

# DEAD AND NOISY CHANNEL UPDATE

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CAL/FOS-064

Five series of exposures of 900s each were taken with the Blue (F7) detector of the FOS as part of the Orbit 7 tests on 28 March, 30 March, 7 August, and 22 August, 1989. Each 900s exposure consisted of 30 30s frames. The only changes made to the discriminator settings in the PROMs were those of Tables 5 and 7 in CAL/FOS-50.

One series of dark exposures of 1140s total was taken with the Red (F12) detector of the FOS as part of the Orbit 8 tests on 29 March 1989. The exposure consisted of 38 30s frames. Another series of five dark exposures of 24 slices each and 2040s total was taken with the Red (F12) detector of the FOS as part of the Noise 7 tests on 31 March 1989. The only changes made to the discriminator settings in the PROMs were those of Table 8 in CAL/FOS-50.

Noisy channels were selected as those where the total counts detected in a given exposure (900s or 1140s) exceeded the threshold where the probability of occurrence of a channel with as large a total count rate or greater from the total array was less than one half.

No new noisy channels were detected for the Red detector. Five new noisy channels, 88, 329, 446, 495, and 506 were detected for the blue detector. Each was noisy in one of the four series of exposures except for 446 which was noisy in three series of exposures. The last of these was extremely noisy. Channel 88 was also almost high enough to be noted on the run of 28 March 1989. Channel 129, which was marginally high on only one previous run and which has a low S/N, was also noisy on 22 August 1989. None of these channels showed any problems in any previous tests. We note that with our criterion for noise, and the number of tests we have run, several channels should have appeared noisy strictly by chance. Tables 1, 2, 3, and 4 update Tables 1, 2, 6 and 7 of CAL/FOS-51 for the new exposures and new noisy diodes.

We recommend no changes to discriminator settings or disabled diode table based on these tests. Some noisy channels will probably not be noisy at the FOS orbital operating temperature of -10C, while others which have not been a problem as yet may appear noisy. The continued appearance of new, marginally noisy diodes for the blue detector is not well understood at this time. When possible, additional orbit 7 type background tests should be taken to yield more information on this situation.

