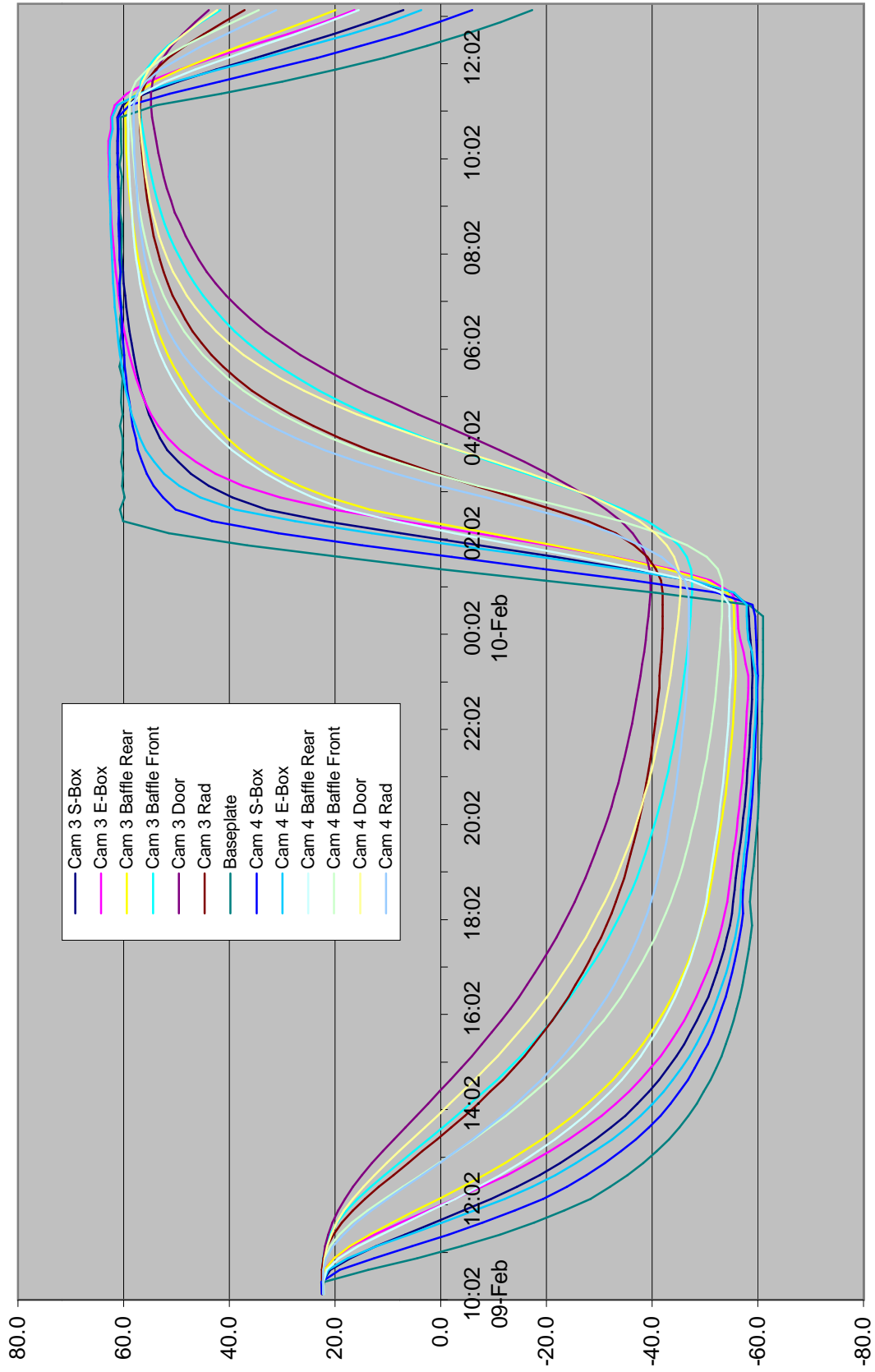
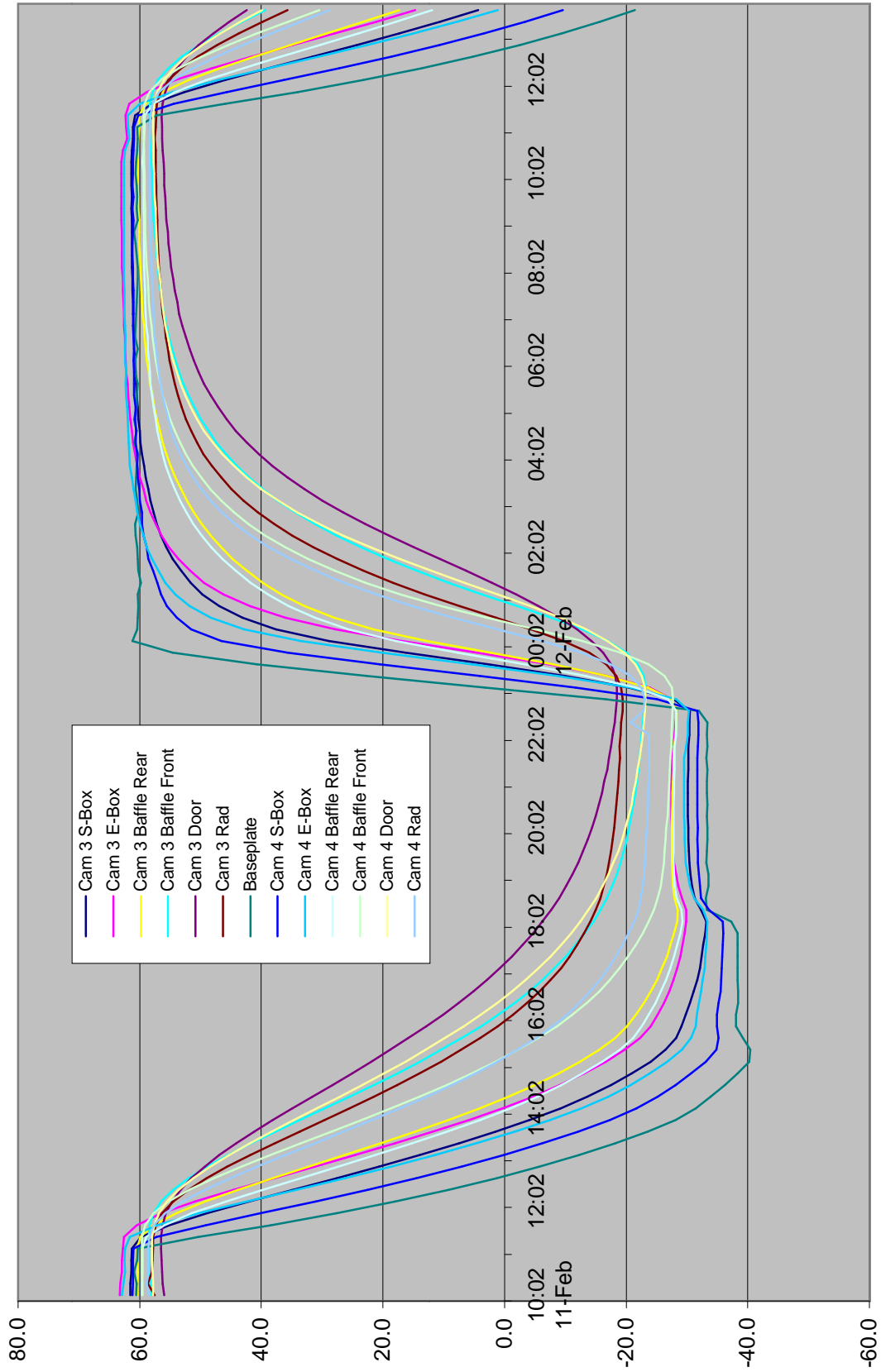


