

**FAST FIELDS INSTRUMENT**  
**MODE : 55**

09/21/97  
REE

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**SUMMARY**

SLOW SURVEY: 14,366 bit/s  
FAST SURVEY: 491,520 bit/s  
BURST: 4,364,698 bit/s  
SLOT: 11

**HIGH ALT - AKR3c**  
**Fast Res., B\_4k, HG=1/4**  
**3-Wire (Rev: 5)**

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	V9-V10_DSP	<128	<1,024
(Ave 128 sweeps)	V1-V4TRK_DSP	128	1,024
	V1-V2HG_DSP	128	1,024
	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

**C. FAST SURVEY**

APID SUMMARY	DATA	SMPL/S	BITS/s
SSVY0	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	V9-V10_DSP	1,024	8,192
(Ave 16 sweeps)	V1-V4TRK_DSP	1,024	8,192
	V1-V2HG_DSP	1,024	8,192
	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.

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**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	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_SFA	4,096	32,768
Each Ch.: 16 swp/s, 256 pts/sweep, Swp: 0 - 2 MHz.			
Track Frequency - V1-V4 Zero Crossing.			
SBM	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: 2,621,440 bytes.			
Triga=BBF3. TrigB=BBF2.			
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	HSEB	ON
** :	System 13	DSP	ON
** :	System 14	DSP ROM	ON
** -	Driver turn on.	HSEB:.61000001. DSP:.60000001.	
<b>BEB1</b>		<b>BEB2</b>	
400070	IBIAS2	-12.5 nA	480080 IBIAS3 0 nA
410088	STUB2	+150 mV	490080 STUB3 0.0 V
420070	IBIAS1	-12.5 nA	4A0080 IBIAS4 0 nA
430088	STUB1	+150 mV	4B0080 STUB4 0.0 V
440080	GUARD	-5.0 V	4C0000 GUARD 0 V
450001	SPH2	V_Mode	4D0001 SPH3 V_Mode
<b>BEB3</b>		<b>BEB4</b>	
5000C0	VBIAS6	+15 V	5800C0 VBIAS7 +15 V
510088	STUB6	0.0 V	590088 STUB7 0.0 V
520070	IBIAS5	-12.5nA	5A0070 IBIAS8 -12.5nA
530088	STUB5	0.0 V	5B0088 STUB8 0.0 V
540080	GUARD	-5.0 V	5C0080 GUARD -5.0 V
55000A	SPH6	GL/I_Mode	5D000A SPH7 GL/I_Mode
<b>FORMATTER</b>		<b>AXBEB</b>	
D82880	APID ON/OFF	600080	IBIAS9 0 nA
D90067	Rate SFA,ADC,BBF	610080	IBIAS10 0 nA
CLRBIT	D5 8	620005	V9, V10 V_Mode
<b>ANALOG A/B</b>		<b>ANALOG C</b>	
800006	SVY 1/128 SPEED	A00006	ANC, BCOR TRIG
823102	ADC1 to ADC 4	A16EA2	ESA HEAD POS
830A9D	ADC5 to ADC 8	A20000	BCOR OFF
84042C	ADC7 MUX	A40000	FREQ-T
850055	ADC8 MUX	<b>DSP</b>	
860009	TRIGGERS	9080FC	ADC1 to ADC6
880C00	ANB, SFATRK	948007	AVERAGE 2^7
<b>SFA</b>		<b>HSBM</b>	
A8052A	SWP to 2MHz	98B803	MSZ=7, 2MS/s
A977FC	HPDIST	99A090	BBF2/BBF3 Levels
AA2600	SFA TRACK	9A880E	Sel BBF3,BFF2
<b>SLOW -&gt; FAST</b>		<b>FAST -&gt; SLOW</b>	
D80000		D82800	
D90064		D90067	
800006		800006	
9080FC		9080FC	
948007		948007	
-ree/fast/modes/frm3/mode055.frm			
Rev. 5 - HIGH-ALT GEN SCI,Ne6,7,DC in ADC 4k- B.			
- HG at 1/4.			
- SFA TRK MAG.			
- ADC V14HG,V58HG,V910,TRKV14,V12HG,Mag3			
- HSBM No Retrig tpos 1/4			
- WPC 1/4 in LF.			