

MODE - A

Modified IR Documentation

October 1, 1982

A

MSB				LSB			
8	7	6	5	4	3	2	1

WORD

1	RETRACE						
	S/C NAME 1						
2	S/C			SDB		ODD/EVEN	
	S/C NAME 2						
3	0	0	0	0	S/C		
4	FRAME CODE						
5	CHANGE CODE						
6	STEP CODE						
7	0	0	0	0	LINE DELAY		
8	0	0	0	0	0	IR	SEL
					AVG	2	1
9	GRAY SCALE STATUS						
10	DIRECT TRANSMISSION MODE						
	IMAGE			COUNT			
11	THOU			HUN			
	IMAGE			COUNT			
12	TEN			ONE			
13	SCAN MODE						
14	BETA (MSBS)						
15	BETA						
16	BETA (LSBS)						
17	GRID/NO GRID						
18	PLL ERROR						
19	PLL ERROR						0
20	BIT ERROR COUNT						

Table 8-2

Modified 4 x 2 Mile Output IR Documentation (Cont.)

WORD	MSB				LSB			
	8	7	6	5	4	3	2	1
21	BIT ERROR COUNT				0	0	0	
22	SETUP ERROR							
	COMPUTER ERRORS							
23	0	N	0	0	0	0	EX	T
	COMPUTER ERRORS							
24	BETA	MAG	SR	0	0	0	0	0
	SCAN COUNT							
25	THOU				HUN			
	SCAN COUNT							
26	TEN				ONE			
	TIME - YEAR							
27	THOU				HUN			
	TIME - YEAR							
28	TEN				ONE			
	0				0			
29	0				0			
	TIME - DAY							
30	TEN				ONE			
	TIME - HOUR							
31	TEN				ONE			
	TIME - MINUTE							
32	TEN				ONE			
	TIME - SECOND							
33	TEN				ONE			
	TIME - MSEC							
34	HUN				TEN			
35	BLACK ENABLE							
36	MODE C - CALIBRATE							
	0				0			
37	0				0			
	0				0			
	0				0			
	BIT/FRAME							
	REL		FR		BIT		ANY	
38	LIMITED SCAN MODE							
39	SAMPLE CONTROL							
40	VISIBLE CHANNEL CONNECT							

Table 8-2
Modified 4 x 2 Mile Output IR Documentation (Cont.)

		MSB					LSB		
		8	7	6	5	4	3	2	1
<u>WORD</u>									
41	SCAN DIRECTION								
42	BI PHASE MODULATION ON/OFF								
43	SCANNER SELECT								
44	PLL ERROR								
45		0	0	0	0	0	TEST		
							C	R	L
46	DATA RANDOMIZATION								
47	SUN PULSE SELECT								
48		0	0	0	0	0	0	NESS	
							S	V	
49	IR2 LOOKUP TABLE ID (280 hex)								
(CHANGED) 50	SCAN MODE								
51	BIT ERROR								
52	MEAN IR								
53	RMS IR								
54	S/C NAME AND VIS TABLE ID								
55	IR1 TABLE ID								
56	LEFT HORIZON (MSBS)								
57	LEFT HORIZON (LSBS)								
58	RIGHT HORIZON (MSBS)								
59	RIGHT HORIZON (LSBS)								
60	EQUATORIAL SCAN (MSBS)								

Table 8-2

Modified 4 x 2 Mile Output IR Documentation (Cont.)

MSB							LSB
8	7	6	5	4	3	2	1

WORD

	61	EQUATORIAL SCAN (LSBS)							
	62	BETA DOT							
	63	BETA DOT							
	64	BETA DOT							
	65	BETA DOT							
	66	ELEVATION ANGLE (MSBS)							
	67	ELEVATION ANGLE (LSBS)							
(CHANGED)	68	BLACKBODY RESPONSE							
(CHANGED)	69	BLACKBODY RESPONSE				0	0	0	0
	70	IR DETECTOR							
(CHANGED)	71	0	0	DIGITAL SUN COUNT					
(CHANGED)	72	DIGITAL SUN COUNT							
(CHANGED)	73	DIGITAL SUN COUNT							
(CHANGED)	74	BET	EXT	0	ACQ	PRE	WDO PAR	SCN	RAT
	75	CALIBRATION FLAG							
	76	DELTA BETA							
	77	DELTA BETA							
	78	DELTA BETA							
	79	DELTA BETA							
	80	PCM CODE WORD							

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EM-20*

Table 8-2

Modified 4 x 2 Mile Output IR Documentation (Cont.)