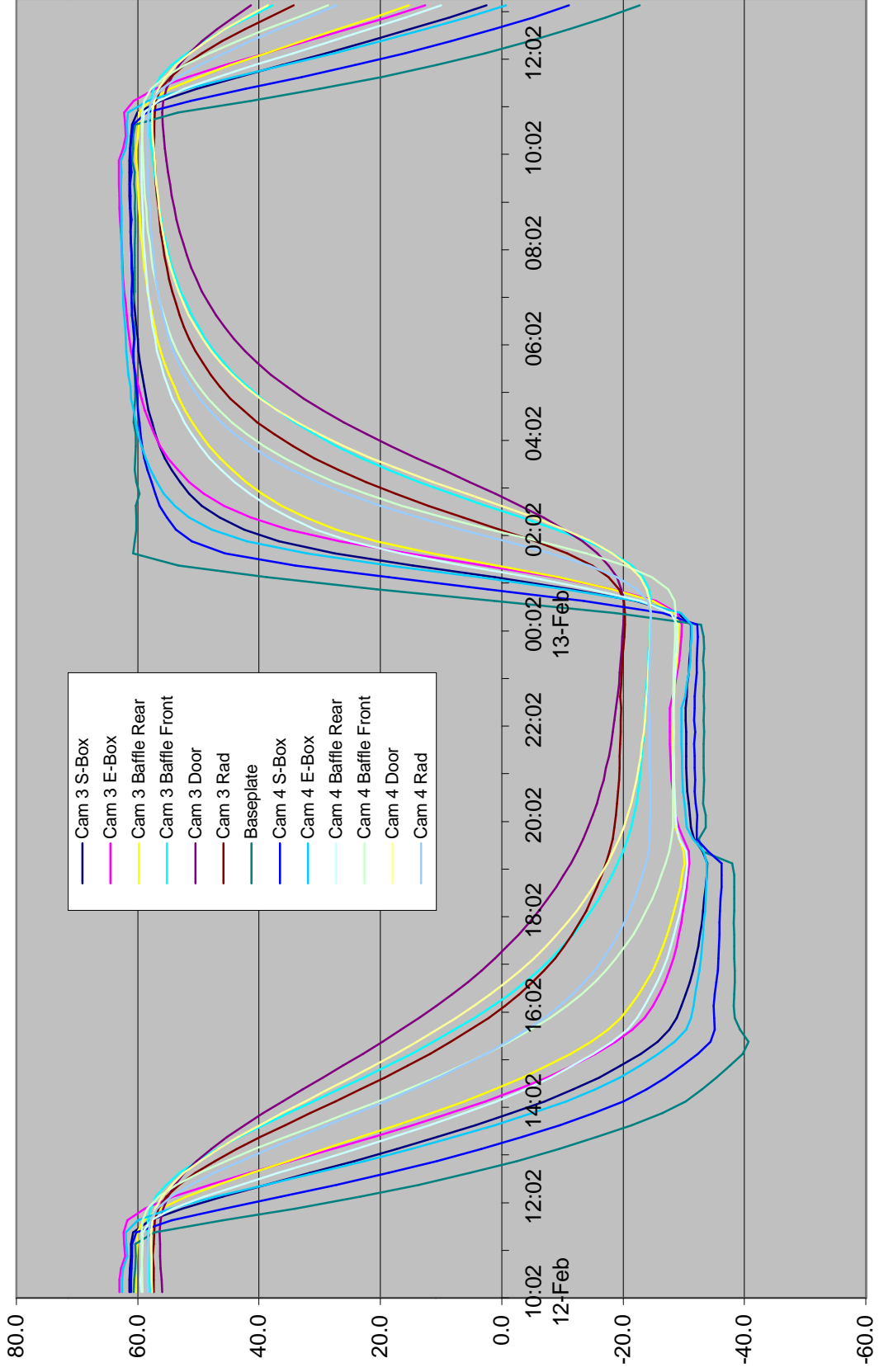
CYCLE 1



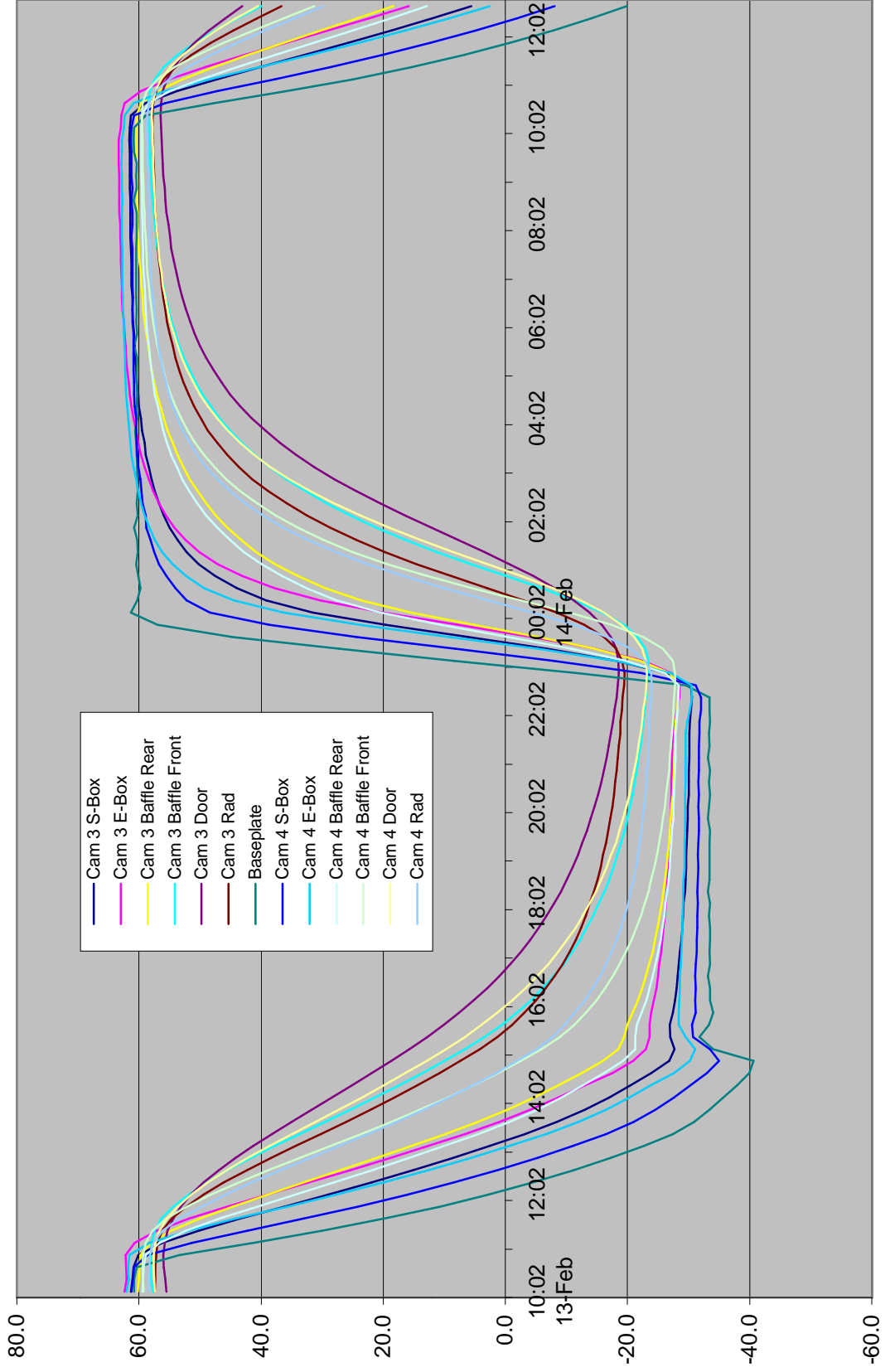
CYCLE 3



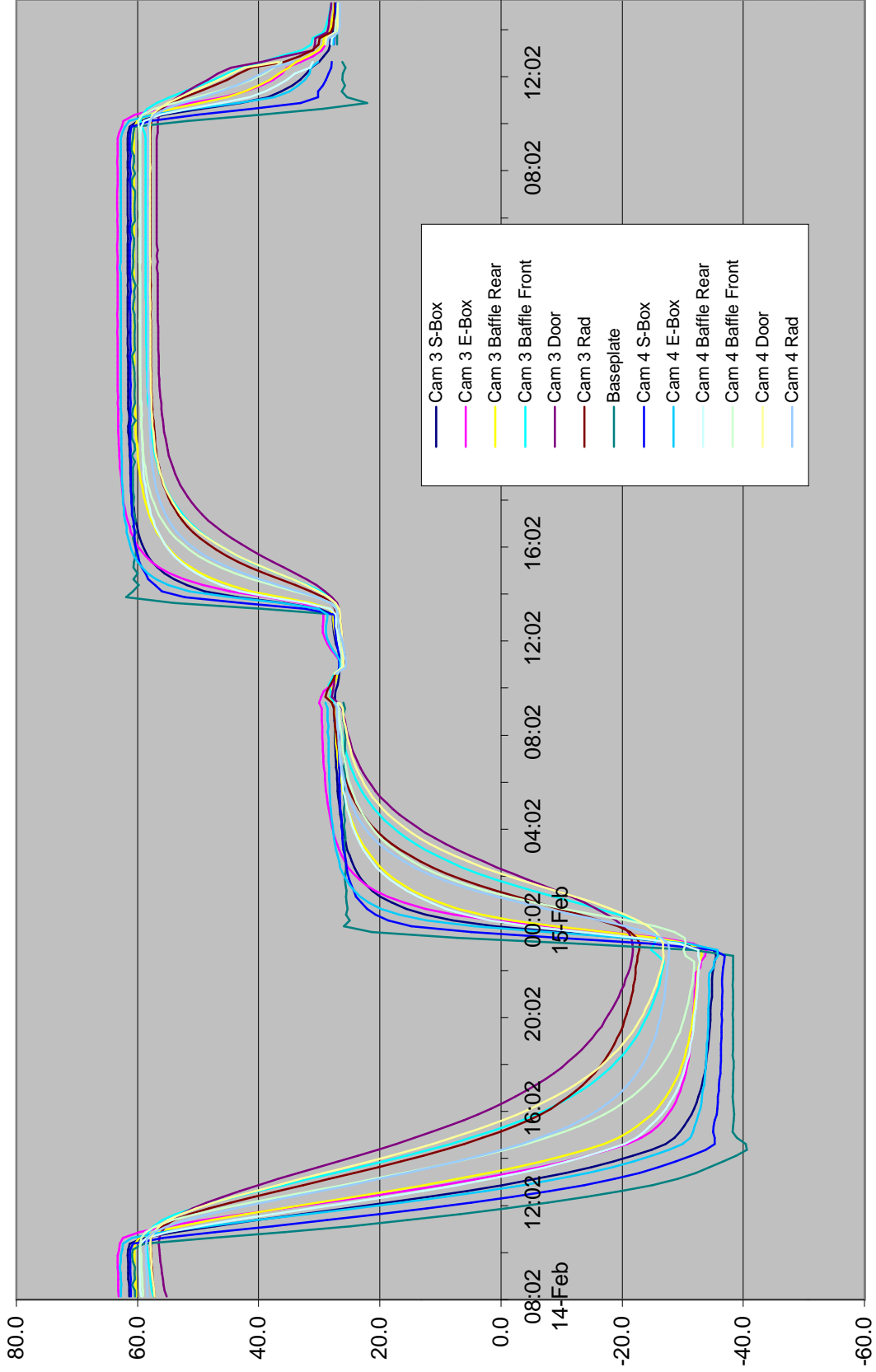
CYCLE 4



CYCLE 5



CYCLE 6



SMEI Cameras 3 and 4 Thermal Vacuum Test
Initial Ambient Functional Test

Date	08-Feb-01	Pressure	2.3E-05 mbar
Time	17:52	Set Point	20 deg C

Note: 64 kbps data rate used throughout for this test

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 3 S-Box I/F	21.0
3	Cam 3 E-Box Rear	21.2
4	Cam 3 Baffle Rear	21.3
5	Cam 3 Baffle Front	21.7
6	Cam 3 Door Centre	21.9
7	Cam 3 Radiator	21.8
8	Base Plate	20.8

Channel	Allocation	Deg C
10	Cam 4 S-Box I/F	21.0
11	Cam 4 E-Box Rear	20.8
12	Cam 4 Baffle Rear	21.0
13	Cam 4 Baffle Front	21.2
14	Cam 4 Door Centre	21.6
15	Cam 4 Radiator	21.4

2. Recorded DHU Analog Monitor readings:

DHU	ADU	Eng Units
SMEI (I)	6	0.10
DHU 5V	130	4.98
PROC (C)	110	26.3
PSU (C)	113	25.3
PROC (I)	45	0.28

4. Recorded Camera Analog and Digital Monitor readings:

Cam 3	ADU	Deg C
Rad	31	22.1
CCD	31	22.1
Elec	127	21.1
Mirror	128	20.8
Baffle	127	21.1
Shutter	open	N/A
Door	closed	N/A
BOS	dark	N/A

Cam 4	ADU	Deg C
Rad	31	22.1
CCD	31	22.1
Elec	127	21.1
Mirror	127	21.1
Baffle	31	22.1
Shutter	open	N/A
Door	closed	N/A
BOS	dark	N/A

4. Measured BOS thresholds:

Cam 3	3.55 V
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Cam 4	3.55 V
--------------	--------

