SPACE FLYER UNIT
(SFU)

(Reimbursable)

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Launch Date: January 1, 1994
Projected SC Life/DSN Support: Reusable/6 months

Project Responsibility: Institute of Space and Astronautical Science (ISAS)

Source: SIRD
Sponsor: ISAS

A.   MISSION DESCRIPTION

The Space Flyer Unit (SFU) is an unmanned, reusable, and retrievable free-flying platform for multipurpose use. SFU is to be launched by an H-II launch vehicle into a low-Earth orbit of 400 to 500 km. The spacecraft will carry seven individual experiments to be completed during its mission period. Upon completion, the SFU spacecraft is to be recovered by the space shuttle (STS).

B.   FLIGHT PROFILE

The SFU spacecraft will be launched on an H-II launch vehicle from Tanegashima Space Center (TASC) in southern Japan, a planned initial orbit of 400 km perigee, 500 km apogee.

C.   COVERAGE

The DSN will support the Early Orbit phase and the Retrieval phase in support of the SFU project.

1.   Coverage Goals

The DSN will use the 26-m subnet to support the Early Orbit and Recovery phases of the mission. Support will consist of telemetry, command, and ranging.

2.   Network Support

The support provided by the DSN is indicated in the following table:

System	Goldstone	Canberra	Madrid
	12 14 15 16	42 43 45 46	61 63 66
S-band TLM	P	P	P
S-band CMD	P	P	P
S-band TRK	P	P	P

NOTE: P = Prime

D.   FREQUENCY ASSIGNMENTS

Frequencies are allocated according to the following table:

System	Uplink (MHz)	Downlink (MHz)	Polarization
S-band TLM	N/A	TBS	RCP
S-band CMD	TBS	N/A	RCP
S-band TRK	TBS	TBS	RCP

E.   SUPPORT PARAMETERS

The support parameters for the Telemetry, Command, and Support Systems are listed below:

(1)   Telemetry

Data Streams	2
Format	PCM (BiØ-L)/PSK/PM
Subcarrier Frequency	1024 kHz (1000, 16000 Hz)
Bit Rates	1000, 16000, 128000 b/s
Coding	N/A
Record	Required

(2)   Command

Format	PCM (NRZ-M)/PSK/PM
Subcarrier Frequency	16 kHz
Bit Rate	2000 b/s

(3)   Support

Uplink Power	1 to 10 kW
Antenna Rate	Moderate
Antenna Angle Data	Required
Antenna Autotrack	Required (26-m only)
Doppler Rates	Modest
Range Formats	Tone (Prime) (500 kHz Major Tones)
Recording	
. Analog	N/A
. Digital	Required

F.   TRACKING SUPPORT RESPONSIBILITY

The allocation of responsibilities for tracking support is listed in the following table:

Mission Phase	Support Responsibility
Prelaunch	NASDA
Launch	NASDA
Mission	DSN, ISAS

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