FAST FIELDS INSTRUMENT
MODE : 2

1/11/95
REE

SUMMARY

SLOW SURVEY:	11,264 bit/s
FAST SURVEY:	163,840 bit/s
BURST:	3,958,374 bit/s
HSBM:	100,000 bit/s

GENERAL SCIENCE
LOW RATE

Northern Hemisphere.

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

B. SLOW SURVEY

APID SUMMARY	DATA	SMPL/S	BITS/s
SVY0	V1-V4_S	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	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	4	64
	V8_S	4	64
	LFF1	4	32
	LFF2	4	32
LFF1 set to V1-V4_HG. LFF2 set to V5-V8_HG.			
BBF	V1-V4_BBF	0	0
APID 1035	V5-V8_BBFF	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)	V9-V10_SFA	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	V9-V10_DSP	128	1,024
(Ave 128 sweeps)	Mag3ac_DSP	128	1,024
	V1-V2HG_DSP	128	1,024
	V3-V4HG_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	512	8,192
APID 1032	V5-V8_S	512	8,192
32,768 bit/s	V9-V10_S	512	8,192
(1/4 max rate)	Mag1dc	128	2,048
	Mag2dc	128	2,048
	Mag3dc	128	2,048
	Therm	128	2,048
SVY1	V1-V2_S	512	8,192
APID 1033	V3-V4_S	512	8,192
32,768 bit/s	Ne6_S	512	8,192
(1/4 max rate)	Ne7_S	512	8,192
SVY2	Mag1ac_S	512	8,192
APID 1034	Mag2ac_S	512	8,192
32,768 bit/s	Mag3ac_S	512	8,192
(1/4 max rate)	V10_S	128	2,048
	V4_S	128	2,048
	V8_S	128	2,048
	LFF1	128	1,024
	LFF2	128	1,024
LFF1 set to V1-V4_HG. LFF2 set to V5-V8_HG.			
BBF	V1-V4_BBF	512	4,096
APID 1035	V5-V8_BBFF	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	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/sweep, Swp: 0 - 2 MHz.			
DSP	V1-V4HG_DSP	512	4,096
APID 1037	V5-V8HG_DSP	512	4,096
24,576 bit/s	Mag3ac_DSP	512	4,096
(Ave 32 sweeps)	V9-V10_DSP	512	4,096
	V1-V2HG_DSP	512	4,096
	V3-V4HG_DSP	512	4,096
Each Ch.: 1 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)			
ADC3	V9-V10_ADC3	32,768	524,288
APID 1050			
524,288 bit/s			
(Max rate)			
ADC4	Mag3ac_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	V3-V4HG_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	Ne6_ADC7c	8,192	131,072
(Max rate)	Ne7_ADC7d	8,192	131,072
ADC8	Ne7_ADC8	0	0
APID 1055			
0 bit/s			
(OFF)			
WPC	All Quantities	307	157,286
APID 1056			
157,286 bit/s			
(Max rate)			
Field input: V1-V4_HF (>200 kHz)			
V5-V8_HF (>200 kHz)			
Norhtern. 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/sweep, Swp: 0 - 2 MHz.			
Track Frequency - V1-V4 Zero Crossing.			
HSBM	V1-V4_HSBM		
APID 1058	V5-V8_HSBM		
Memory allocation:	Mag3ac_HSBM		
20,971,520 bytes	V9-V10_HSBM		
Sample rate: 0.5 us.			
Buffer size: 655,360 bytes.			
TrigA=BBF1. TrigB=LFF1.			
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

400080	IBIAS2	0 nA
410080	STUB2	0.0 V
420080	IBIAS1	0 nA
430080	STUB1	0.0 V
440080	GUARD	-5.0 V
450005	SPH2	V_Mode

BEB2

480080	IBIAS3	0 nA
490080	STUB3	0.0 V
4A0080	IBIAS4	0 nA
4B0080	STUB4	0.0 V
4C0080	GUARD	-5.0 V
4D0005	SPH3	V_Mode

BEB3

500080	VBIAS6	+10 V
510080	STUB6	0.0 V
520080	IBIAS5	0 nA
530080	STUB5	0.0 V
540080	GUARD	-5.0 V
550006	SPH6	I_Mode

BEB4

580080	VBIAS7	+10 V
590080	STUB7	0.0 V
5A0080	IBIAS8	0 nA
5B0080	STUB8	0.0 V
5C0080	GUARD	-5.0 V
5D0006	SPH7	I_Mode

FORMATTER

D82880	APID ON/OFF
D90067	Rate SFA,ADC,BBF
CLRBIT D5 8	

AXBEB

600080	IBIAS9 0 nA
610080	IBIAS10 0 nA
620005	V9, V10 V_Mode

ANALOG A/B

800007	SVY 1/128 SPEED
827100	ADC1 to ADC 4
830935	ADC5 to ADC 8
8406AC	ADC7 MUX
85FFFF	ADC8 MUX OFF
86000A	TRIGGERS
88FC00	ANB, SFATRK

ANALOG C

A00000	ANC, BCOR TRIG
A16EA2	ESA HEAD POS
A20000	BCOR OFF
A40000	FREQ-T

DSP

9080FC	ADC1 to ADC6
948007	AVERAGE 2^7

SFA

A80500	SWP to 2MHz
A937FF	HFDIST
AA2600	SFA TRACK

HSBM

986B03	MSZ=5, 2MS/s
998080	2.0 V TMIN
9A8807	Sel BBF1,LFF1

SLOW -> FAST

D80080
D90065
800002
9080FC
948005

FAST -> SLOW

D82880
D90067
800007
9080FC
948007

disks/plasma1/home/ree/fast/modes/mode002.frm
Busrt V1-V4,V5-V8,V1-V2,V3-V4 in high (x10) gain.