5. Reset SMEI and EGSE, with 1533B running at 64 kbps; measured SMEI 28V currents and Shutter DMONs, for the following functions:

Cam 3	Total mA	Delta mA
HOP_TEST	720	598
De-Icer Heater	581	459
Shutter Phase 2	232	110
Shutter Phase 3	233	111
Shutter Phase 0	234	112
Shutter Phase 1	234	112

Cam 4	Total mA	Delta mA
HOP_TEST	713	591
De-Icer Heater	577	455
Shutter Phase 2	235	113
Shutter Phase 3	234	112
Shutter Phase 0	232	110
Shutter Phase 1	232	110

Shutter DMONs read 'Open' for Phase 1; otherwise read 'Closed':

6. Reset SMEI and EGSE, and made short observation in Eng Mode for each camera; measured camera current, dark charge statistics and star peak for typical images:

Time	Camera	Mode	Shutter	Star	Flat Field	Current
19:00	Cam 3	Eng	1	On	Off	210 / 194

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C3-00006	1076	2.59	1148	43.30	7279

Time	Camera	Mode	Shutter	Star	Flat Field	Current
19:31	Cam 4	Eng	1	On	Off	211 / 192

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00004	1067	2.98	1154	60.30	13985

7. Made short observations in different modes / shutter positions:

Time	Camera	Mode	Shutter	Star	Flat Field	Files	
						Checked	Peak
19:42	Cam 3	4 x 4	0	On	On	C3-00008	19717
	Cam 4	4 x 4	0	On	On	C2-00008	20196
19:53	Cam 3	4 x 4	1	On	On	C3-00007	3429
	Cam 4	4 x 4	1	On	On	C2-00012	6720
20:03	Cam 3	4 x 4	2	On	On	C3-00015	6248
