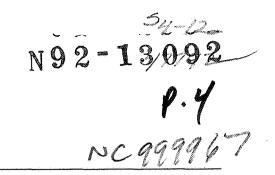
870-14, Rev. AF



COSMIC BACKGROUND EXPLORER (COBE)

(Emergency Support)

TDS Mgr: N. A. Fanelli

Project Mgr: R. Mattson

NOPE: R. E. Nevarez

MOM: R. Stanford

LV/Range: Delta 5920/WTR

Launch Date: October 15, 1989 (Launched November 1989)

Projected SC Life/DSN Support: 1 year/1 year

Project Responsibility: Goddard Space Flight Center (GSFC)

Source: SIRD Sponsor: OSO

A. MISSION DESCRIPTION

The Cosmic Background Explorer (COBE) Mission will measure the diffuse radiation from the universe in the wavelength band 1 micron to 9.6 mm. The band includes the 3°K cosmic background radiation, the known relic of the primeval cosmic explosion. It is also expected to contain the radiation produced at the time of the formation of the first galaxies or stars in the universe. The mission will provide the most comprehensive observations to date of the radiative energy content of the universe, a data set essential for the further iteration of theory and observation in cosmological research.

B. FLIGHT PROFILE

The COBE satellite will be launched from the Western Space and Missile Center (EWSMC) via the Delta into a circular parking orbit of about 300 km. COBE will be placed into a 900-km altitude circular orbit.

C. COVERAGE

1. Coverage Goals

Coverage will be provided by the DSN for COBE emergencies that would prevent communications via the normal channels of TDRSS. Emergency support will be provided by the DSN 26-meter subnetwork.

2. Network Support

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

| System | Goldstone | <u>Canberra</u> | Madrid |
|------------|-------------|-----------------|----------|
| | 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 | Е |

NOTE: E = Emergency Support

D. FREQUENCY ASSIGNMENTS

Frequencies are allocated according to the following table:

| System | Uplink (MHz) | Downlink (MHz) | Polarization |
|------------|----------------|----------------|--------------|
| S-band TLM | - - | 2287.5 | LCP |
| S-band CMD | 2106.4 | | LCP |
| S-band TRK | 2106.4 | 2287.5 | LCP |

E. SUPPORT PARAMETERS

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

(1) Telemetry

Data Streams

| Format | PCM/PSK/PM BiØ-L | | |
|----------------------|-------------------------|--|--|
| Subcarrier Frequency | 1024 kHz | | |
| Bit Rates | 1000, 4096, 655.36 kb/s | | |
| Coding | Convolutional | | |
| Record | Analog | | |

2

(2) Command

Format PCM/PSK/PM
Bit Rate 2000 Hz
Subcarrier Frequency 16000 Hz
Subcarrier Waveform Sine

(3) Support

. Digital

Uplink Power

Antenna Rate
Antenna Angle Data
Antenna Autotrack
Doppler Rates
Range Format
Recording
Analog

Up to 2 kW
Moderate
Required
Yes
Up to 70 Hz/s

No

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