

DATA PROCESSING PROCEDURES  
FOR  
ALSEP PRODUCTION

Job Order 83-147

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*National Aeronautics and Space Administration*  
**LYNDON B. JOHNSON SPACE CENTER**  
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Page 1 of 35 pages  
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## ACRONYMS AND ABBREVIATIONS

ALSEP	Apollo Lunar Surface Experiment Package
CDC	Control Data Corporation
DDC	Data Distribution Center
DPSD	Data Processing Systems Department
DRC	Data Reduction Complex
GSFC	Goddard Space Flight Center
GMT	Greenwich Mean Time
ENG	Housekeeping and Engineering
IDSD	Institutional Data Systems Division
JSC	Johnson Space Center
LDDE	Lunar Dust Detector Experiment
DUSTY	Lunar Dust Detector Program
LEAM	Lunar Ejecta and Meteorite
LMS	Lunar Mass Spectrometer
LSG	Lunar Surface Gravimeter
PSE	Passive Seismic Experiment
PSRM	Postpass Summary Report Message
PI	Principal Investigator
PC	Production Coordination
PCM	Pulse Code Modulation
S&AD	Science and Applications Division
STDN	Spaceflight Tracking and Data Network
SIDE	Suprathermal Ion Detector Experiment

#### 4.1.8 Transmittal of Data Products

Upon completion of each transmittal form, the PI is notified for pickup by the DDC. All transmittals are receipted before the data leaves the DDC.

#### 4.2 SUPRATHERMAL ION DETECTOR EXPERIMENT (SIDE)

The experimental objectives of the Suprathermal Ion Detector Experiment (SIDE) are listed below.

- Provide information on the energy and mass spectra of positive ions close to the lunar surface resulting from solar ultraviolet or solar wind ionization of gases from any of the following sources:
  - (a) Residual primordial atmosphere of heavy gases
  - (b) Sporadic outgassing such as volcanic activity
  - (c) Evaporation of solar wind gases accreted on the lunar surface
  - (d) Exhaust gases from the lunar module descent and ascent motors
- Measure the flux and energy spectrum of positive ions in the earth's magnetotail and magnetosheath during those periods when the moon passes through the magnetic tail of the earth
- Provide data on the plasma interaction between the solar wind and the moon
- Determine a preliminary value of the electric potential of the lunar surface



The program SIDE7 requires an ALSEP PI tape as input to provide final experiment data to the PI. SIDE7 produces data tapes, tabular listings, and microfilm.

SIDE data are processed for the Apollo 12, Apollo 14, and Apollo 15 ALSEP's. SIDE PI tapes obtained from the CDC 3200 process are available in the tape library.

The program SIDE7 extracts input data from an ALSEP SIDE PI tape, identifies the mode of operation of SIDE equipment, qualifies the data, checks the data for tolerances, writes a BCD tape containing the engineering parameters, writes a binary tape containing ion impact (NPACK) data, lists the engineering parameters, and plots the high-energy counts and the low-energy counts against SIDE frame number and time.

The PI receives the following output.

- Engineering parameter tape
- NPACK data tape
- Listing of engineering parameters
- Microfilm of engineering parameters
- Microfilm of the two graphs
- Microfilm of NPACK data

Each reel of film is copied so that the PI receives two copies of each reel. The number of NPACK data tapes generated varies directly with ion activity.

The SIDE has the ability to change its data format by command. There are 15 operational commands. They are divided into two types, on/off commands and mode commands. Initiation of a mode command changes the operational data format characteristics. There are seven mode commands. The normal mode contains 128 SIDE frames/cycle. Upon command, the SIDE frame counter may be operated in reset modes to vary the length of a SIDE cycle. Input format for the program SIDE7 is found in appendix I.

#### 4.2.1 SIDE7 Processing

Each processing period of SIDE7 data varies with the experiment status of SIDE for each ALSEP. The operational time periods for the SIDE are obtained from the Experiment Status Report produced by S&AD. A typical report is shown in figure 4-6.

Because the program SIDE7 is limited by one input reel and the SIDE PI tape is a three-day tape, the SIDE7 output is no greater than three days. From the Experiment Status Report and with knowledge of the start and stop times of the input tape, the DPSD project analyst determines each time interval of the output data. Upon receipt of the required ALSEP analog tapes, the DPSD project analyst initiates processing of SIDE7 data within IDSD by means of an ALSEP data reduction form (see fig. 4-7). This form may contain one or more time intervals to be processed. One form is initiated for each ALSEP.