	Cam 4	4 x 4	2	On	On	C2-00013	6671

8. SWITCHED SMEI OFF

9. Started transition to first cold case / cold switch-on:

Date	09-Feb-01
Time	10:30

Set Point	-65 deg C
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SMEI Cameras 3 and 4 Thermal Vacuum Test
Cold Cycle 1 Functional Test - Cold Switch-On

Date	09-Feb-01
Time	22:30

Pressure	2.1E-06 mbar
Set Point	-65 deg C

Note: 64 kbps data rate used for this test up to observation for transition to first hot case

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 3 S-Box I/F	-58.8
3	Cam 3 E-Box Rear	-57.9
4	Cam 3 Baffle Rear	-55.4
5	Cam 3 Baffle Front	-45.2
6	Cam 3 Door Centre	-36.6
7	Cam 3 Radiator	-40.6
8	Base Plate	-60.8

Channel	Allocation	Deg C
10	Cam 4 S-Box I/F	-59.8
11	Cam 4 E-Box Rear	-59.6
12	Cam 4 Baffle Rear	-54.5
13	Cam 4 Baffle Front	-51.6
14	Cam 4 Door Centre	-42.3
15	Cam 4 Radiator	-46.2

2. Checked Ch 1 and Ch 10 readings are within +/-3 deg C of spec and have been stable to < 3 deg C / hr for > 30 min:

OK

3. Switched on DHU A and recorded DHU Analog Monitor readings:

DHU	ADU	Eng Units
SMEI (I)	6	0.10
DHU 5V	130	4.98
PROC (C)	111	26.0
PSU (C)	112	25.6
PROC (I)	45	0.28

4. Recorded Camera Analog and Digital Monitor readings:

Cam 3	ADU	Deg C
Rad	226	-45.2
CCD	232	-48.2
Elec	255	<-31.9
Mirror	255	<-31.9
Baffle	255	<-31.9
Shutter	Closed	N/A
Door	Closed	N/A
BOS	Dark	N/A

