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# LANDSAT D

## DATA FORMAT CONTROL BOOK

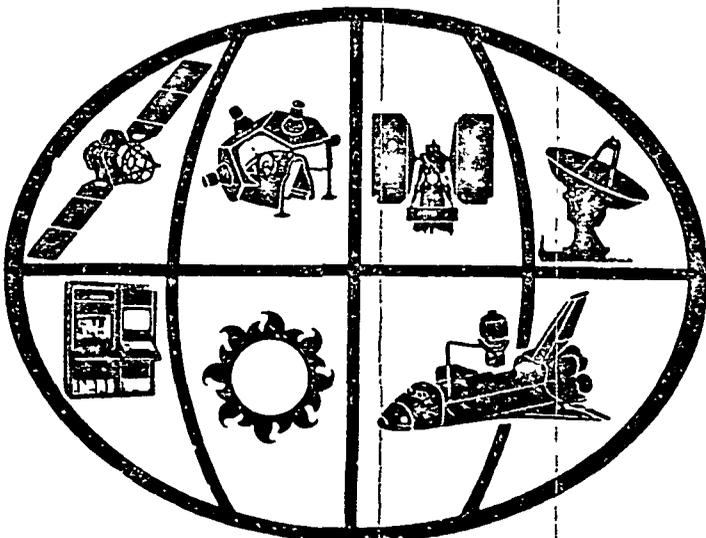
(E83-10278) LANDSAT-D DATA FORMAT CONTROL BOOK. VOLUME 6, APPENDIX K: UNPROCESSED MULTISPECTRAL SCANNER HIGH DENSITY TAPE (HDT-RM/HDT-GM) (General Electric Co.) 15 p HC A02/MP A01 N83-26145 Unclas 00278 CSCL 05B G3/43

VOLUME VI APPENDIX K

UNPROCESSED

MULTISPECTRAL SCANNER HIGH DENSITY TAPE

(HDT-RM/GM)



space division

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LANDSAT-D  
DATA FORMAT CONTROL BOOK  
VOLUME VI APPENDIX K  
UNPROCESSED  
MULTISPECTRAL SCANNER  
HIGH DENSITY TAPE  
(HDT-RM/HDT-GM)

PREPARED FOR

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

GODDARD SPACE FLIGHT CENTER

GREENBELT, MARYLAND

UNDER

CONTRACT NO. NAS5-25300

PREPARED BY

GENERAL ELECTRIC COMPANY

SPACE SYSTEMS DIVISION

LANHAM, MARYLAND

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VOLUME VI APPENDIX K  
UNPROCESSED  
MULTISPECTRAL SCANNER  
HIGH DENSITY TAPE  
(HDT-RM/HDT-GM)

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## SECTION 1

### SCOPE

#### 1.1 INTRODUCTION

The NASA GSFC Landsat-D Project is developing a Data Management System (DMS) to provide a variety of standard image products from the thematic mapper (TM) and multispectral scanner (MSS) instruments. The major digital image processing functions to be performed by the DMS for Landsat-D include: screening imagery for quality, determining cloud cover, applying radiometric and geometric corrections (including resampling the data in either cubic convolution or nearest neighbor techniques and presenting the data in either a space oblique mercator, universal transverse mercator, or polar stereographic projection), and copying original archive output tapes for distribution. Inputs to the DMS will include unprocessed MSS data which is recorded on HDT-RM or HDT-GM tapes. An HDT-RM is a 28-track, high density tape and an HDT-GM is a 14-track, non-bias recorded, high density tape, both of which conform to the ANSI standard for high density digital tape recording.

This specification establishes the requirements for the format of the Landsat-D HDT-RM/HDT-GM. These requirements represent both derived and allocated requirements from the GSFC Specification for the Landsat-D System, GSFC-430-D-100C.

Requirements for this appendix to Data Format Control Book, Volume VI, "Products" (SVS 10127) are allocated or derived from the GSFC Specification for the Landsat-D System (GSFC-430-D-100).

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## 1.2 PURPOSE

The purpose of this document is to define the format of the input HDTs which contain unprocessed MSS image data.

This document and those cited in Section 2 provide the complete data format specifications for HDT-RM and HDT-GM.

## 1.3 APPLICABILITY

This document applies to all Landsat-D unprocessed MSS data tapes recorded by either the DMS, the Domsat Interface Facility (DIF), or by any other receiving ground station designated to interface directly with the GS during data acquisition or relay operations.

## 1.4 DATA PROCESSING

HDT-RM tapes are the unprocessed data input to the MSS Image Processing System. All MSS data initially recorded on HDT-GM is copied to HDT-RM prior to data processing.

