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GEOSTATIONARY METEOROLOGICAL SATELLITE-5 (GMS-5)

(Reimbursable)

TDS Mgr: J. Goodwin   Project Mgr: TBS
   NOPE: R. Nevarez   MOM: M. Horii (NASDA)

Launch Date: 1 January 1994
Projected SC Life/DSN Support: 7 years/10 days

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

Source: TBS
Sponsor: NASDA

A   MISSION DESCRIPTION

The Geostationary Meteorological satellite (GMS-5) which is being developed by the National Space Development Agency of Japan (NASDA) is the fifth geostationary, spin stabilized, weather satellite. Its purposes are observation of cataclysmic events such as hurricanes, typhoons, and regional weather phenomena; day and night observations of regional weather; relay of meteorological observation data from surface collection points (ships, buoys and weather stations) to the Data Processing Center in Japan; and transmission of processing imaging data for facsimile reproduction of distribution points in the Western Pacific area.

B.   FLIGHT PROFILE

The GMS-5 satellite will be launched from Tanegashima Space Center (TaSC) in southern Japan by a type H-II 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 2nd (nominal), or the 4th (contingency) apogee. After AKM firing, drift phase orbital and attitude maneuvers will be performed to place the spacecraft at its final geostationary position.

C.   COVERAGE

The DSN will support the transfer and drift orbit mission phases.

1.   Coverage Goals

The coverage will consist of the 26-m antennas as prime and the 34-m antenna at Madrid as backup support for launch through drift orbit. Maximum support will consist of two 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 12 14 15 16	Canberra 42 43 45 46	Madrid 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: P = Prime
       B = Backup

D.   FREQUENCY ASSIGNMENTS

Frequencies are allocated according to the following table:

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

E.   SUPPORT PARAMETERS

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

(1)   Telemetry

Data Streams	1
Format	PCM (SP-L)/PSK/PM and FM/PM
Subcarrier Frequency	48.25 kHz, IRIG 12, IRIG B
Bit Rates	250 b/s
Coding	N/A
Record	Required

(2)   Command

Format	PCM/FSK-AM/PM
Subcarrier Frequency	8.6 kHz Sinewave for (1) tone
	7.4 kHz Sinewave for (0) tone
Executive Tone	5.79 kHz Sinewave
Clock/Data Phase	90 deg
Bit Rate	128 b/s

(3)   Support

Uplink Power	1 to 10 kW
Antenna Rate	Moderate
Antenna Angle Rate	Required
Antenna Autotrack	Required (26-m only)
Doppler Rates	Modest
Range Format	Tone (Prime) (100 kHz Major Tone)
	DSN Standard (Backup)
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
Launch	TaSC
Transfer/Drift Orbits	DSN
Geostationary Orbit	TACC (NASDA)
Contingency	DSN (on request)

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