

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

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PHASED ON-ORBIT ASSEMBLY SCHEME OF DEMONSTRATION MR-SPS

Abstract

With the continuous breakthrough of key technologies and falling launch cost, demonstration of a MW class MR-SPS in 2035 becomes increasingly feasible. By adopts several updated technologies an improved multi-rotary SPS solution was further proposed to verify the maturity of key technologies on-orbit. Also modular, lightweight and highly integrated design reduced a lot of structural weight and makes it easier to assemble. All the assembly structure modules and high-voltage high-power modular assembly interface design was introduced in this paper. An operation system consists of launch vehicle, transfer vehicle, on-orbit assembly robots, and system maintenance during life cycle was also carried out. The construction of MW demonstration MR-SPS is characterized by periodicity in three phases. Details about launch, transfer and assembly strategy will be given. With this modular construction demonstration scheme the full scale demonstration MW system can be achieved and a full function platform will be provided for further scale expansion.