	MSB				LSB			
	8	7	6	5	4	3	2	1
<u>WORD</u>								
81	RAW PCM DATA 1							
82	RAW PCM DATA 2							
83	RAW PCM DATA 3							
84	RAW PCM DATA 4							
85	RAW PCM DATA 5							
86	RAW PCM DATA 6							
87	RAW PCM DATA 7							
88	RAW PCM DATA 8							
89	RAW PCM DATA 9							
90	RAW PCM DATA 10							
91	RAW PCM DATA 11							
92	RAW PCM DATA 12							
93	RAW PCM DATA 13							
94	RAW PCM DATA 14							
95	RAW PCM DATA 15							
96	RAW PCM DATA 16							
97	RAW PCM DATA 17							
98	RAW PCM DATA 18							
99	ORBIT & ATTITUDE 1							
100	ORBIT & ATTITUDE 2							

Table S-2

Modified 4 x 2 Mile Output IR Documentation (Cont.)

	MSB				LSB			
	8	7	6	5	4	3	2	1
<u>WORD</u>								
101	ORBIT & ATTITUDE							3
102	ORBIT & ATTITUDE							4
103	ORBIT & ATTITUDE							5
104	ORBIT & ATTITUDE							6
105	ORBIT & ATTITUDE							7
106	ORBIT & ATTITUDE							8
107	ORBIT & ATTITUDE							9
108	ORBIT & ATTITUDE							10
109	ORBIT & ATTITUDE							11
<i>N</i>								
120	ORBIT & ATTITUDE							22
121	ORBIT & ATTITUDE							23
122	ORBIT & ATTITUDE							24
123	ORBIT & ATTITUDE							25
124	ORBIT & ATTITUDE							26
125	NORTH-SOUTH GRID OFFSET							
126	EAST-WEST GRID OFFSET							
127	CONFIGURATION CONTROL							
128	LONGITUDINAL PARITY							

TABLE 2-5 4 X 2 MILE IR DOCUMENTATION

<u>Data</u>	<u>Documentation Word</u>
Retrace (Note 1)	1
ONE indicates scanner retrace	
Spacecraft Name 1	2
BITS 1 - 2	ODD/EVEN
BITS 3 - 4	SDB
BITS 5 - 8	S/C BCD NUMBER
Spacecraft Name 2	3
BITS 1 - 4	S/C BCD NUMBER
Frame code	4
ONE indicates picture transmission	
Change code (Note 1)	5
ONE indicates first line of picture if frame code is ONE or last line plus one of picture if frame code is ZERO.	
Step code (Note 1)	6
ONE Indicates normal line trans- mission; ZERO indicates that this line is not to be used to expose film and facsimile recorder line is not to be incremented (stepped).	
Line Delay	7
This number (1-8) denotes the delay to be introduced by the user; expressed in bit intervals.	
IR Selection	8
MSB	LSB
0 0 0 0 0 0 0 0 1	IR1
0 0 0 0 0 0 0 1 0	IR2
0 0 0 0 0 0 1 0 0	AVG

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TABLE 2-5 4 X 2 MILE IR DOCUMENTATION (CON'T)

<u>Data</u>	<u>Documentation Word</u>
Gray Scale Status (Note 1)	9
ONE indicates gray scale information transmission	
Direct Transmission Mode (Note 1)	10
ONE indicates 28Mb/sec; ZERO indicates 14Mb/sec	
Image Count	
BCD value split into 2 characters/word	
2 most significant BCD characters	11
2 least significant BCD characters	12
Scan Mode	13
A = \$64	
B = \$59	
C = \$B2	
D = \$8F	
Beta Count	
8 MS Bits	14
8 Middle Bits	15
8 LS Bits	16
Grid/No Grid (Note 1)	17
ZERO indicates no grid info.	
PLL Error	
8 MS Bits	18
7 LS Bits	19
Bit Error Count	
8 MS Bits	20
5 LS Bits	21
Setup Error (Note 1)	22
ONE indicates setup error	

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(CON'T)

TABLE 2-5 4 X 2 MILE IR DOCUMENTATION

<u>Data</u>	<u>Documentation Word</u>
Computer Error Messages	
Message 1	23
BIT 8 - Not used	
7 - S/C - NESS Data Transfers Not Complete	
6 - Not Used	
5 - Not Used	
4 - Not Used	
3 - Not Used	
2 - "Execute" Output I/O Reject	
1 - Time Input I/O Reject	
Message 2	24
BIT 8 - Beta Output I/O Reject	
7 - Mag Tape I/O Reject	
6 - NESS Reference I/O Reject	
5 - Not Used	
4 - Not Used	
3 - Not Used	
2 - Not Used	
1 - Delta Day Excessive	
Scan Count	
BCD value split into 2 characters/word	
2 most significant BCD characters	25
2 least significant BCD characters	26
Time - BCD	
Year - 2 MSD	27
Year - 2 LSD	28
Day of Year - 2 MSD	29
Day of Year - 2 LSD	30
Hour	31
Minute	32
Second	33
Millisecond*10	34
Black Enable (Note 1)	35
ONE indicates annotation transmission	