The required SIDE PI tapes are processed in chronological order on the UNIVAC 1108. SIDE7 outputs an Engineering

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EXPERIMENT STATUS (continued)

MONTH/DAY/G.M.T.	A12 SIDE	A14 SIDE/CCGE	A15 SIDE/CCGE	A14 CPLEE	A17 LACE	A17 LEAM
SEP 18	1315	ON				
	1448	OFF				
19	0000	OFF	ON	STBY	ON	ON
	1257	ON				
20	0000	ON	ON		ON	ON
	1353	ON				
	1359			ON		
21-30	0000	ON	ON	ON	ON	ON
OCT 01-03	0000	ON	ON	ON	ON	ON
04	0000	ON	ON	ON		ON
	1344				OFF	
05	0000	ON	ON		OFF	ON
	1610		ON			
	1727			STBY		
06	0000	ON	ON	STBY	OFF	
	0140	STBY				
	0354					OFF
07	0000	STBY	ON	STBY	OFF	OFF
	1755	OFF				
08	0000	STBY	ON	STBY	OFF	OFF
	1353	ON				
	1637	OFF				
09	0000	STBY		STBY	OFF	OFF

Figure 4-6. — Sample pages of an Experiment Status Report.

ALSEP DATA REQUEST							
APOLLO FLIGHT: <u>15</u>		PROJ. NO.: <u>8048</u>		REQUEST NO.: <u>ALS-3</u>			
SUBJECT: <u>SIDE7 Production</u>				EXPERIMENT: <u>SIDE</u>			
SPECIAL INSTRUCTIONS FOR PC:							
INPUT INFORMATION (SECTION A):							
GET(DAY)	DOY	GMT START TIME	DOY	GMT STOP TIME	ALSEP	STATION	TAPE NO.
885	1	00:00	1	18:52	2		
886-8	1	18:52	4	18:52	2		
889-91	4	18:52	7	18:52	2		
OUTPUT INFORMATION (SECTION B):							
GET(DAY)	DOY	GMT START TIME	DOY	GMT STOP TIME	ALSEP	TAPE NO.	DISPOSITION
QUANTITY TO GO TO DDC:							
TAPES _____ CHARTS _____ PRINTOUTS _____ MICROFILM _____							
PCHECKS _____ OTHER ITEMS _____							
PC COMMENTS:				DDC INSTRUCTIONS UPON COMPLETION:			
				DATE REQUESTED BY ANALYST: <u>2/25/74</u>			
				DATE REQUEST RECEIVED BY PC: _____			
				DATE REQUEST COMPLETED BY PC: _____			
ALSEP ANALYST: <u>ED</u>				DATE REQUEST RECEIVED BY DDC: _____			

Figure 4-7. — ALSEP data reduction form.

Parameters Tape and an NPACK Data Tape both of which may have continuation reels. Plots of the high-energy counts and the low-energy counts versus SIDE frame number and time are generated on the Integrated Graphics System (IGS) and this tape is labeled Meta. The same data as generated on the Meta Tape is generated in tabular form on Unit 17 (4060 system) and the tape is labeled 4060. This tabulation is referred to as the NPACK tab. A print tape containing the same data as the engineering parameter tape is also produced and labeled UNPR. These three tapes labeled Meta, 4060, and UNPR are sent to the Stromberg/Carlson 4060 for microfilm production. Formats of SIDE7 output are found in appendix J.

#### 4.2.2 Labeling Requirements

The PC personnel are responsible for accurate labeling of the six data products for each requested time interval of SIDE7 data. The following items should be clearly identified on the labels of all data products.

- ALSEP SIDE request number
- Greenwich mean time (start and stop) in days, hours, and minutes
- Ground elapsed time (start and stop) in days
- ALSEP number (ALSEP 1, 2, or 4)
- Apollo mission number (Apollo 12, 14, or 15)
- Program name — SIDE7
- Identification of data type

Labels of the NPACK and Engineering Parameters Tapes also include identification of the drive on which the tape

was produced and the computer operator. Each reel of micro-film is labeled either Meta, EPTPE, or PR depending on its contents. Labels of five data products are shown in figures 4-8 and 4-9.

#### 4.2.3 SIDE7 Data Log Maintenance

Upon completion of labeling, the PC personnel logs the six data products of each requested time interval into the SIDE7 log book. This log contains information pertinent to that output. A page from the SIDE7 log book is shown in figure 4-10.

#### 4.2.4 Notification of the DPSD Project Analyst

Upon completion of all production processing requirements for each requested time interval and prior to data delivery to the DDC, the DPSD project analyst is notified by the PC personnel. The project analyst then examines the data for accuracy and completeness.

#### 4.2.5 Retention of SIDE Tapes

Unless otherwise directed by the NASA technical monitor, all ALSEP SIDE tapes that are required to generate SIDE7 data are retained by the PC personnel in the DRC library according to the standard tape release procedure of that library. Currently, all tapes are released 13 weeks after generation according to the procedure.

```

      NASA/JSC TAPE LABEL
-----
ACCESS NO.*DENSITY*DRIVE*DATE          *BADGE
HI9246      * 556      * 24      * 2-7-74      * L72439
PROGRAMER      *DIV. *PRDJ. *RET. *RUN-FILE
Final Entry      * FD54 * 8048P *
DESCRIPTION 329:14:21:21-332:14:21:20 *SEC.
ENGPART AL12 Days 1468-70 ALS-299      *
-----

```

```

      NASA/JSC TAPE LABEL
-----
ACCESS NO.*DENSITY*DRIVE*DATE          *BADGE
HI9422      * 200      * 26      * 2-7-74      * L72439
PROGRAMER      *DIV. *PRDJ. *RET. *RUN-FILE
Final Entry      * FD54 * 8048P *
DESCRIPTION 329:14:21:21-332:14:21:20 *SEC.
NPACK 2 AL12 Days 1468-70 ALS-299      * 2 CF 5
-----

```

Figure 4-8. - NASA/JSC tape labels, sample labels of two data products.



