

870-14, Rev. AF

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## LANDSAT 4 AND 5

(Emergency)

NC999967

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Project Mgr: L. Gonzales (GSFC)  
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LV/Range:

Launch Date: LANDSAT 4, July 16, 1982 - LANDSAT 5, March 1, 1984  
Projected SC Life/DSN Support: 4th quarter 1989/4th quarter 1989

Project Responsibility: Goddard Space Flight Center (GSFC)

Source: SIRD/NSP  
Sponsor: OSO

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### A. MISSION DESCRIPTION

The primary purpose of LANDSAT is to study Earth resources. Each satellite contains a Thematic Mapper (TM) and a Multispectral Scanner (MSS) imaging device plus mission unique hardware.

### B. FLIGHT PROFILE

LANDSAT 4 is currently in a circular Sun-synchronous orbit with orbital parameters of 699 km x 701 km x 98 degrees inclination. The orbital period is 99 minutes. LANDSAT 5 was launched into a nearly identical orbit with parameters of 705 km x 705 km x 98.2 degrees.

## C. COVERAGE

## 1. Coverage Goals

The DSN will support LANDSAT 4 or 5 during emergencies that would prevent satellite-to-Earth communications using the standard TDRSS-White Sands data link. The DSN 26-meter antenna subnetwork would support these emergency situations.

## 2. Network Support

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

<u>System</u>	<u>Goldstone</u>				<u>Canberra</u>				<u>Madrid</u>		
	12	14	15	16	42	43	45	46	61	63	66
S-band TLM			E				E				E
S-band CMD			E				E				E
S-band TRK			E				E				E

NOTE: E = Emergency

## D. FREQUENCY ASSIGNMENTS

Frequencies are allocated according to the following table:

<u>System</u>	<u>Uplink (MHz)</u>	<u>Downlink (MHz)</u>	<u>Polarization</u>
S-band TLM	--	2287.5	RCP
S-band CMD	2106.4	--	RCP
S-band TRK	2106.4	2287.5	RCP

## E. SUPPORT PARAMETERS

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

## (1) Telemetry

Data Streams	1
Format	PCM/PSK
Subcarrier Frequency	768 kHz RT/597 kHz PB
Bit Rates	1 kb/s RT/24 kb/s PB

## (2) Command

Format	PCM/PSK/PM
Subcarrier Frequency	16 kHz
Bit Rate	2.0 kb/s

## (3) Support

Uplink Power	16 W (Nominal)
Antenna Rate	Moderate
Antenna Angle Data	Required
Antenna Autotrack	Required
Doppler Rates	Moderate
Range Format	SINE
Recording	
. Analog	Required
. Digital	Not required

## F. TRACKING SUPPORT RESPONSIBILITY

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

<u>Mission Phase</u>	<u>Support Responsibility</u>
Earth Orbit (Phase 1)	GSFC
Earth Orbit (Phase 2)	

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