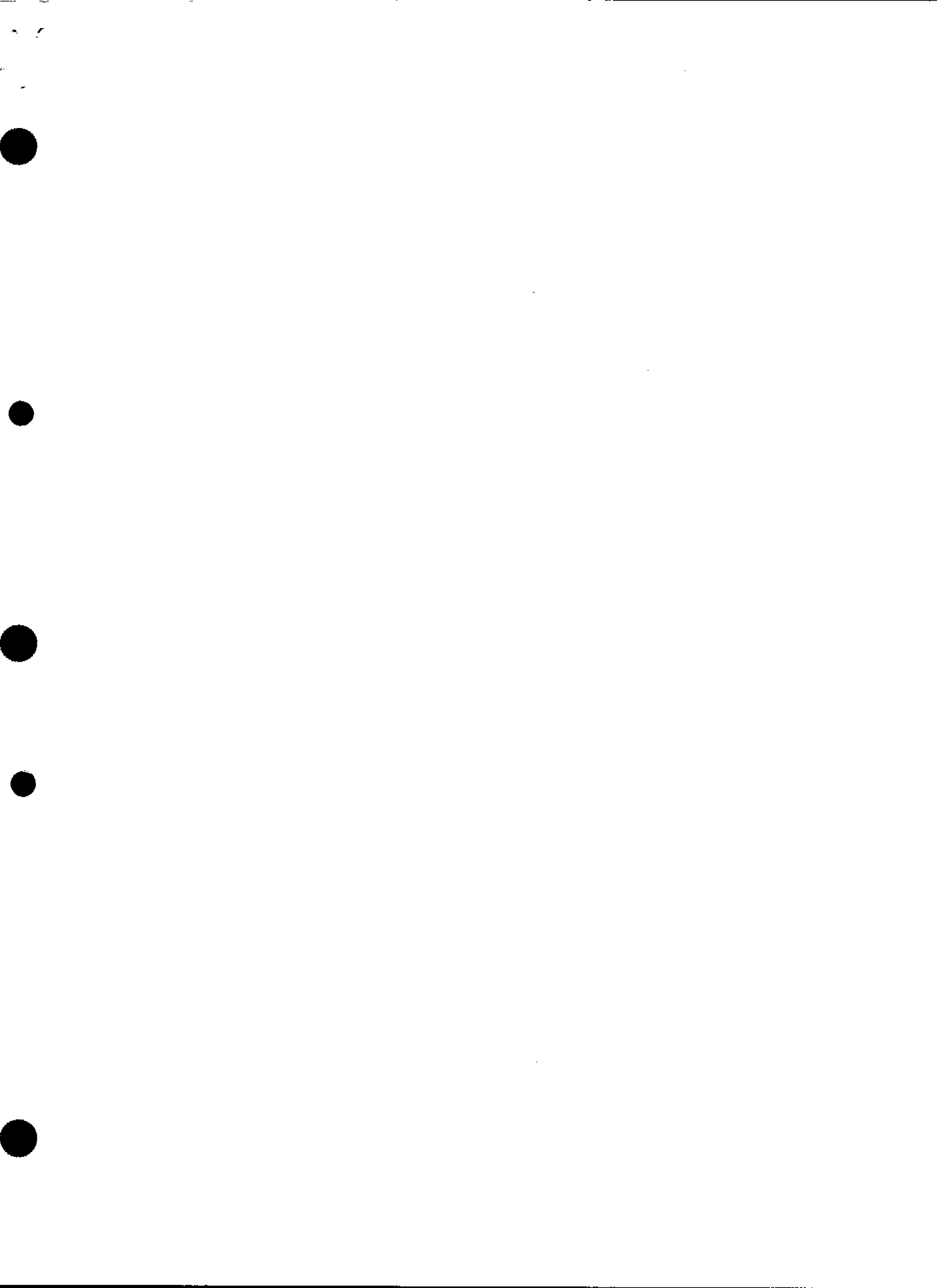


TABLE 1

Tape /	Scan	Blue F7 Detector, Dark Exposures			
		Date	Voltage (HDAC)	Cathode Temp. (PCBTMP)	Preamplifier Temp. (PAMBTMP)
1075	0526	Feb. 1988	18.6kV	23.42	29.23
1075	0527	Feb. 1988	22.5kV	23.92	29.23
1077	0418	14 March 1988	Off	18.31	22.92
1077	1283	24 March 1988	Off	21.91	26.37
1077	1284	24 March 1988	Off	21.91	27.81
1078	0001	13 April 1988	18.6kV	19.34	23.92
1078	0002	13 April 1988	Off	19.34	25.40
1078	0003 <sup>a</sup>	13 April 1988	Off	20.37	26.37
1078	0004	13 April 1988	Off	20.89	27.33
1078	0006 <sup>a</sup>	13 April 1988	Off	21.91	27.33
1078	0007	13 April 1988	Off	21.91	27.33
1078	0008 <sup>a</sup>	13 April 1988	Off	22.41	28.28
1078	0009	13 April 1988	Off	22.41	28.76
1078	0010 <sup>a</sup>	13 April 1988	Off	22.41	28.76
1078	0011	13 April 1988	Off	22.92	29.23
1081	0005 <sup>b</sup>	11 May 1988	0.2kV	22.41	27.33
1081	0006 <sup>b</sup>	11 May 1988	16.3kV	22.41	27.81
1081	0007 <sup>b</sup>	11 May 1988	18.6kV	22.92	28.28
1091	0002 <sup>b</sup>	14 Sept. 1988	0.2kV	18.31	23.42
1091	0003 <sup>b</sup>	14 Sept. 1988	16.3kV	18.31	24.41
1091	0004 <sup>b</sup>	14 Sept. 1988	18.6kV	18.82	25.40
1099	0001 <sup>bc</sup>	28 March 1989	18.6kV	20.89	22.41
	-0030				
1100	0001 <sup>bc</sup>	30 March 1989	18.6kV	20.89	22.41
	-0030				
1102	0001 <sup>bc</sup>	30 March 1989	18.6kV	22.41	27.33
	-0015				
1104	0001 <sup>bc</sup>	30 March 1989	18.6kV	21.91	24.41
	-0015				
1114	0001 <sup>bc</sup>	7 August 1989	18.6kV	22.41	25.38
	-0024				
1116	0001 <sup>d</sup>				
	-0006				
1117	0001 <sup>bc</sup>	22 August 1989	18.6kV	18.31	21.64
	-0030				