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SECTION 2  
APPLICABLE DOCUMENTS

2.1 GOVERNMENT DOCUMENTS

None

2.2 GENERAL ELECTRIC COMPANY DOCUMENTS

a. SVS 10126

Data Format Control Book Volume V, Payload

b. SVS 10127

Data Format Control Book Volume VI, Products

2.3 OTHER DOCUMENTS

None

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## SECTION 3

### FORMATS

#### 3.1 TAPE FORMAT

##### 3.1.1 RECORDED-DATA FORMATS

Unprocessed MSS data and IRIG-A time code data will be recorded on HDT-RM/HDT-GM tapes through the operations of a Martin-Honeywell high density digital tape recorder. HDT-RM are recorded on a 28-track model no. 2879-L and HDT-GM are recorded on a 14-track Model no. 1479-L or on 14-track recorders that are fully compatible with the 1479-L. The recorder tape format (i.e., track assignments, packing density, and recorder framing, randomizing, and error correction capability format specifications) are defined in Data Format Control Book Volume VI: Products.

##### 3.1.2 GAPS AND SPACING

Image data will be recorded on HDT-RM/HDT-GM tapes in segments which correspond to periods of MSS transmission from Landsat. As illustrated in Figure 3.1-1 each HDT-RM/HDT-GM contains, typically, from one to five unprocessed MSS data segment. The data gaps are created by HDDR control between data segments. The gap footage corresponds to the HDDR start/stop and the time required to exercise either manual or computer control of the HDDR. Gap footage will vary from the allowable minimum of five feet for HDT-RM or 19 feet for HDT-GM to a typical maximum of 300 feet for HDT-RM or 1000 feet for HDT-GM. The minimum allowable footage is a constraint of the MSS Image Processing System.

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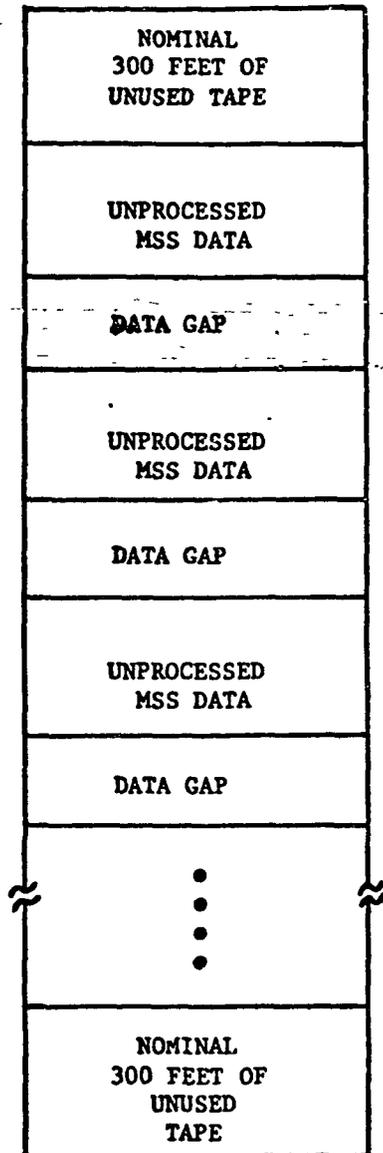


Figure 3.1-1. HDT-RM/HDT-GM Tape Layout

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A length (300 feet nominal) of unused tape will be provided at the beginning and end of each HDT-RM/HDT-GM tape reel for tape handling use.

### 3.1.3 TIME CODE INFORMATION

Time code data will be recorded continuously on HDT-RM from the beginning of the first image data segment to the end of the last image data segment (i.e., contiguous across all gaps between image data segments). Time code data will not normally be provided through the tape handling sections at the beginning and end of each reel.

### 3.1.4 TAPE REEL CAPACITY

The amount of image data recorded on any HDT-RM/HDT-GM tape will vary according to the number of segments in which the data is grouped. No more than 205 Landsat scenes may be recorded on any one HDT-RM tape, or 51 on any one HDT-GM, respecting subsequent processing constraints.

### 3.2 IMAGE DATA FORMAT

Unprocessed MSS data for each data segment will be provided to and from the HDT recorder in the sensor output data format defined in Data Format Control Book Volume V: Payload.

### 3.3 TIME CODE FORMAT

The reference time code data will be recorded in IRIG-A format on each HDT-RM tape to indicate the time at which the tape was recorded, and to serve as an index mechanism for locating specific image data. Time code will be recorded at a data rate corresponding to MSS data being recorded at real-time (i.e., a 15.06

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MHz MSS data playback will result in a 10 KHz time code playback). Details of  
this time code data format are provided in Data Format Control Book Volume VI:  
Products.

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SECTION 4

ABBREVIATIONS, ACRONYMS, SYMBOLS AND TERMS

ANSI	American National Standards Institute
DMS	Data Management System
GS	Ground Segment
GSFC	Goddard Space Flight Center
HDDR	High Density Digital Recorder
HDT	High Density Digital Tape
HDT-GM	14-Track Unprocessed Multispectral Scanner HDT
HDT-RM	28-Track Unprocessed Multispectral Scanner FDT
IRIG	Inter-Range Instrumentation Group
MSS	Multispectral Scanner
TM	Thematic Mapper

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