Cam 4	ADU	Deg C
Rad	229	-46.7
CCD	220	-42.4
Elec	255	<-31.9
Mirror	255	<-31.9
Baffle	213	-39.5
Shutter	Closed	N/A
Door	Closed	N/A
BOS	Dark	N/A

5. Measured BOS thresholds:

Cam 3	3.61 V
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Cam 4	3.58 V
--------------	--------

6. Reset SMEI and EGSE, with 1533B running at 64 kbps; measured SMEI 28V currents and Shutter DMONs, for the following functions:

Cam 3	Total mA	Delta mA
HOP_TEST	727	605
De-Icer Heater	586	464
Shutter Phase 2	280	158
Shutter Phase 3	278	156
Shutter Phase 0	281	159
Shutter Phase 1	281	159

Cam 4	Total mA	Delta mA
HOP_TEST	720	598
De-Icer Heater	582	460
Shutter Phase 2	284	162
Shutter Phase 3	282	160
Shutter Phase 0	276	154
Shutter Phase 1	274	152

Shutter DMONs read 'Open' for Phase 1; otherwise read 'Closed':

Note: Shutter Phase currents significantly exceed specified value of 120 mA +/-20%.
 This is because of low Strong-Box temperature (below operating temperature).

7. Reset SMEI and EGSE, and made short observation in Eng Mode for each camera; measured camera current, dark charge statistics and star peak for typical images.

Time	Camera	Mode	Shutter	Star	Flat Field	Current
23:01	Cam 3	Eng	1	On	Off	202 / 184

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C3-00004	974	2.00	974	2.13	9026

Time	Camera	Mode	Shutter	Star	Flat Field	Current
23:12	Cam 4	Eng	1	On	Off	205 / 187

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00004	962	2.23	962	2.46	31578

8. Made short observations in different modes / shutter positions:

Time	Camera	Mode	Shutter	Star	Flat Field	Files	
						Checked	Peak
23:32	Cam 3	Eng	2	On	On	C3-00006	45633
23:52	Cam 4	Eng	2	On	On	C2-00004	46087
00:06	Cam 3	4 x 4	0	On	On	C3-00006	32767
	Cam 4	4 x 4	0	On	On	C2-00006	32767
00:13	Cam 3	4 x 4	1	On	On	C3-00006	6216
	Cam 4	4 x 4	1	On	On	C2-00006	15927
00:19	Cam 3	4 x 4	2	On	On	C3-00005	22373
	Cam 4	4 x 4	2	On	On	C2-00005	16785

Note: Images in Flat Field shutter position are saturated in cold case.

9. Started transition to first hot case:

Date	10-Feb-01	Set Point	60 deg C
Time	00:26		

10. Started observation for transition / hot soak period (at 128 kbps):

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
00:27	Cam 3	4 x 4	1	On	On	C3-00005
	Cam 4	4 x 4	1	On	On	C4-00005

SMEI Cameras 3 and 4 Thermal Vacuum Test
Hot Cycle 1 Functional Test

Date	10-Feb-01
Time	09:55

Pressure	2.5E-05 mbar
Set Point	60 deg C

Note: 128 kbps data rate used for this test, except where indicated.

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 3 S-Box I/F	61.1
3	Cam 3 E-Box Rear	62.8
4	Cam 3 Baffle Rear	59.3
5	Cam 3 Baffle Front	55.2
6	Cam 3 Door Centre	52.9
7	Cam 3 Radiator	56.3
8	Base Plate	60.8

Channel	Allocation	Deg C
10	Cam 4 S-Box I/F	61.2
11	Cam 4 E-Box Rear	62.6
12	Cam 4 Baffle Rear	59.0
13	Cam 4 Baffle Front	58.0
14	Cam 4 Door Centre	56.1
15	Cam 4 Radiator	57.8

2. Checked Ch 1 and Ch 10 readings are within +/-3 deg C of spec and have been stable to < 3 deg C / hr for > 30 min:

OK

3. Recorded DHU Analog Monitor readings:

DHU	ADU	Eng Units
SMEI (I)	42	0.54
DHU 5V	130	4.98
PROC (C)	82	35.1
PSU (C)	95	30.9
PROC (I)	51	0.31

4. Recorded Camera Analog and Digital Monitor readings:

Cam 3	ADU	Deg C
Rad	0	>45.8
CCD	0	>45.8
Elec	0	>74.7
Mirror	18	62.4
Baffle	24	58.8
Shutter	open	N/A
Door	closed	N/A
BOS	dark	N/A

Cam 4	ADU	Deg C
Rad	0	>45.8
CCD	0	>45.8
Elec	0	>74.7
Mirror	18	62.4
Baffle	0	>45.8
Shutter	open	N/A
Door	closed	N/A
BOS	dark	N/A

5. Measured BOS thresholds:

Cam 3	3.69
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Cam 4	3.59
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6. Checked typical image files from observation during hot cycle soak:

Files Checked	C3-07139	OK
	C2-07327	OK

7. Reset SMEI and EGSE, with 1533B running at 64 kbps; measured SMEI 28V currents and Shutter DMONs, for the following functions:

Cam 3	Total mA	Delta mA
HOP_TEST	715	593
De-Icer Heater	578	456
Shutter Phase 2	217	95
Shutter Phase 3	218	96
Shutter Phase 0	219	97
Shutter Phase 1	219	97

Cam 4	Total mA	Delta mA
HOP_TEST	709	587
De-Icer Heater	574	452
Shutter Phase 2	220	98
Shutter Phase 3	219	97
Shutter Phase 0	217	95
Shutter Phase 1	217	95

Shutter DMONs read 'Open' for Phase 1; otherwise read 'Closed':

OK

8. Reset SMEI and EGSE, and made short observation in Eng Mode for each camera; measured camera current, dark charge statistics and star peak for typical images.

Time	Camera	Mode	Shutter	Star	Flat Field	Current
10:27	Cam 3	Eng	1	On	Off	217 / 199

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C3-00004	1625	11.68	5937	800	~9900

Time	Camera	Mode	Shutter	Star	Flat Field	Current
10:40	Cam 4	Eng	1	On	Off	218 / 200

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00003	1550	9.90	5502	874	~11000

Note: Due to CCD hot pixels it is not possible to use 'statistics function to measure star peak amplitude - can only be estimated using cursor.

