH-4SP SATELLITE PLATFORM

Abstract

Under the promotion of BSS-702SP[1], all electric propulsion satellite platform named DFH-4SP is developed in China since last year. The satellite's launch mass of DFH-4SP will be weighted less than 2500kg and will be transferred from the GTO to the GEO within 180 days by a powerful electric propulsion subsystem. Based on a technical inheritance of LIPS-200 ion electric propulsion subsystem(IEPS) for DFH-3B satellite platform[2], a more powerful LIPS-300 IEPS has been developing for DFH-4SP platform by Lanzhou Institute of Physics. The LIPS-300 IEPS is composed of a system control unit, 4 ion thrusters, 4 power processing units(PPU), and a xenon storage and feed subsystem including 2 xenon tanks, a pressure regulator unit and 4 flow controllers. A LIPS-300 ion thruster has three operation modes: (1) low thrust and high specific impulse mode (LTHSI) for orbital station keeping mission with the thrust of 95mN, the specific impulse of 4100s and the power of 3kW; (2) high thrust and high specific impulse mode (HTHSI) for normal GTO-to-GEO transportation mission with the thrust of 170mN, the specific impulse of 4100s and the power of 5kW; (3) high thrust and medium specific impulse mode (HTMSI) for GTO-to-GEO transportation mission with the satellite mass being larger than 2100 kg, with thrust of the 200mN, the specific impulse of 3600s and the power of 5kW. In this paper, the development status of the LIPS-300 ion electric propulsion subsystem is summarized and the next development program is presented.