

FAST FIELDS INSTRUMENT
MODE : 1

1/24/95
REE

SUMMARY

SLOW SURVEY: 11,264 bit/s
FAST SURVEY: 77,824 bit/s
BURST: 1,199,308 bit/s
HSBM: 0 bit/s

GENERAL SCIENCE 1
MULTI-ORBIT
3-Wire.

A. SPHERE CONFIGURATION. Spheres in Current Mode: 6,7; Ne range 1 to 4x10⁴ cm⁻³

B. SLOW SURVEY

APID SUMMARY	DATA	SMPL/S	BITS/S
SVY0	V1-V4_S xxx	16	256
APID 1032	V5-V8_S	16	256
1,024 bit/s	V9-V10_S	16	256
(1/128 max rate)	Mag1dc	4	64
	Mag2dc	4	64
	Mag3dc	4	64
	Therm	4	64
SVY1	V1-V2_S	16	256
APID 1033	V3-V4_S xxx	16	256
1,024 bit/s	Ne6_S	16	256
(1/128 max rate)	Ne7_S	16	256
SVY2	Mag1ac_S	16	256
APID 1034	Mag2ac_S	16	256
1,024 bit/s	Mag3ac_S	16	256
(1/128 max rate)	V10_S	4	64
	V4_S xxx	4	64
	V8_S	4	64
	LFF1	4	32
	LFF2	4	32

LFF1 set to V1-V2_HG. LFF2 set to V5-V8_HG.

BBF	V1-V2_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-V2_SFA	64	512
APID 1036	V5-V8_SFA	64	512
2,048 bit/s	Mag3ac_SFA	64	512
(Ave 64 sweeps)	V9-V10_SFA	64	512
Each Ch.: 1 swp/4s, 256 pts/sweep, FRQ: 0 - 2 MHz.			

DSP	V5-V8HG_DSP	<128	<1,024
APID 1037	V9-V10_DSP	<128	<1,024
6,144 bit/s	V1-V2HG_DSP	<128	<1,024
(Ave 128 sweeps)	Mag3ac_DSP	<128	<1,024
Note: DSP less	V1-V2HF_DSP+	<128	<1,024
than real time.	V5-V8HF_DSP+	<128	<1,024
	V9-V10HF_DSP+	<128	<1,024
	Mag3acHF_DSP+	<128	<1,024
Each Ch.: -1 swp/5.5s, 512 pts/swp, FRQ: 0 - 16 kHz.			
+ Ea Ch.: -1 swp/5.5s, 512 pts/swp	FRQ: 0 - 500 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 xxx	64	1,024
APID 1032	V5-V8_S	64	1,024
4,096 bit/s	V9-V10_S	64	1,024
(1/32 max rate)	Mag1dc	16	256
	Mag2dc	16	256
	Mag3dc	16	256
	Therm	16	256
SVY1	V1-V2_S	64	1,024
APID 1033	V3-V4_S xxx	64	1,024
4,096 bit/s	Ne6_S	64	1,024
(1/32 max rate)	Ne7_S	64	1,024
SVY2	Mag1ac_S	64	1,024
APID 1034	Mag2ac_S	64	1,024
4,096 bit/s	Mag3ac_S	64	1,024
(1/32 max rate)	V10_S	16	256
	V4_S xxx	16	256
	V8_S	16	256
	LFF1	16	128
	LFF2	16	128

LFF1 set to V1-V2_HG. LFF2 set to V5-V8_HG.

BBF	V1-V2_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-V2_SFA	256	2,048
APID 1036	V5-V8_SFA	256	2,048
8,192 bit/s	Mag3ac_SFA	256	2,048
(Ave 16 sweeps)	V9-V10_SFA	256	2,048
Each Ch.: 1 swp/s, 256 pts/swp, FRQ: 0 - 2 MHz.			

DSP	V5-V8HG_DSP	<512	<4,096
APID 1037	V9-V10_DSP	<512	<4,096
24,576 bit/s	V1-V2HG_DSP	<512	<4,096
(Ave 32 sweeps)	Mag3ac_DSP	<512	<4,096
Note: DSP less	V1-V2HF_DSP+	<512	<4,096
than real time.	V5-V8HF_DSP+	<512	<4,096
	V9-V10HF_DSP+	<512	<4,096
	Mag3acHF_DSP+	<512	<4,096
Each Ch.: 1 swp/1.4s, 512 pts/swp, FRQ: 0-16 kHz.			
+ Ea Ch.: 1 swp/1.4s, 512 pts/swp,	FRQ: 0-500 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.