9. Made short observations in different modes / shutter positions:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
10:47	Cam 3	4 x 4	0	On	On	C3-00008
	Cam 4	4 x 4	0	On	On	C2-00007

Note: SMEI switched OFF between 11:00 and 12:17 to change EGSE cable to J2
Cameras switched ON at 12:50

10. Started transition to next cold case:

Time	10:53	Set Point	-40 deg C
	15:00		-35 deg C

11. Started observation for transition / cold soak period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
12:17	Cam 3	4 x 4	1	On	On	C3-00150
	Cam 4	4 x 4	1	On	On	C2-00150

SMEI Cameras 3 and 4 Thermal Vacuum Test
Cold Cycle 2 Functional Test

Date	10-Feb-01
Time	21:45

Pressure	1.3E-06 mbar
Set Point	-35 deg C

Note: 128 kbps data rate used for this test, except where indicated.

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 3 S-Box I/F	-30.0
3	Cam 3 E-Box Rear	-27.2
4	Cam 3 Baffle Rear	-27.5
5	Cam 3 Baffle Front	-21.4
6	Cam 3 Door Centre	-16.5
7	Cam 3 Radiator	-18.6
8	Base Plate	-33.3

Channel	Allocation	Deg C
10	Cam 4 S-Box I/F	-31.6
11	Cam 4 E-Box Rear	-29.4
12	Cam 4 Baffle Rear	-27.7
13	Cam 4 Baffle Front	-36.6
14	Cam 4 Door Centre	-21.4
15	Cam 4 Radiator	-23.3

2. Checked Ch 1 and Ch 10 readings are within +/-3 deg C of spec and have been stable to < 3 deg C / hr for > 30 min:

OK

3. Recorded DHU Analog Monitor readings:

DHU	ADU	Eng Units
SMEI (I)	40	0.52
DHU 5V	130	4.98
PROC (C)	79	36.1
PSU (C)	94	31.3
PROC (I)	52	0.31
	168	0.96

Note: Typical and peak values for SMEI (I) and PROC (I)

4. Recorded Camera Analog and Digital Monitor readings:

Cam 3	ADU	Deg C
Rad	159	-22.5
CCD	166	-24.5
Elec	220	-9.4
Mirror	254	-31.9
Baffle	250	-28.4
Shutter	Open	N/A
Door	Closed	N/A
BOS	Dark	N/A

Cam 4	ADU	Deg C
Rad	159	-22.5
CCD	149	-19.6
Elec	214	-6.7
Mirror	252	-30.1
Baffle	143	-17.9
Shutter	Open	N/A
Door	Closed	N/A
BOS	Dark	N/A

5. Measured BOS thresholds:

Cam 3	3.58V
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Cam 4	3.60V
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6. Checked typical image files from observation during cold cycle soak:

Files Checked	C3-07572	OK
	C2-07590	OK

7. Reset SMEI and EGSE, with 1533B running at 64 kbps; measured SMEI 28V currents and Shutter DMONs, for the following functions:

Cam 3	Total mA	Delta mA
HOP_TEST	724	602
De-Icer Heater	584	462
Shutter Phase 2	260	138
Shutter Phase 3	260	138
Shutter Phase 0	260	138
Shutter Phase 1	260	138

Cam 4	Total mA	Delta mA
HOP_TEST	716	594
De-Icer Heater	579	457
Shutter Phase 2	264	142
Shutter Phase 3	258	136
Shutter Phase 0	255	133
Shutter Phase 1	254	132

Shutter DMONs read 'Open' for Phase 1; otherwise read 'Closed':

OK

8. Reset SMEI and EGSE, and made short observation in Eng Mode for each camera; measured camera current, dark charge statistics and star peak for typical images.

Time	Camera	Mode	Shutter	Star	Flat Field	Current
22:34	Cam 3	Eng	1	On	Off	203/185

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C3-00013	1022	2.08	1023	2.31	3895

Time	Camera	Mode	Shutter	Star	Flat Field	Current
22:55	Cam 4	Eng	1	On	Off	204/186

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00005	1012	2.51	1013	1.69	21645

9. Made short observations in different modes / shutter positions:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked	Peak
23:03	Cam 3	4 x 4	2	On	On	C3-00011	13421
	Cam 4	4 x 4	2	On	On	C2-00014	13518
23:09	Cam 3	Eng	2	On	On	C3-00004	26925
23:20	Cam 4	Eng	2	On	On	C2-00004	27693

10. Started transition to next hot case:

Time	23:26	Set Point	60 deg C
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11. Started observation for transition / hot soak period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
23:26	Cam 3	4 x 4	1	On	On	C3-00006
	Cam 4	4 x 4	1	On	On	C2-00007

SMEI Cameras 3 and 4 Thermal Vacuum Test
Hot Cycle 2 Functional Test

Date	11-Feb-01
Time	10:00

Pressure	1.0E-05 mbar
Set Point	60 deg C

Note: 128 kbps data rate used for this test, except where indicated.

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 3 S-Box I/F	61.5
3	Cam 3 E-Box Rear	63.3
4	Cam 3 Baffle Rear	60.3
5	Cam 3 Baffle Front	58.0
6	Cam 3 Door Centre	55.9
7	Cam 3 Radiator	57.4
8	Base Plate	60.7

Channel	Allocation	Deg C
10	Cam 4 S-Box I/F	61.2
11	Cam 4 E-Box Rear	62.8
12	Cam 4 Baffle Rear	59.5
13	Cam 4 Baffle Front	59.4
14	Cam 4 Door Centre	57.7
15	Cam 4 Radiator	58.5

2. Checked Ch 1 and Ch 10 readings are within +/-3 deg C of spec and have been stable to < 3 deg C / hr for > 30 min:

OK

3. Recorded DHU Analog Monitor readings:

DHU	ADU	Eng Units
SMEI (I)	42	0.54
	56	0.71
DHU 5V	130	4.98
PROC (C)	80	35.8
PSU (C)	94	31.3
PROC (I)	51	0.31
	170	0.97

Note: Typical and peak values for SMEI (I) and PROC (I)

4. Recorded Camera Analog and Digital Monitor readings:

Cam 3	ADU	Deg C
Rad	0	>45.8
CCD	0	>45.8
Elec	0	>74.7
Mirror	18	62.4
Baffle	21	60.6
Shutter	open	N/A
Door	closed	N/A
BOS	dark	N/A

