

**FAST FIELDS INSTRUMENT**  
**MODE : 43**

02/18/99  
REE

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**SUMMARY**

SLOW SURVEY: 14,366 bit/s  
FAST SURVEY: 491,520 bit/s  
BURST: 3,932,570 bit/s  
SLOT: 13

**BACKUP :High Alt - Gen Sci**  
**HIGH RES, B\_4k, HG=1/4**  
**3-Wire (Rev: 6)**

A. SPHERE CONFIGURATION: Spheres in Current Mode: 6,7; Ne range 1 to 4x10<sup>4</sup> cm<sup>-3</sup>

**B. SLOW SURVEY**

APID SUMMARY	DATA	SMPL/S	BITS/s
SVY0	V1-V4_S	32	512
APID 1032	V5-V8_S	32	512
2,048 bit/s	V9-V10_S	32	512
(1/128 max rate)	Mag1dc	8	128
	Mag2dc	8	128
	Mag3dc	8	128
	Therm	8	128
SVY1	V1-V2_S	32	512
APID 1033	V2-V4_S	32	512
2,048 bit/s	Ne6_S	32	512
(1/128 max rate)	Ne7_S	32	512
SVY2	Mag1ac_S	32	512
APID 1034	Mag2ac_S	32	512
2,048 bit/s	Mag3ac_S	32	512
(1/128 max rate)	V10_S	8	128
	V4_S	8	128
	V8_S	8	128
	LFF1	8	64
	LFF2	8	64
LFF1 set to V1-V4_HG. LFF2 set to V5-V8_HG.			
BBF	V1-V4_BBF	0	0
APID 1035	V5-V8_BBF	0	0
0 bit/s	Mag3ac_BBF	0	0
(OFF)	V9-V10_BBF	0	0
SFA_AVE	V1-V4_SFA	64	512
APID 1036	V5-V8_SFA	64	512
2,048 bit/s	Mag3ac_SFA	64	512
(Ave 64 sweeps)	V1-V4_TRK	64	512
Each Ch.: 1 swp/4s, 256 pts/sweep, Swp: 0 - 2 MHz.			
DSP	V1-V4HG_DSP	<128	<1,024
APID 1037	V5-V8HG_DSP	<128	<1,024
6,144 bit/s	V1-V4TRK_DSP	<128	<1,024
(Ave 128 sweeps)	Mag3ac_DSP	128	1,024
Each Ch.: 1 swp/4s, 512 pts/sweep, Swp: 0 - 16 kHz.			
HFQ	PD12	0	0
APID 1038	PD13	0	0
0 bit/s	PD14	0	0
(OFF)	PD23	0	0
	PD24	0	0
	PD34	0	0
	TRK_FRQ	0	0
	FRQ1	0	0
	FRQ2	0	0
	FRQ3	0	0
	FRQ4	0	0

\* LFF, BBF, SFA, DSP, and PD are 8-bit words.

**C. FAST SURVEY**

APID SUMMARY	DATA	SMPL/S	BITS/s
SVY0	V1-V4_S	2,048	32,768
APID 1032	V5-V8_S	2,048	32,768
131,072 bit/s	V9-V10_S	2,048	32,768
(Max rate)	Mag1dc	512	8,196
	Mag2dc	512	8,196
	Mag3dc	512	8,196
	Therm	512	8,196
SVY1	V1-V2_S	2,048	32,768
APID 1033	V2-V4_S	2,048	32,768
131,072 bit/s	Ne6_S	2,048	32,768
(Max rate)	Ne7_S	2,048	32,768
SVY2	Mag1ac_S	2,048	32,768
APID 1034	Mag2ac_S	2,048	32,768
131,072 bit/s	Mag3ac_S	2,048	32,768
(Max rate)	V10_S	512	8,196
	V4_S	512	8,196
	V8_S	512	8,196
	LFF1	512	4,092
	LFF2	512	4,092
LFF1 set to V1-V4_HG. LFF2 set to V5-V8_HG.			
BBF	V1-V4_BBF	512	4,096
APID 1035	V5-V8_BBF	512	4,096
16,384 bit/s	Mag3ac_BBF	512	4,096
(1/8 max rate)	V9-V10_BBF	512	4,096
SFA_AVE	V1-V4_SFA	512	4,096
APID 1036	V5-V8_SFA	512	4,096
16,384 bit/s	Mag3ac_SFA	512	4,096
(Ave 8 sweeps)	V1-V4_TRK	512	4,096
Each Ch.: 2 swp/s, 256 pts/sweep, Swp: 0 - 2 MHz.			
DSP	V1-V4HG_DSP	1,024	8,192
APID 1037	V5-V8HG_DSP	1,024	8,192
49,152 bit/s	V1-V4TRK_DSP	1,024	8,192
(Ave 16 sweeps)	Mag3ac_DSP	1,024	8,192
Each Ch.: 2 swp/s, 512 pts/sweep, Swp: 0 - 16 kHz.			
HFQ	PD12	128	1,024
APID 1038	PD13	128	1,024
16,384 bit/s	PD14	128	1,024
(Only rate)	PD23	128	1,024
	PD24	128	1,024
	PD34	128	1,024
	TRK_FRQ	128	2,048
	FRQ1	128	2,048
	FRQ2	128	2,048
	FRQ3	128	2,048
	FRQ4	128	2,048

\* LFF, BBF, SFA, DSP, and PD are 8-bit words.