MICROFILM REEL IDENTIFICATION	
ROLL NO.	MISSION <u>ALSEP1</u> <u>AL12</u>
JOB IDENT. <u>days 1468-70</u>	
RT <input checked="" type="checkbox"/>	DT <input type="checkbox"/> HBR <input type="checkbox"/> LBR <input type="checkbox"/>
STATION	REQ <u>ALS-299</u>
REV.	● <u>Meta</u>
START	<u>329:14:21:21</u>
STOP	<u>332:14:21:20</u>
	PLOTS <input checked="" type="checkbox"/> TABS <input type="checkbox"/>

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MICROFILM REEL IDENTIFICATION	
ROLL NO.	MISSION <u>ALSEP1</u> <u>AL12</u>
JOB IDENT. <u>days 1468-70</u>	
RT <input checked="" type="checkbox"/>	DT <input type="checkbox"/> HBR <input type="checkbox"/> LBR <input type="checkbox"/>
STATION	REQ <u>ALS-299</u>
REV.	● <u>PR</u>
START	<u>329:14:21:21</u>
STOP	<u>332:14:21:20</u>
	PLOTS <input type="checkbox"/> TABS <input checked="" type="checkbox"/>

MSC FORM 114 (REV JUN 69)

MICROFILM REEL IDENTIFICATION	
ROLL NO. <u>1 of 2</u>	MISSION <u>ALSEP1</u> <u>AL12</u>
JOB IDENT. <u>days 1468-70</u>	
RT <input checked="" type="checkbox"/>	DT <input type="checkbox"/> HBR <input type="checkbox"/> LBR <input type="checkbox"/>
STATION	REQ <u>ALS-299</u>
REV.	● <u>EPTPE</u>
START	<u>329:14:21:21</u>
STOP	<u>332:14:21:20</u>
	PLOTS <input type="checkbox"/> TABS <input checked="" type="checkbox"/>

MSC FORM 114 (REV JUN 69)

Figure 4-9. - Microfilm reel identification labels, sample labels of three data products.



ALSEP 17

DAY	START	STOP	TAPE	SIDE	IN	OUT	HT	TAPE	200	PIPE	NPAL1	NPAL2	NPAL3	NPAL4
1974	105:14:21:21	106:14:21:21	L04108											
1975	106:14:21:21	107:14:21:21	L01478		7/ 8/	11 25	OK	OK	OK	H07610	H07356			8/25
1976	107:14:21:21	108:14:21:21	L01523											
1977	108:14:21:21	109:14:21:21	L06262											
1978	109:14:21:21	110:14:21:21	L08741											
1979	110:14:21:21	111:14:21:21	L03436		7/ 8/	11 22	OK	OK	OK	H07204	H07944	H06457		8/22
1980	111:14:21:21	112:14:21:21	L13189											
1981	112:14:21:21	113:14:21:21	L01136		7/ 8/	11 25	OK	OK	OK	H07027	H07341	H07029	H07543	H07391
1982	113:14:21:21	114:14:21:21	L12299											H07225
1983	114:14:21:21	115:14:21:21	L00909											
1984	115:14:21:21	116:14:21:21	L04251		7/ 8/	11 15	OK	OK	OK	H07239	H07294	H07288	H06991	H06980
1985	116:14:21:21	117:14:21:21	L00411											H06957
1986	117:14:21:21	118:14:21:21	L00866											
1987	118:14:21:21	119:14:21:21	L08342		7/ 8/	11 8/7	OK	OK	OK	H07118	H07115	H06997	H07001	H06998
1988	119:14:21:21	120:14:21:21	L03890											
1989	120:14:21:21	121:14:21:21	L01335											
1990	121:14:21:21	122:14:21:21	L05866		7/ 8/	11 11	OK	OK	OK	H05236	H07321	H07328	H07317	H07227
1991	122:14:21:21	123:14:21:21	L09766											

Figure 4-10. - Sample page from the SIDE7 log book.

#### 4.2.6 Delivery of Data Products to the DDC

Upon approval of the DPSD project analyst, the PC personnel send the six data products for each requested time interval to the DDC located in Building 12.

#### 4.2.7 Data Handling By the DDC

Upon receipt of the data in the DDC, each reel of microfilm is copied. With the completion of copying the microfilm, the data products are sent to the PI, Dr. John Freeman of Rice University. A completed transmittal form is shown in figure 4-11. All six data products for each processed time interval are receipted on one transmittal form.

#### 4.2.8 Transmittal of Data Products

Upon completion of each transmittal form, the data products are sent to the PI by certified mail. The PI signs the transmittal form and returns it to the DDC. Certified mail receipts and the signed transmittal forms are retained by the DDC personnel.



