

IAF SPACE POWER SYMPOSIUM (C3)
Space Power System for Ambitious Missions (4)

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DEVELOPMENT OF LOW COST LIGHT WEIGHT SMALL SAR SATELLITE -STRIX-ALPHA-

Abstract

Synspective and JAXA developed a light weight and low cost small SAR Satellite – Strix- α -, and successfully launched it on December 15 2020. Strix- α is a 100 kg class small satellite equipped with a X-band synthetic aperture radar (SAR) system that can be used for observations day and night and in any weather conditions. The size at launch is around 70 cm square and very compact. A deployable slot array antenna with a size of 4.9 m x 0.7 m is mounted on the satellite. Ground resolutions of the X-band SAR with a vv single polarization are 1 - 3 m, and swath widths are 10 – 30 km. We have developed a high power system consisting of a fully solid state pulsed high power amplifier, a deployable antenna and a SAR electronics for such small satellite. Chirped transmitting signal with frequencies of 9.5-9.8 GHz, with the duty of 25 Operation of this satellite in orbit is going well, and the first SAR image successfully acquired. Synspective aims to operate 6 constellations by 2023 and 30 by the mid-2020s. In this paper, we introduce a development and a initial operation of the Strix- α .