**D. BURST**

APID SUMMARY	DATA	SMPL/S	BITS/s
ADC1	V1-V4HG_ADC1	32,768	524,288
APID 1048			
524,288 bit/s			
(Max rate)			
ADC2	V5-V8HG_ADC2	32,768	524,288
APID 1049			
524,288 bit/s			
(Max rate)			
AADC3	SVY_BAC	0	0
APID 1050			
OFF			
ADC4	V1-V4TRK_ADC4	32,768	524,288
APID 1051			
524,288 bit/s			
(Max rate)			
ADC5	V1-V2HG_ADC5	32,768	524,288
APID 1052			
524,288 bit/s			
(Max rate)			
ADC6	Mag3ac_ADC6	32,768	524,288
APID 1053			
524,288 bit/s			
(Max rate)			
ADC7	Mag1ac_ADC7a	8,192	131,072
APID 1054	Mag2ac_ADC7b	8,192	131,072
524,288 bit/s	V1-V2_ADC7c	8,192	131,072
(Max rate)	D8_ADC7d	8,192	131,072
ADC8	Ne7_ADC8a	8,192	131,072
APID 1055	V9-V10_ADC8b	8,192	131,072
524,288 bit/s	V5-V8_ADC8c	8,192	131,072
(Max rate)	V1-V4_ADC8d	8,192	131,072
WPC	All Quantities	307	39,322
APID 1056			
39,322 bit/s			
(1/4 rate)			
Field input: V1-V4_LF (1-16 kHz)			
	V5-V8_LF (1-16 kHz)		
BCOR OFF			
SFA	V1-V4_SFA	4,096	32,768
APID 1057	V5-V8_SFA	4,096	32,768
131,072 bit/s	Mag3ac_SFA	4,096	32,768
(1/2 rate)	V1-V4_TRK	4,096	32,768
Each Ch.: 16 swp/s, 256 pts/sweep, Swp: 0 - 2 MHz.			
Track Frequency - V1-V4 Zero Crossing.			
HSBM	V1-V4_HSBM	2,048	
APID 1058	V5-V8_HSBM	2,048	
Memory allocation: Mag3ac_HSBM			
20,971,520 bytes	V9-V10_HSBM		
Sample rate: 0.5 us.			
Buffer size: 655,360 bytes.			
Triga=BBF1. TrigB=LFF2.			
PROC MODE =15, OL = 7, 4 second latency.			
(Capture during fast survey or burst.)			

**E. MODE SET UP**

POWER			
Command sequence (setbit):			
F9 0 :	System 7	Fields survey	ON
F8 14 :	System 4	Fluxgate	ON
F8 6 :	System 6	BEB1,2; Spheres 1,2,3,4.	ON
F8 7 :	System 23	BEB3,4; Spheres 5,6,7,8.	ON
F8 8 :	System 24	AXBEB; Spheres 9,10.	ON
F9 1 :	System 8	Fields LF analog	ON
F8 15 :	System 3	Search Coil	ON
F9 2 :	System 9	Fields HF analog, Osc.	ON
F9 3 :	System 10	SFA	ON
F9 4 :	System 11	WPC, BFF, HFQ	ON
** :	System 12	HSBM	ON
** :	System 13	DSP	ON
** :	System 14	DSP ROM	ON
** -	Driver turn on.	HSBM:.61000001. DSP:.60000001.	
BEB1	IBIAS2	-12.5 nA	480080
BEB2	IBIAS3	0 nA	480080
410088	STUB2	+150 mV	490080
420070	IBIAS1	-12.5 nA	4A0080
430088	STUB1	+150 mV	480080
440080	GUARD	-5.0 V	4C0000
450001	SPH2	V_Mode	4D0001
	SPH3	V_Mode	
BEB3	VBIAS6	+15 V	5800C0
510088	STUB6	0.0 V	590088
520070	IBIAS5	-12.5nA	5A0070
530088	STUB5	0.0 V	5B0088
540080	GUARD	-5.0 V	5C0080
55000A	SPH6	GL/I_Mode	5D000A
	SPH7	GL/I_Mode	
FORMATTER	APID ON/OFF		
D82804	Rate SFA,ADC,BBF		
D90067	CLRBIT D5 8		
ANALOG A/B	SVY 1/128 SPEED		
823102	ADC1 to ADC 4		
830A9D	ADC5 to ADC 8		
84042C	ADC7 MUX		
850055	ADC8 MUX		
860009	TRIGGERS		
880800	ANB, SFATRK		
AXBEB	IBIAS9	0 nA	600080
610080	IBIAS10	0 nA	620005
620005	V9, V10	V_Mode	
ANALOG C	ANC, BCOR TRIG		
A00006	ESA HEAD POS		
A16EA2	BCOR OFF		
A20000	FREQ-T		
A40000	FREQ-T		
DSP	ADC1 to ADC6		
9080AC	AVERAGE 2^7		
948007			
HSBM	MSZ=7, 2MS/s		
98B803	2.5 V TMIN		
99B898	Sel BBF1,LFF2		
9A8803			
SLOW -> FAST			
D82804			
D90064			
800026			
9080AC			
948004			
FAST -> SLOW			
D90067			
800026			
9080AC			
948007			
-ree/fast/modes/frm3/mode048.frm			
Rev. 5 - SVY BAC.			
- HG at 1/4.			
- SFA TRACK ADJUSTED -4 kHz.			
- HSBM No Retrig tpos 1/4			
- WPC 1/4 in LF.			