BROADCASTING SATELLITE-3A AND -3B (BS-3A AND 3B)

(Reimbursable)

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LV/Range: N-11/TaSC

Launch Date: BS-3A: August 28, 1990; BS-3B: August 17, 1991
Projected SC Life/DSN Support: 5 years/7 to 30 days

Project Responsibility: National Space Development Agency, Japan (NASDA)

Source: SIRD
Sponsor: NASDA

A. MISSION DESCRIPTION

The Broadcasting Satellites-3A and -3B (BS-3A and -3B) are being planned and developed by Japan's National Space Development Agency (NASDA) as a follow-on to the BSE and BS-2 project that began in April 1978. The BS-3A and -3B will provide direct color TV boradcasting to the Japanese mainland and remote islands including the Okinawa and Ogasawara island groups. Control of the satellite will be from the Tsukuba Space Center.

B. FLIGHT PROFILE

The BS-3A and -3B satellites will be launched from Tanegashima Space Center (TaSC) in southern Japan by a type H-1 three-stage launch vehicle. The mission has been designed to follow the conventional injection sequence; i.e.,

parking orbit, transfer orbit, and near-synchronous orbit. Attitude maneuvers will be performed to orient the spacecraft to the correct attitude prior to the Apogee Kick Motor (AKM) firing, which will occur at the 4th, 7th, 9th or 11th apogee. After AKM firing, drift phase orbital and attitude maneuvers will be performed to place the spacecraft at its final geostationary station position.

C. COVERAGE

1. Coverage Goals

The coverage will consist of the 26-m antenna as prime and the Madrid 34-m antenna as backup support for the transfer and drift orbits. Maximum support will consist of one 8-hour tracks per station for a 7-day period, plus 23 days of contingency support from all complexes.

2. Network Support

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

System	Goldstone	Canberra	Madrid
	12 14 15 16 17	42 43 45 46	61 63 66
S-band TLM	P	P	B P
S-band CMD	P	P	B P
S-band TRK	P	P	B P

NOTE: B = Backup; P = Prime

3. Compatibility Testing

The BS-3A and -3B compatibility tests were completed in 1989 at JPL's compatibility test area (CTA-21) and include radio metric, telemetry, and command data flow.

D. FREQUENCY ASSIGNMENTS

Frequencies are allocated according to the following table:

System	Uplink (MHz)	Downlink (MHz)	Polarization
S-band TLM	--	2280.721	RCP
S-band CMD	2100.164	--	RCP
S-band TRK	2100.164	2280.721	RCP

E. SUPPORT PARAMETERS

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

(1) Telemetry

Data Streams	
Format	PCM(SP-L)/PSK/PM
Subcarrier Frequency	192 kHz
Bit Rate	512 b/s
Record	Required

(2) Command

Format	PCM (BiØ-L) PSK/PM
Bit Rate	1 25 G/s
Subcarrier Frequency	16 kHz

(3) Support

Uplink Power	1 to 10 kW
Antenna Rate	Moderate
Antenna Autotrack	Transfer - drift orbits
Doppler Rates	Modest
Range Format	Tone (100 kHz major)
Recording	
. Analog	Required
. Digital	N/A

F. TRACKING SUPPORT RESPONSIBILITY

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

Mission Phase	Support Responsibility
Launch	TaSC
Transfer/Drift Orbits	DSN
Geostationary Orbits	TACS (NASDA)

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