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REE

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D. BURST

APID SUMMARY	DATA	SMPL/S	BITS/S
ADC1	V1_ADC1	0	0
APID 1048			
0 bit/s			
(OFF)			
ADC2	V5-V8HG_ADC2	0	0
APID 1049			
0 bit/s			
(OFF)			
ADC3	V9-V10_ADC3	0	0
APID 1050			
0 bit/s			
(OFF)			
ADC4	V8_ADC4	0	0
APID 1051			
0 bit/s			
(OFF)			
ADC5	V1-V2HG_ADC5	0	0
APID 1052			
0 bit/s			
(OFF)			
ADC6	Mag3ac_ADC6	0	0
APID 1053			
0 bit/s			
(OFF)			
ADC7	Mag1ac_ADC7a	8,192	131,072
APID 1054	Mag2ac_ADC7b	8,192	131,072
524,288 bit/s	Mag3ac_ADC7c	8,192	131,072
(Max rate)	Ne6_ADC7d	8,192	131,072
ADC8	V1-V2_ADC8a	8,192	131,072
APID 1055	V5-V8_ADC8b	8,192	131,072
524,288 bit/s	V9-V10_ADC8c	8,192	131,072
(Max rate)	Ne7_ADC8d	8,192	131,072
WPC	All Quantities	38	19,660
APID 1056			
19,660 bit/s			
(1/8 max rate)			
Field input: V1-V4_HF (>200 kHz)			
	V5-V8_HF (>200 kHz)		
Northern. 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)	V9-V10_SFA	4,096	32,768
Each Ch.: 16 swp/s, 256 pts/swp, Swp: 0 - 2 MHz.			
Track Frequency - V1-V4 Zero Crossing.			

HSBM V1-V4_HSBM
APID 1058 V5-V8_HSBM
Memory allocation: Mag3ac_HSBM
0 bytes
V9-V10_HSBM
Sample rate: 0.5 us.
Buffer size: 655,360 bytes./ 163,840 bytes.
Triga=NA. TrigB=NA. TIMEBASE MODE.
PROC MODE =0, OL = 0, 0 second latency.
(Capture always.)

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, BBF, HFQ ON
** : System 12 HSBM ON
** : System 13 DSP ON
** : System 14 DSP ROM ON
** - Driver turn on. HSBM:.61000001. DSP:.60000001.

BEB1 400080 IBIAS2 0 nA 480080 STUB3 0.0 V
410080 STUB2 0.0 V 490080 STUB3 0.0 V
420080 IBIAS1 0 nA 4A0080 IBIAS4 0 nA
430080 STUB1 0.0 V 480080 STUB4 0.0 V
440080 GUARD -5.0 V 4C0080 GUARD -5.0 V
450009 SPH2 V_Mode 4D0009 SPH3 V_Mode

BEB2 400080 IBIAS3 0 nA
410080 STUB3 0.0 V
420080 IBIAS4 0 nA
430080 STUB4 0.0 V
440080 GUARD -5.0 V
450009 SPH3 V_Mode

BEB3 500080 VBIAS6 +10 V 580080 VBIAS7 +10 V
510080 STUB6 0.0 V 590080 STUB7 0.0 V
520080 IBIAS5 0 nA 5A0080 IBIAS8 0 nA
530080 STUB5 0.0 V 580080 STUB8 0.0 V
540080 GUARD -5.0 V 5C0080 GUARD -5.0 V
55000A SPH6 I_Mode 5D000A SPH7 I_Mode

FORMATTER D8283F APID ON/OFF 600080 IBIAS9 0 nA
D90067 Rate SFA,ADC,BBF 610080 IBIAS10 0 nA
CLRBIT D5 8 620055 V9, V10 V_Mode

ANALOG A/B 800007 SVY 1/128 SPEED
823042 ADC1 to ADC 4 A16EA2 ESA HEAD POS
830915 ADC5 to ADC 8 A20000 BCOR OFF
8405AC ADC7 MUX A40000 FREQ-T
850A8C ADC8 MUX OFF
86000B TRIGGERS 9080DA ADC2,3,5,6 & HSBM
88FC00 ANB, SFATRK 948007 AVERAGE 2*7

ANALOG C A00003 ANC, BCOR TRIG
A16EA2 ESA HEAD POS
A20000 BCOR OFF
A40000 FREQ-T

DSP 9080DA ADC2,3,5,6 & HSBM
948007 AVERAGE 2*7

SFA A80510 SWP to 2MHz
A933BB HFDIST 990000 OV TMIN
AA2600 SFA TRACK 9A8857 Sel BBF1,LFF1

HSBM 98AB3F MSZ=5, 2MS/s
990000 OV TMIN
9A8857 Sel BBF1,LFF1

SLOW -> FAST D8033F
D90065
800005
948005
989B3F

FAST -> SLOW D90067
800005
948007
989B3F

disks/plasmasl/home/ree/fast/modes/mode001.frm
Special features:
(1) HSBM piped to DSP. Proc ignore out-of-sync in FAST SLOW transition. HSBM buffer size changed.
(2) Burt at 4kHz Nyquist.
(3) Ne in low-gain mode.