APPENDIX I  
INPUT FORMAT

I

Change 1  
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# DIGITAL TAPE REQUIREMENTS

## SUPRATHERMAL ION DETECTOR

### I. Label Record (appears twice on tape)

Word	Parameter	Mode
1	Experiment Identification (SIDE)	BCD
2	ALSEP Number (ALSEPX)	BCD
3	Mission Identification (A/Sxxx)	BCD
4	Spare	BCD

### II. Data Record Format, Six Words/Logical Record

Word 1:

0 35

Elapsed Time, msec
--------------------

Word 2 - station ID, bit error rate, data rate (1 = 1060 bps; 0 = 530 bps):

0 3 4 9 11 35

St ID	Bit Error Rate	D R	Spare
-------	----------------	-----	-------

Word 3 - words 1, 2, 3 of each ALSEP frame

Word 4 - words 15, 31, 33 of each ALSEP frame

Word 5 - words 46, 47, 56 of each ALSEP frame

Word 6 - word 63 of each ALSEP frame

Packed IBM word format for ALSEP data words:

0 9 12 21 24 33 35

ALSEP Word a	0	0	ALSEP Word b	0	0	ALSEP Word c	0	0
--------------	---	---	--------------	---	---	--------------	---	---

90 logical records/physical record

Finish filling last record of data with zeros; last record filled with all 1's followed by EOF. Binary tape, 556 bpi, seven-track, standard IBM EOF.

APPENDIX J  
SIDE7 OUTPUT DATA FORMAT

1

Change 1  
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Header Record  
(IBM BCD)  
NPACK Tape and Engineering Parameter Tape

Word

	0	35
1	'ΔΔΔΔ'	'SI'
	0	35
2	'DE'	'ΔΔAL'
	0	35
3	'SEPX'	'A/'
	0	35
4	'SX'	'XX19'
	0	35
5	YY'ΔΔ'	'TT'
	0	35
6	'TT'	'TTMM'
	0	24 35
7	'DDZZ'	'SS'
	0	24 35
8	'ΔΔ'	'ΔΔΔΔ'

On NPACK tape, this eight-word record is repeated twice. The Engineering Parameter contains two twenty-word headers and the first eight words of each header are the above eight words. The remaining 12 words are blank.

TTTTT = Input tape number  
MM = Month job was run  
DD = Day job was run  
ZZ = Year job was run  
SS = Sequence number of output tape  
YY = Year of data  
Δ = Blank space

NPACK Tape SIDE Data Block		
36-bit Word	Bits	Description
1	0-23	Day
	24-35	First twelve bits of hour
2	0-11	Second twelve bits of hour
	12-35	Minutes
3	0-23	Milliseconds
	24-35	First twelve bits of deleted SIDE frame counter (Z)
4	0-11	Second twelve bits of deleted SIDE frame counter (Z)
	12-35	Current SIDE frame number
5	0-23	Subcommutated analog to digital conversion (ASUB)
	24-35	First twelve bits of high-energy voltage (HESV)
6	0-11	Second twelve bits of high-energy voltage (HESV)
	12-35	High-energy counts (HECT)
7	0-23	Status subcom (SSUB)
	24-35	First twelve bits of low-energy curve plate analyzer voltage
8	0-11	Second twelve bits of low-energy curve plate analyzer voltage
	12-35	Low-energy SIDE voltage



NPACK Tape SIDE Data Block (Concluded)		
36-bit word	Bits	Description
9	0-23	Low-energy counts
	24-35	First twelve bits of code word 1
10	0-11	Second twelve bits of code word 1
	12-35	Code word 2
11	0-23	Code word 3
	24-35	Blank
12	0-35	Blank

Each record on the above output tape contains six data blocks for a total of 72 36-bit words per record. This tape is written in such a way to be read by a 24-bit per word computer.

Code Words		
Code Word (24-bit word)	Bits	Description
1	0-11	All bits off
	12	Tolerance flag (B1 = HV+HX)
	13	SIDE parity for first half of SIDE frame (P1)
	14-19	Bit error rate first half of SIDE frame (BE1)
	20-23	Station ID (STA)
2	0-8	All bits off
	9	Tolerance flag (B2 = HV+LF+VF)
	10	SIDE parity for second half of SIDE frame (P2)
	11-16	Bit error rate second half of SIDE frame (BE2)
	17	SIDE parity for first half of SIDE frame (P1)
	18-23	Bit error rate first half of SIDE frame (BE1)
3	0-6	All bits off
	7-12	SIDE equipment mode of operation for this SIDE frame (M)
	13	Ground plane tolerance flag (GP)
	14	High voltage tolerance flag (HV)
	15	High voltage tolerance flag for previous SIDE frame (HVP)
	16	Tolerance flag (B1) for previous SIDE frame (BIP)
	17	Tolerance flag (B2) for previous SIDE frame (B2P)

Code Words - Concluded		
Code Word (24-bit word)	Bits	Description
3	18-22	SIDE equipment mode of operation for previous SIDE frame (MP)
	23	Ground plane tolerance flag for previous SIDE frame (GPP)

The tolerance flags are equal to 0 when the respective value was within prescribed tolerance. If the value was out of tolerance, the flag is equal to 1.