<sup>a</sup> includes tentative changes to discriminator settings per Table 3 and CAL/FOS-050

<sup>b</sup> FOS in the HST

<sup>c</sup> includes changes to discriminator settings per Tables 5 and 7, CAL/FOS-050.

<sup>d</sup> missing records from H01114

TABLE 2

Red F12 Detector, Dark Exposures

Tape /	Scan	Date	Voltage (HDAC)	Cathode Temp. (PCATMP)	Preamp Temp. (PAMATMP)
1075	0275	Feb. 1988	21.6	23.42	29.23
1077	0222	11 March 1988	Off	20.37	24.40
1078	0012	13 April 1988	Off	20.37	24.41
1078	0013 <sup>a</sup>	13 April 1988	Off	20.37	25.88
1078	0014	13 April 1988	21.6kV	20.37	26.85
1082	0049 <sup>b</sup>	12 May 1988	0.2kV	21.91	27.33
1082	0050 <sup>b</sup>	12 May 1988	16.3kV	21.91	27.81
1082	0051 <sup>b</sup>	12 May 1988	19.0kV	22.41	28.28
1091	0066 <sup>b</sup>	14 Sept. 1988	0.2kV	18.82	23.92
1091	0067 <sup>b</sup>	14 Sept. 1988	16.3kV	19.34	24.91
1091	0068 <sup>b</sup>	14 Sept. 1988	19.0kV	19.86	25.88
1106	0001 <sup>bc</sup>	29 March 1989	19.0kV	20.63	23.66
	-0038				
1098	0001 <sup>bc</sup>	31 March 1989	19.0kV	20.89	24.80
	-0005				

<sup>a</sup> includes tentative changes to discriminator settings per Table 3 and CAL/FOS-050

<sup>b</sup> FOS in the HST

<sup>c</sup> includes changes to discriminator settings per Table 8 of CAL/FOS-050