Cam 4	ADU	Deg C
Rad	0	>45.8
CCD	0	>45.8
Elec	0	>74.7
Mirror	17	63.0
Baffle	0	>45.8
Shutter	open	N/A
Door	closed	N/A
BOS	dark	N/A

5. Measured BOS thresholds:

Cam 3	3.74 V
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Cam 4	3.67 V
--------------	--------

6. Checked typical image files from observation during hot cycle soak:

Files Checked	C3-07528	OK
	C2-07732	OK

7. Reset SMEI and EGSE, with 1533B running at 64 kbps; measured SMEI 28V currents and Shutter DMONs, for the following functions:

Cam 3	Total mA	Delta mA
HOP_TEST	715	593
De-Icer Heater	578	456
Shutter Phase 2	218	96
Shutter Phase 3	217	95
Shutter Phase 0	219	97
Shutter Phase 1	219	97

Cam 4	Total mA	Delta mA
HOP_TEST	709	587
De-Icer Heater	574	452
Shutter Phase 2	220	98
Shutter Phase 3	219	97
Shutter Phase 0	217	95
Shutter Phase 1	217	95

Shutter DMONs read 'Open' for Phase 1; otherwise read 'Closed':

OK

8. Reset SMEI and EGSE, and made short observation in Eng Mode for each camera; measured camera current, dark charge statistics and star peak for typical images.

Time	Camera	Mode	Shutter	Star	Flat Field	Current
10:24	Cam 3	Eng	1	On	Off	218/200

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C3-00013	1660	10.36	6327	704	~9600

Time	Camera	Mode	Shutter	Star	Flat Field	Current
10:45	Cam 4	Eng	1	On	Off	218/200

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
c2-00004	1612	10.94	6509	1032	~15650

Note: Due to CCD hot pixels it is not possible to use 'statistics function to measure star peak amplitude - can only be estimated using cursor.

9. Made short observations in different modes / shutter positions:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
10:54	Cam 3	4 x 4	0	On	On	C3-00008
	Cam 4	4 x 4	0	On	On	C2-00022

10. Started observation for transition / cold soak period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
10:59	Cam 3	4 x 4	1	On	On	C3-00008
	Cam 4	4 x 4	1	On	On	C2-00014

11. Started transition to next cold case:

Time	11:04	Set Point	-40 deg C
	18:00		-35 deg C

SMEI Cameras 3 and 4 Thermal Vacuum Test
Cold Cycle 3 Functional Test

Date	11-Feb-01
Time	21:30

Pressure	1.2E-06 mbar
Set Point	-35 deg C

Note: 128 kbps data rate used for this test, except where indicated.

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 3 S-Box I/F	-30.2
3	Cam 3 E-Box Rear	-27.8
4	Cam 3 Baffle Rear	-27.9
5	Cam 3 Baffle Front	-22.4
6	Cam 3 Door Centre	-17.5
7	Cam 3 Radiator	-18.9
8	Base Plate	-33.4

Channel	Allocation	Deg C
10	Cam 4 S-Box I/F	-31.9
11	Cam 4 E-Box Rear	-30.1
12	Cam 4 Baffle Rear	-28.2
13	Cam 4 Baffle Front	-27.4
14	Cam 4 Door Centre	-22.7
15	Cam 4 Radiator	-23.8

2. Checked Ch 1 and Ch 10 readings are within +/-3 deg C of spec and have been stable to < 3 deg C / hr for > 30 min:

OK

3. Recorded DHU Analog Monitor readings:

DHU	ADU	Eng Units
SMEI (I)	40	0.52
	52	0.67
DHU 5V	130	4.98
PROC (C)	81	35.5
PSU (C)	95	30.9
PROC (I)	52	0.31
	168	0.96

Note: Typical and peak values for SMEI (I) and PROC (I)

4. Recorded Camera Analog and Digital Monitor readings:

Cam 3	ADU	Deg C
Rad	161	-23.1
CCD	167	-24.8
Elec	220	-9.4
Mirror	254	-31.9
Baffle	251	-29.2
Shutter	open	N/A
Door	closed	N/A
BOS	dark	N/A

Cam 4	ADU	Deg C
Rad	160	-22.8
CCD	150	-19.9
Elec	215	-7.1
Mirror	252	-30.1
Baffle	144	-18.2
Shutter	open	N/A
Door	closed	N/A
BOS	dark	N/A

5. Measured BOS thresholds:

Cam 3	3.58 V
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Cam 4	3.51 V
--------------	--------

6. Checked typical image files from observation during cold cycle soak:

Files Checked	C3-08342	OK
	C2-08309	OK

7. Reset SMEI and EGSE, with 1533B running at 64 kbps; measured SMEI 28V currents and Shutter DMONs, for the following functions:

Cam 3	Total mA	Delta mA
HOP_TEST	724	602
De-Icer Heater	584	462
Shutter Phase 2	262	140
Shutter Phase 3	261	139
Shutter Phase 0	259	137
Shutter Phase 1	255	133

Cam 4	Total mA	Delta mA
HOP_TEST	716	594
De-Icer Heater	580	458
Shutter Phase 2	260	138
Shutter Phase 3	260	138
Shutter Phase 0	256	134
Shutter Phase 1	255	133

Shutter DMONs read 'Open' for Phase 1; otherwise read 'Closed':

OK

8. Reset SMEI and EGSE, and made short observation in Eng Mode for each camera; measured camera current, dark charge statistics and star peak for typical images.

Time	Camera	Mode	Shutter	Star	Flat Field	Current
21:48	Cam 3	Eng	1	On	Off	204 / 199

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C3-00006	1025	2.20	1026	2.35	3423

Time	Camera	Mode	Shutter	Star	Flat Field	Current
21:54	Cam 4	Eng	1	On	Off	204 / 187

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00008	1013	2.47	1014	2.87	20446

9. Made short observations in different modes / shutter positions:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked	Peak
22:05	Cam 3	Eng	2	On	On	C3-00004	26889
22:13	Cam 4	Eng	2	On	On	C2-00007	28522
22:20	Cam 3	4 x 4	2	On	On	C3-00008	13128
	Cam 4	4 x 4	2	On	On	C2-00008	13451

10. Started transition to next hot case:

Time	22:30	Set Point	60 deg C
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11. Started observation for transition / hot soak period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
22:31	Cam 3	4 x 4	1	On	On	C3-00006
	Cam 4	4 x 4	1	On	On	C2-00006

Note: Disk full at 04:21, 12-Feb-01.
Short (10 min) observation made at start of next hot case test.

