

## SPACE POWER SYMPOSIUM (C3)

Space-based Solar Power Architectures – New Governmental and Commercial Concepts and Ventures (1)

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## ORBITER DEMONSTRATION PLAN FOR SOLAR POWER SATELLITE OF SANDWICH TYPE

**Abstract**

We fortunately succeeded in the JAXA/ISAS sounding rocket experiment on the “Furoshiki” deployment, the retrodirective antenna and the crawling robots on the deployed mesh in January, 2006, as we presented the result at the last IAC in Valencia. The S-310-36 sounding rocket was launched to verify our newly proposed scheme to construct huge structures under microgravity condition in space. The rocket experiment had three main objectives, the first objective of which was to verify the Furoshiki deployment system, the second was to test the retrodirective antenna system to correct the distortion of the structures in a long range from space to the ground as mentioned above and the last is a microgravity test of the crawling robots on the deployed mesh.

We are planning the next demonstration for the Solar Power Satellite after the sounding rocket experiment. We are sure the fundamental beam control system of the microwave has been established by the sounding rocket experiment, which is one of the most important and critical issues to realize the SPS. Our next plan is an orbiter experiment to carry out the beam control test with a pilot signal from the ground. We are launching small many satellites to extend the Furoshiki deployment, which can work a test bed to investigate the functions of the Sandwich panels and robotic technologies related to the SPS. We launch many Sandwich panels with the antenna element to work as an active phased array antenna after the construction of the large mesh. Each antenna element, which receives the pilot signal transmitted from the large parabola antenna on the ground, transmits a radio wave of the different frequency from the pilot signal by controlling the output phase to the ground. This space experiment is the first trial in the world to construct the real small Solar Power Satellite.

We will describe about our recent developments on the sandwich panel with high power amplifiers and the configuration of the sandwich panel in our presentation.