TABLE 2-5 4 X 2 MILE IR DOCUMENTATION (CON'T)

<u>Data</u>	<u>Documentation Word</u>
Mode C-Calibrate	36
<p>ONE (Note 1) indicates that C-Cal is not used; otherwise:</p>	
(LSB)	<p>V1 V2 V3 V4 V5 V6 V8</p>
Bit/Frame Sync Lock Loss	37
<p>0 = No Loss 3 = Bit Lock 5 = Frame Lock 9 = Bitlock</p>	
Limited Scan Mode Indicator (Note 1)	38
<p>ONE indicates limited scan mode</p>	
Sample Control	39
(LSB)	<p>IR-2PT IR-1PT IR-EAT Visible - 4PT Visible - 2PT Visible - 1PT Visible - EAT</p>
Visible Channel Connection	40
(LSB)	<p>V1 V2 V3 Coding for each V4 channel is as follows: V5 0 = normal; 1 = V6 patched input used V7 V8</p>

TABLE 2-5 4 X 2 MILE IR DOCUMENTATION (CON'T)

<u>Data</u>	<u>Documentation Word</u>
Scan Direction (Note 1)	41
ONE indicates normal north-south direction (may not be used).	
Bi-phase Modulator On/Off (Note 1)	42
ONE indicates ON	
Scanner Select	43
ONE indicates PRIMARY	
PLL ERROR Light (Note 1)	44
ONE indicates error condition	
Test	45
0 = Normal	
1 = Local	
2 = Remote	
Data Randomization (Note 1)	46
ONE indicates ON	
Sun Pulse Select (Note 1)	47
ONE = Digital; ZERO = Analog	
NESS Mode Select	48
4 x 4 IR 0	
4 x 2 IR 2	
MAX SV 1	
IR2 Lookup Table Identification	49
Scan Mode	50
1 = Single	
2 = Normal	
3 = Limited (50-50)	
4 = SMSI - TVM	
5 = LMSI - WV in TVM	
Bit Error Light (Note 1)	51
ONE indicates ON	

TABLE 2-5 4 X 2 MILE IR DOCUMENTATION (CON'T)

<u>Data</u>	<u>Documentation Word</u>
MEAN IR Difference	52
RMS IR Difference	53
S/C Name and Lookup Table Identifications	
S/C Name and Visible Table ID	54
IRI Table ID - 2 hex hex	55
Left Horizon Point	56-
	57
Right Horizon Point	58-
	59
Equatorial Scan Count	
8 MSB	60
8 LSB	61
Beta Dot	62-
	65
Elevation Angle	
8 MSB	66
8 LSB (LSB = 1/8 scan count)	67
Blackbody Response (Word 1)	68
BIT 8 - 1 Integer	
Blackbody Response (Word 2)	69
BIT 8 - 5 Fraction	
4 - 1 Not Used	
IR Detector Select	70
1 = Small HZCdTe	
2 = large HZCdTe	
3 = InSb	
Digital Sun Count (Word 1)	71
BIT 8 - 7 Not Used	
BIT 6 - 1 Digital Sun Count	

TABLE 2-5 4 X 2 MILE IR DOCUMENTATION (CON'T)

<u>Data</u>	<u>Documentation Word</u>
Digital Sun Count (Word 2)	72
BIT 8 - 1 Digital Sun Count	
Digital Sun Count (Word 3)	73
BIT 8 - 1 Digital Sun Count	
Input Bits	74
BIT 8 1 = Linear Beta	
BIT 7 1 = Extended Scanner	
BIT 6 Not Used	
BIT 5 1 = Digital Acquisition	
BIT 4 1 = Process Mode	
BIT 3 1 = Word Zero Parity Error	
BIT 2 1 = Scan Step On	
BIT 1 1 = Scan Rate Rapid	
Calibration Flag	75
1 = Data Calibrated	
0 = Data Not Calibrated	
Delta Beta SXXXXXXXX (MS)	76
XXXXXXXX	77
ZXXXXXXXX	78
XXXXXXXX (LS)	79
S = Sign	
Z = Always Zero	
Telemetry Code Word	80
BIT 1 Parity	
BIT 2 - 4 Minor Frame Count	
BIT 5 Check	
BIT 6 Lock	
BIT 7 - 8 Spare	

TABLE 2-5 4 X 2 MILE IR DOCUMENTATION (CON'T)

<u>Data</u>	<u>Documentation Word</u>
Telemetry Data	81-98
Orbit & Attitude Data	99-124
North-South Grid Offset Number	125
Two's Complement ($-99 \leq X \leq 99$)	
East-West Grid Offset Number	126
Two's Complement ($-99 \leq X \leq 99$)	
Documentation Format Control Word	127
1 = Status of System 11/1/77	
Parity Word	128

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