Engineering Parameter Tape  
Data Record  
(20 IBM BCD words per record)  
Engineering Parameter Output Tape (BCD)

Word	Description
1	Last digit of Apollo number (exp. Apollo 15 = 5) Last digit of year of data (exp. 1971 = 1) First character of day Second character of day Third character of day First character of hour
2	Second character of hour First character of minute Second character of minute First character of second Second character of second First character of lunar cycle time
3	Second character of lunar cycle time Third character of lunar cycle time Fourth character of lunar cycle time Fifth character of lunar cycle time Sixth character of lunar cycle time Seventh character of lunar cycle time

Engineering Parameter Tape  
Data Record — Continued  
(20 IBM BCD words per record)  
Engineering Parameter Output Tape (BCD)

Word	Description
4	<p>Eighth character of lunar cycle time</p> <p>Frame 0, bits 14-21 of word 4 (3 BCD characters)</p> <p>Frame 0, parity</p> <p>Frame 2, bits 14-21 of word 4 (1 of 3 BCD characters)</p>
5	<p>Frame 2, bits 14-21 of word 4 (2 of 3 BCD characters)</p> <p>Frame 2, parity</p> <p>Frame 4, bits 14-21 of word 4 (3 BCD characters)</p>
6	<p>Frame 4, parity</p> <p>Frame 6, bits 14-21 of word 4 (3 BCD characters)</p> <p>Frame 6, parity</p> <p>Frame 8, bits 14-21 of word 4 (1 of 3 BCD characters)</p>
7	<p>Frame 8, bits 14-21 of word 4 (2 of 3 BCD characters)</p> <p>Frame 8, parity</p> <p>Frame 11, bits 14-21 of word 4 (3 BCD characters)</p>

Engineering Parameter Tape  
Data Record -- Continued  
(20 IBM BCD words per record)  
Engineering Parameter Output Tape (BCD)

Word	Description
8	Frame 11, parity Frame 12, bits 14-21 of word 4 (3 BCD characters) Frame 12, parity Frame 14, bits 14-21 of word 4 (1 of 3 BCD characters)
9	Frame 14, bits 14-21 of word 4 (2 of 3 BCD characters) Frame 14, parity Frame 16, bits 14-21 of word 4 (3 BCD characters)
10	Frame 16, parity Frame 17, bits 14-21 of word 4 (3 BCD characters) Frame 17, parity Frame 18, bits 14-21 of word 4 (1 of 3 BCD characters)
11	Frame 18, bits 14-21 of word 4 (2 of 3 BCD characters) Frame 18, parity Frame 19, bits 14-21 of word 4 (3 BCD characters)

Engineering Parameter Tape  
Data Record - Continued  
(20 IBM BCD words per record)  
Engineering Parameter Output Tape (BCD)

Word	Description
12	Frame 19, parity Frame 20, bits 14-21 of word 4 (3 BCD characters) Frame 20, parity Frame 21, bits 14-21 of word 4 (1 of 3 BCD characters)
13	Frame 21, bits 14-21 of word 4 (2 of 3 BCD characters) Frame 21, parity Frame 22, bits 14-21 of word 4 (3 BCD characters)
14	Frame 22, parity Frame 23, bits 14-21 of word 4 (3 BCD characters) Frame 23, bits parity Frame 25, bits 14-21 of word 4 (1 of 3 BCD characters)
15	Frame 25, bits 14-21 of word 4 (2 of 3 BCD characters) Frame 25, parity Frame 26, bits 14-21 of word 4 (3 BCD characters)

Engineering Parameter Tape  
Data Record — Continued  
(20 IBM BCD words per record)  
Engineering Parameter Output Tape (BCD)

Word	Description
16	<p>Frame 26, parity</p> <p>Frame 27, bits 14-21 of word 4 (3 BCD characters)</p> <p>Frame 27, parity</p> <p>Frame 28, bits 14-21 of word 4 (1 of 3 BCD characters)</p>
17	<p>Frame 28, bits 14-21 of word 4 (2 of 3 BCD characters)</p> <p>Frame 28, parity</p> <p>Frame 30, bits 14-21 of word 4 (3 BCD characters)</p>
18	<p>Frame 30, parity</p> <p>Frame 37, bits 14-21 of word 4 (3 BCD characters)</p> <p>Frame 37, parity</p> <p>Frame 39, bits 14-21 of word 4 (1 of 3 BCD characters)</p>
19	<p>Frame 39, bits 14-21 of word 4 (2 of 3 BCD characters)</p> <p>Frame 39, parity</p> <p>Frame 46, bits 14-21 of word 4 (3 BCD characters)</p>