Blue F<sub>1</sub> Detector, High Voltage Dark Exposures

Channel	1075 0527	1075 0526	1078 0001	1081 0007	1081 0006	1091 0004	1091 0003	1099	1100	1103&1104	1114&1116	1117
Mean	13.5	3.40	0.470	5.02	2.22	2.03	0.60	11.09	15.76	8.19	16.99	1.16
1 <sup>b</sup>	1 <sup>b</sup>	0 <sup>b</sup>	0	7	1	2	0	10	9	10	10	1
31	13	1	16	Off	Off	Off	Off	α	α	31	230	919
57	15	5	1	6	1	2	2	11	13	6	20	2
73	12	11	0	Off	Off	Off	Off	26	10	18	20	0
88	15	4	1	4	1	2	0	21	14	6	12	21
94	13	2	2	Off	Off	Off	Off	17	15	5	22	0
101	16	5	0	2	3	3	0	13	14	8	17	0
110	14	4	0	5	4	2	1	6	13	14	18	1
115	15	5	0	5	5	1	2	12	12	7	14	1
129	15	0	1	11	1	2	1	11	7	15	15	14
133	18	5	1	5	2	1	0	17	16	8	21	0
134	14	4	1	6	1	7	0	9	11	8	16	1
170	14	2	4	Off	Off	Off	Off	12	8	10	24	2
201	1480	1463	2549	Off	Off	Off	Off	2120	2139	1912	1953	2362
218	848	503	557	Off	Off	Off	Off	14	17	22	22	3
219	11	2	0	267	943	1	0	9	10	6	17	1
222	20	9	4	Off	Off	Off	Off	16	9	6	16	4
225	57	23	2	4	8	0	0	9	7	4	11	0
249	8	5	1	1	4	3	0	11	12	6	17	2
256	32	10	1	5	1	2	1	13	7	10	17	2
268	Off	Off	α	Off	Off	Off	Off	α	α	α	178	α
273	12	3	0	Off	Off	Off	Off	8	9	4	15	0
280	10	6	1	8	1	2	0	13	11	8	23	3
301	10	3	0	5	2	2	1	7	10	5	16	0
329	13	3	1	3	1	2	1	9	9	8	36	2
338	23	5	0	6	1	2	0	19	6	9	14	2
357	11	0	0	1	5	3	0	7	13	10	24	0
410	15	2	0	6	1	2	2	12	11	10	20	1
415	27	2	0	4	2	3	2	19	6	10	18	3
422	16	3	2	2	2	2	31	15	16	2224	13	60
427	20	4	0	Off	Off	Off	Off	5	17	6	20	2
431	13	10	0	1	3	6	0	10	6	8	17	2
439	12	10	0	5	2	2	0	10	7	7	17	1
446	11	1	0	6	4	3	1	67 <sup>c</sup>	16	7	86	1240
451	1496	1594	3691	Off	Off	Off	Off	3127	3113	2457	2639	4117
465	76	82	23	Off	Off	Off	Off	23	28	44	72	32
472	22	7	11	Off	Off	Off	Off	12	12	11	15	8
495	17	4	0	0 <sup>b</sup>	0 <sup>b</sup>	0 <sup>b</sup>	0 <sup>b</sup>	11	7	21	11	0
497	14	5	1	0 <sup>b</sup>	1 <sup>b</sup>	119 <sup>b</sup>	30 <sup>b</sup>	17	10	15	16	292
506	17	4	0	0 <sup>b</sup>	0 <sup>b</sup>	1 <sup>b</sup>	0 <sup>b</sup>	14	8	13	33	0

a >10<sup>4</sup>counts

b The diodes see the inconel metal mask, not the 20x30 mm active area of the photocathode.

c 57 counts were detected in the first frame.

TABLE 4  
Red F12 Detector, High Voltage Dark Exposures

Channel	1075 0275	1078 0014	1082 0051	1082 0050	1091 0068	1091 0067	1106	1098
Mean	25.7	7.32	17.1	14.4	11.1	8.99	14.71	29.21
21	25	17	11	13	12	11	9	24
47	26	6	35	11	11	2	13	28
49	21	6	19	11	10	8	15	38
93	32	5	34	17	17	13	13	35
150	34	17	19	20	13	6	19	42
151	17	18	19	6	14	8	26	39
158	31	3	13	14	15	7	37	37
182	28	3	Off	Off	Off	Off	17	Off
218	30	10	19	16	13	7	18	34
230	29	9	11	9	15	11	14	32
233	30	10	15	21	11	8	36	23
245	29	5	20	18	12	11	18	32
261	32	7	Off	Off	Off	Off	22	Off
263	19	11	24	16	12	18	21	31
280	22	6	Off	Off	Off	Off	12	Off
344	31	165	528	472	14	7	14	128
381	27	5	16	8	6	61	13	249
405	Off	<i>a</i>	Off	Off	Off	Off	<i>a</i>	Off
409	Off	<i>a</i>	Off	Off	Off	Off	<i>a</i>	Off
450	14	9	10	11	16	11	12	31

*a*  $>10^4$  counts