

## University of Michigan Space Physics Research Laboratory

<b>TIDI Data Processing Software</b>  <b>Daily Summary File Format</b>	CAGE No.	0TK63
	Drawing No.	055-3535B
	Project	TIDI
	Contract No.	NASW-5-5049
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### REVISION RECORD

Rev	Description	Date	Approval
	Initial Release	16 Dec 1997	
<b>A</b>	Post requirements review revision	13 Feb 1998	
<b>B</b>	Add creation time, remove cosmic ray count and solar beta angle, change power-on time to %, filename field from gndtime to starttime	19-Aug-2003	

### APPROVAL RECORD

Function	Name	Signature	Date
Originator	D. Gell		
Flight Software	S. Musko		
Instrument Scientist	W. Skinner		
Program Manager	C. Edmonson		
Systems Engineer			
R&QA	John Eder		

## 1. References

- 1) Gell, David "Downlink Software Development Plan", SPRL File 055-3439, 29 July 1997
- 2) APL, *Timed General Instrument Interface Specification (GIIS)*, APL File 7363-9050, 1 Oct 1997

## 2. Introduction

The TIDI Daily Summary File is an output product of the event logger element (reference 1) of the TIDI data processing system. By collecting a summary of each day's operation in a single file, it is a quick reference to the health and operation of the TIDI instrument.

## 3. File Organization and Content

A Daily Summary file is an ASCII file, consisting of a header and a series of data records. The header contains the fields listed in Table 1. Fields are separated by the ASCII tab character, records are separated by the end-of-line character.

<i>Item</i>	<i>Description</i>
1	File Format Version ID
2	Title
3	Data Product Type
4	Data Product Version
5	File Creation Date
6	File Name

Each data record consists of the fields listed in Table 2. Fields are separated by the ASCII tab character.

During flight operations the initial and final times are the times of the first packet and the last packet. During instrument and spacecraft I&T the times are the ground receipt time of the first and last packet, since in this case the spacecraft clock may not be reliably set. All times will be represented using the TIMED standard ASCII format, with fractional seconds omitted (reference 2), as *yyyydoyhhmss*.

Field 6 counts the number of times that any telemetry point transitions from within the green limit to beyond the yellow limit. Field 7 counts the number of times that any telemetry point transitions from within the red limit to beyond it.

Field 11 contains the number of distinct table IDs that were executed during the time span recorded by the Level 0 file.

The remaining fields list the measurements made in terms of the table ID reported in the science telemetry and the fraction of time that that table was used to control the instrument. Each of these entries consist of two subfields, separated by a colon. The first is the table ID and the second is the percentage of the instrument on time during which the table was executed.

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<b>Table 2, Data Record Contents</b>		
<i>item</i>	<i>description</i>	<i>units/format</i>
1	initial time	yyydoyhhmss
2	final time	yyydoyhhmss
3	name of source TIDI level 0 file	ASCII string
4	record creation time	yyydoyhhmss
5	fraction of time that the instrument was powered between the initial and final times. (HK packet)	% pktCount / (total possible pktCount)
6	number of yellow limit transitions	count
7	number of red limit transitions	count
8	number of command packets received (HK packet)	count
9	number of command packets rejected (HK packet)	count
10	number of error packets (packet 8)	count
11	number of table IDs encountered, N	count
12... (N+12)	table ID list element	tableid:fraction

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#### 4. Naming Convention

TIDI Daily summary files will be named based on the initial start time of the first Level 0 file summarized, according to the convention specified in Table 3.

<b>Table 3, File Naming Convention</b>	
<i>TIDI_starttime_rev.SUM</i>	
<i>field</i>	<i>description</i>
TIDI	A literal string indicating that this is TIDI data
starttime	The start time of the first TIDI Level 0 file summarized in the file
rev	The file revision letter, chosen to make the file name unique
SUM	A literal string indicating that the file is a TIDI daily summary file

The start time will be represented using the TIMED standard ASCII format, with fractional seconds omitted.