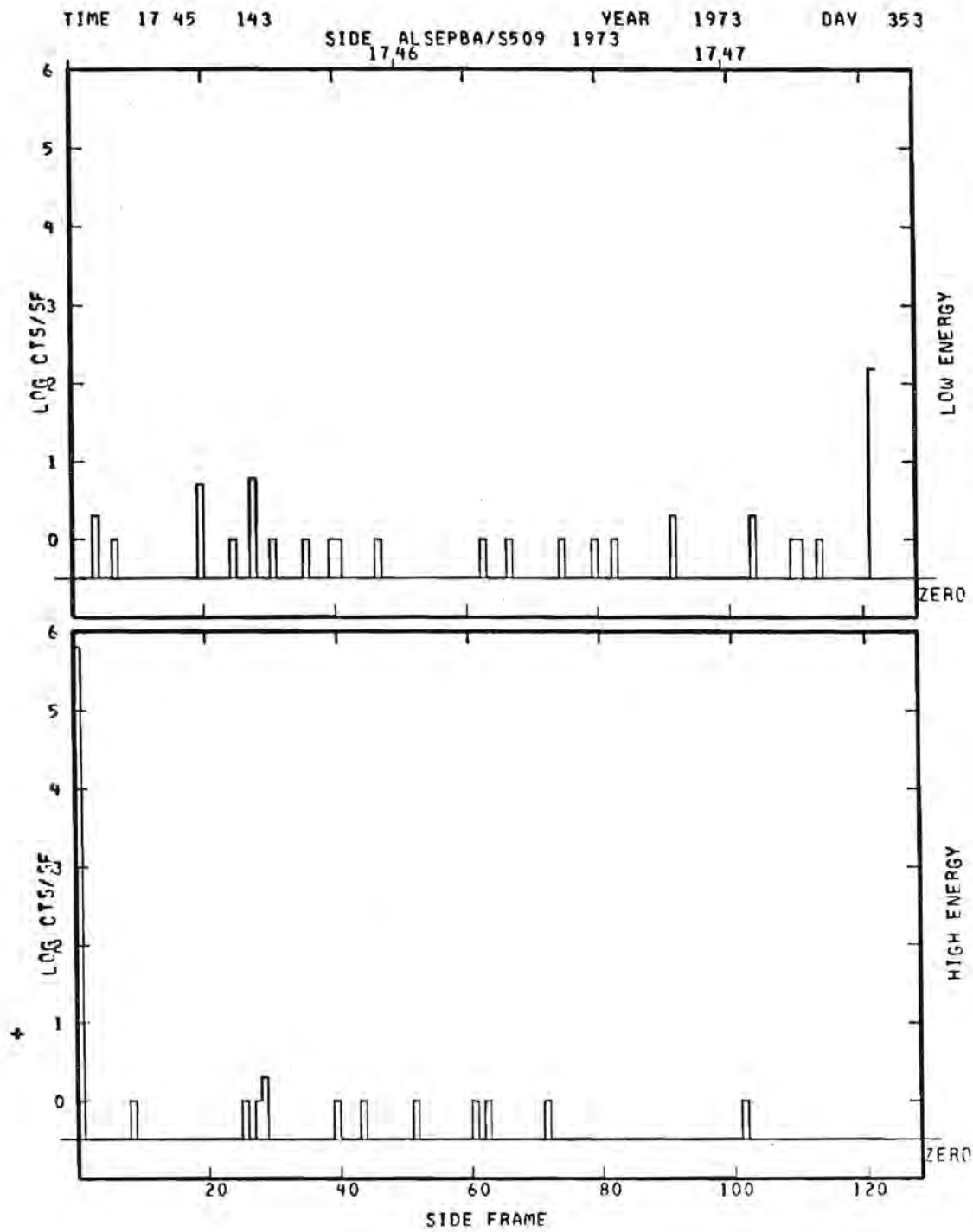
Engineering Parameter Tape  
Data Record — Concluded  
(20 IBM BCD words per record)  
Engineering Parameter Output Tape (BCD)

Word	Description
20	<p>Frame 46, parity</p> <p>Frame 65, bits 14-21 of word 4 (3 BCD characters)</p> <p>Frame 65, parity</p> <p>Time flag</p>

Frame, in the above list, refers to SIDE frame and the word is the fourth one in each SIDE frame.

SIDE ALSEP8 A/S509 1973  
SUPRATHERMAL ION DETECTOR EXPERIMENT  
ENGINEERING PARAMETERS

AP	YR	DAY	HR	MIN	MSEC	LUN	CYCL	+5A	T1	T2	T3	GHV	T4	T5	SC	+60	+30	+50	GND	-5	-30	16	CHV	+MV	+AD	+1C	+12	-AD	-1C	-12	-MV	PRD	F	
14	73	359	1742	14528			00000		0	59	49	5	52	52	0	0	0	0	0	0	214	195	194	207	206	206	206	206	227	155	247	31	225	X
14	73	359	1744	49098	36.76806	248			0	58	19	28	14	14	0	0	0	0	0	0	215	195	194	207	206	206	206	226	155	247	28	227		
14	73	359	1747	23656	36.76612	248			0	56	62	0	59	59	0	0	0	0	0	0	214	195	194	207	207	207	207	226	155	247	30	225		
14	73	359	1749	58215	36.76618	249			0	45	37	46	40	40	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	28	225		
14	73	359	1752	32773	36.76624	249			0	19	53	52	63	63	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	30	227		
14	73	359	1755	7331	36.76630	248			0	0	71	41	0	0	0	0	0	0	0	0	215	195	194	207	206	206	206	226	155	247	28	227		
14	73	359	1757	41890	36.76636	248			0	0	66	13	31	31	0	0	0	0	0	0	215	195	194	207	206	206	206	227	155	247	31	225		
14	73	359	1800	16448	36.76642	249			0	54	0	21	16	16	0	0	0	0	0	0	214	195	194	207	206	206	206	227	155	247	32	225		
14	73	359	1805	25565	36.76651	248			0	54	0	21	16	16	0	0	0	0	0	0	214	195	194	207	206	206	206	227	155	247	31	225		
14	73	359	1808	123	36.76663	249			0	22	26	17	56	56	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	31	225		
14	73	359	1810	34683	36.76666	248			0	49	23	18	56	56	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	28	225		
14	73	359	1813	9241	36.76672	248			0	35	49	0	62	62	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	30	226		
14	73	359	1815	43799	36.76678	248			0	35	35	37	56	55	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	29	225		
14	73	359	1818	18357	36.76684	248			0	29	61	46	61	61	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	33	226		
14	73	359	1820	52916	36.76690	249			0	21	23	26	0	0	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	30	227		
14	73	359	1823	27474	36.76696	249			0	51	75	21	21	21	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	28	226		
14	73	359	1826	2033	36.76703	250			0	0	88	56	60	60	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	30	225		
14	73	359	1828	36591	36.76709	248			0	53	44	43	42	42	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	32	225		
14	73	359	1831	11150	36.76715	249			0	45	51	16	59	59	0	0	0	0	0	0	215	195	194	207	206	206	206	226	155	247	32	225		
14	73	359	1833	45708	36.76721	248			0	40	60	67	0	0	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	34	226		
14	73	359	1836	20267	36.76727	249			0	42	51	47	48	48	0	0	0	0	0	0	214	195	194	207	207	207	207	226	155	247	28	226		
14	73	359	1838	54825	36.76733	250			0	27	42	17	29	29	0	0	0	0	0	0	214	195	194	206	205	205	205	226	155	247	32	225		
14	73	359	1841	29383	36.76739	248			0	40	60	67	0	0	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	34	226		
14	73	359	1844	3942	36.76745	250			0	48	24	35	46	46	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	30	225		
14	73	359	1846	38501	36.76751	250			0	42	51	26	44	44	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	28	225		
14	73	359	1849	13059	36.76757	248			0	21	53	26	42	42	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	28	225		
14	73	359	1851	4617	36.76763	248			0	53	55	46	45	45	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	29	225		
14	73	359	1854	22176	36.76769	250			0	62	29	51	32	32	0	0	0	0	0	0	214	195	194	206	205	205	205	226	155	247	32	226		
14	73	359	1856	56734	36.76775	249			0	53	46	0	39	39	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	31	227		
14	73	359	1859	31293	36.76781	249			0	30	51	26	47	47	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	28	226		
14	73	359	1902	5851	36.76787	249			0	55	73	0	54	54	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	30	225		
14	73	359	1904	40410	36.76793	248			0	70	0	71	54	54	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	36	225		
14	73	359	1907	19668	36.76800	248			0	46	45	31	15	15	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	31	227		
14	73	359	1909	49227	36.76806	249			0	49	50	45	62	62	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	28	225		
14	73	359	1912	24085	36.76812	250			0	57	81	64	65	65	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	30	225		
14	73	359	1914	56644	36.76818	248			0	12	21	51	59	59	0	0	0	0	0	0	215	195	194	207	206	206	206	226	155	247	28	225		
14	73	359	1917	32022	36.76824	249			0	51	51	52	28	28	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	33	225		
14	73	359	1920	7761	36.76830	250			0	38	74	8	47	47	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	28	226		
14	73	359	1922	43119	36.76835	248			0	51	44	53	32	32	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	30	225		
14	73	359	1925	16879	36.76842	250			0	0	50	65	37	37	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	28	226		
14	73	359	1927	51435	36.76848	248			0	49	17	6	36	36	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	31	226		
14	73	359	1930	29995	36.76853	250			0	20	58	0	54	54	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	28	226		
14	73	359	1933	553	36.76859	248			0	60	94	21	40	40	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	31	226		
14	73	359	1935	31112	36.76866	248			0	37	23	36	26	26	0	0	0	0	0	0	214	195	194	206	205	205	205	226	155	247	28	226		
14	73	359	1938	9670	36.76872	248			0	49	17	38	35	35	0	0	0	0	0	0	215	195	194	207	206	206	206	226	155	247	27	225		
14	73	359	1940	44229	36.76878	249			0	36	55	42	55	55	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	28	225		
14	73	359	1943	18787	36.76884	249			0	57	56	44	58	58	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	35	226		
14	73	359	1945	53345	36.76891	249			0	0	32	34	58	58	0	0	0	0	0	0	214	195	194	207	206	206	206	226	155	247	31	226		



SIDE		ALSEPA	A/S507	1973
0 FR	6	2250 EV	3 CTS	48.6 EV CH 6 71 CTS
0 FR	7	2000 EV	0 CTS	48.6 EV CH 7 79 CTS
0 FR	8	1750 EV	0 CTS	48.6 EV CH 8 72 CTS
0 FR	9	1500 EV	0 CTS	48.6 EV CH 9 61 CTS
0 FR	10	1250 EV	1 CTS	48.6 EV CH 10 69 CTS
0 FR	11	1000 EV	1 CTS	48.6 EV CH 11 63 CTS
0 FR	12	750 EV	0 CTS	48.6 EV CH 12 75 CTS
0 FR	13	500 EV	0 CTS	48.6 EV CH 13 72 CTS
0 FR	14	250 EV	0 CTS	48.6 EV CH 14 62 CTS
0 FR	15	100 EV	0 CTS	48.6 EV CH 15 67 CTS
0 FR	16	70 EV	0 CTS	48.6 EV CH 16 81 CTS
0 FR	17	50 EV	0 CTS	48.6 EV CH 17 84 CTS
0 FR	18	30 EV	1 CTS	48.6 EV CH 18 66 CTS
0 FR	19	20 EV	0 CTS	48.6 EV CH 19 61 CTS
0 FR	20	10 EV	0 CTS	16.2 EV CH 0 89 CTS
0 FR	21	3500 EV	0 CTS	16.2 EV CH 1 60 CTS
0 FR	22	3250 EV	1 CTS	16.2 EV CH 2 69 CTS
0 FR	23	3000 EV	0 CTS	16.2 EV CH 3 66 CTS
0 FR	24	2750 EV	0 CTS	16.2 EV CH 4 68 CTS
0 FR	25	2500 EV	0 CTS	16.2 EV CH 5 73 CTS
0 FR	26	2250 EV	1 CTS	16.2 EV CH 6 64 CTS
0 FR	27	2000 EV	0 CTS	16.2 EV CH 7 89 CTS
0 FR	28	1750 EV	0 CTS	16.2 EV CH 8 64 CTS
0 FR	29	1500 EV	0 CTS	16.2 EV CH 9 73 CTS
0 FR	30	1250 EV	6 CTS	16.2 EV CH 10 73 CTS
0 FR	31	1000 EV	0 CTS	16.2 EV CH 11 76 CTS
0 FR	32	750 EV	0 CTS	16.2 EV CH 12 78 CTS
0 FR	33	500 EV	1 CTS	16.2 EV CH 13 63 CTS
0 FR	34	250 EV	0 CTS	16.2 EV CH 14 81 CTS
0 FR	35	100 EV	0 CTS	16.2 EV CH 15 64 CTS
0 FR	36	70 EV	0 CTS	16.2 EV CH 16 74 CTS
0 FR	37	50 EV	1 CTS	16.2 EV CH 17 73 CTS
0 FR	38	30 EV	0 CTS	16.2 EV CH 18 75 CTS
0 FR	39	20 EV	0 CTS	16.2 EV CH 19 64 CTS
0 FR	40	10 EV	0 CTS	5.4 EV CH 0 74 CTS
0 FR	41	3500 EV	0 CTS	5.4 EV CH 1 75 CTS
0 FR	42	3250 EV	0 CTS	5.4 EV CH 2 75 CTS
0 FR	43	3000 EV	0 CTS	5.4 EV CH 3 80 CTS
0 FR	44	2750 EV	0 CTS	5.4 EV CH 4 167 CTS
0 FR	45	2500 EV	0 CTS	5.4 EV CH 5 77 CTS
0 FR	46	2250 EV	0 CTS	5.4 EV CH 6 68 CTS
0 FR	47	2000 EV	0 CTS	5.4 EV CH 7 71 CTS
0 FR	48	1750 EV	0 CTS	5.4 EV CH 8 66 CTS
0 FR	49	1500 EV	0 CTS	5.4 EV CH 9 78 CTS
0 FR	50	1250 EV	0 CTS	5.4 EV CH 10 75 CTS
0 FR	51	1000 EV	1 CTS	5.4 EV CH 11 56 CTS
0 FR	52	750 EV	1 CTS	5.4 EV CH 12 78 CTS
0 FR	53	500 EV	0 CTS	5.4 EV CH 13 78 CTS
0 FR	54	250 EV	0 CTS	5.4 EV CH 14 84 CTS
0 FR	55	100 EV	2 CTS	5.4 EV CH 15 68 CTS
0 FR	56	70 EV	0 CTS	5.4 EV CH 16 79 CTS
0 FR	57	50 EV	0 CTS	5.4 EV CH 17 74 CTS
0 FR	58	30 EV	1 CTS	5.4 EV CH 18 59 CTS
0 FR	59	20 EV	1 CTS	5.4 EV CH 19 73 CTS
0 FR	60	10 EV	0 CTS	1.8 EV CH 0 77 CTS
SIDE	ALSEPA	A/S507	1973 HEMAX	6 LEMAX 167
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