SMEI Cameras 3 and 4 Thermal Vacuum Test
Hot Cycle 3 Functional Test

Date	12-Feb-01
Time	10:28

Pressure	7.0E-06 mbar
Set Point	60 deg C

Note: 128 kbps data rate used for this test, except where indicated.

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 3 S-Box I/F	61.4
3	Cam 3 E-Box Rear	63.0
4	Cam 3 Baffle Rear	60.3
5	Cam 3 Baffle Front	58.1
6	Cam 3 Door Centre	56.1
7	Cam 3 Radiator	57.4
8	Base Plate	60.6

Channel	Allocation	Deg C
10	Cam 4 S-Box I/F	61.1
11	Cam 4 E-Box Rear	62.6
12	Cam 4 Baffle Rear	59.5
13	Cam 4 Baffle Front	59.3
14	Cam 4 Door Centre	57.7
15	Cam 4 Radiator	58.4

2. Checked Ch 1 and Ch 10 readings are within +/-3 deg C of spec and have been stable to < 3 deg C / hr for > 30 min:

OK

3. Recorded DHU Analog Monitor readings:

DHU	ADU	Eng Units
SMEI (I)	6	0.10
DHU 5V	130	4.98
PROC (C)	92	31.9
PSU (C)	102	28.7
PROC (I)	45	0.28

Note: Cameras switched OFF at time of above readings
 (During recovery from crash due to disk filling overnight)

4. Recorded Camera Analog and Digital Monitor readings:

Cam 3	ADU	Deg C
Rad	0	>45.8
CCD	0	>45.8
Elec	2	73.8
Mirror	18	62.4
Baffle	22	60.0
Shutter	Open	N/A
Door	Closed	N/A
BOS	Dark	N/A

Cam 4	ADU	Deg C
Rad	0	>45.8
CCD	0	>45.8
Elec	2	73.8
Mirror	17	63.0
Baffle	0	>45.8
Shutter	Open	N/A
Door	Closed	N/A
BOS	Dark	N/A

5. Measured BOS thresholds:

Cam 3	3.79V
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Cam 4	3.63 V
-------	--------

6. Checked typical image files from observation during hot cycle soak:

Files Checked	C3-00084	OK
	C2-00084	OK

Note: This was short observation started at 10:20 (following filling of disk during overnight run).
 In same mode as for transition / hot soak observation started at end of Cold 3 tests.

7. Reset SMEI and EGSE, with 1533B running at 64 kbps; measured SMEI 28V currents and Shutter DMONs, for the following functions:

Cam 3	Total mA	Delta mA
HOP_TEST	715	593
De-Icer Heater	578	456
Shutter Phase 2	218	96
Shutter Phase 3	217	95
Shutter Phase 0	218	96
Shutter Phase 1	218	96

Cam 4	Total mA	Delta mA
HOP_TEST	708	586
De-Icer Heater	574	452
Shutter Phase 2	219	97
Shutter Phase 3	219	97
Shutter Phase 0	216	94
Shutter Phase 1	217	95

Shutter DMONs read 'Open' for Phase 1; otherwise read 'Closed':

OK

8. Reset SMEI and EGSE, and made short observation in Eng Mode for each camera; measured camera current, dark charge statistics and star peak for typical images.

Note: Rice compression was off.

Time	Camera	Mode	Shutter	Star	Flat Field	Current
10:46	Cam 3	Eng	1	On	Off	217 / 199

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C3-00004	1644	11.55	6100	786	~9600

Time	Camera	Mode	Shutter	Star	Flat Field	Current
10:59	Cam 4	Eng	1	On	Off	218 / 199

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00005	1578	10.88	5789	691	~9745

Note: Due to CCD hot pixels it is not possible to use 'statistics function to measure star peak amplitude - can only be estimated using cursor.

9. Made short observations in different modes / shutter positions:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
11:06	Cam 3	4 x 4	0	On	On	C3-00007
	Cam 4	4 x 4	0	On	On	C2-00007

10. Started observation for transition / cold soak period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
11:09	Cam 3	4 x 4	1	On	On	C3-00005
	Cam 4	4 x 4	1	On	On	C2-00005

11. Started transition to next cold case:

Time	11:12	Set Point	-40 deg C
	19:00		-35 deg C

SMEI Cameras 3 and 4 Thermal Vacuum Test
Cold Cycle 4 Functional Test

Date	12-Feb-01
Time	21:32

Pressure	1.1E-06 mbar
Set Point	-35 deg C

Note: 128 kbps data rate used for this test, except where indicated.

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 3 S-Box I/F	-30.4
3	Cam 3 E-Box Rear	-27.7
4	Cam 3 Baffle Rear	-28.2
5	Cam 3 Baffle Front	-23.3
6	Cam 3 Door Centre	-18.0
7	Cam 3 Radiator	-19.5
8	Base Plate	-33.3

Channel	Allocation	Deg C
10	Cam 4 S-Box I/F	-31.7
11	Cam 4 E-Box Rear	-29.6
12	Cam 4 Baffle Rear	-28.3
13	Cam 4 Baffle Front	-28.3
14	Cam 4 Door Centre	-23.1
15	Cam 4 Radiator	-24.4

2. Checked Ch 1 and Ch 10 readings are within +/-3 deg C of spec and have been stable to < 3 deg C / hr for > 30 min:

OK

3. Recorded DHU Analog Monitor readings:

DHU	ADU	Eng Units
SMEI (I)	40	0.52
	52	0.67
DHU 5V	130	4.98
PROC (C)	82	35.1
PSU (C)	95	30.9
PROC (I)	52	0.31
	152	0.87

Note: Typical and peak values for SMEI (I) and PROC (I)

4. Recorded Camera Analog and Digital Monitor readings:

Cam 3	ADU	Deg C
Rad	163	-23.7
CCD	169	-25.4
Elec	220	-9.4
Mirror	255	<-31.9
Baffle	252	-30.1
Shutter	Open	N/A
Door	Closed	N/A
BOS	Dark	N/A

Cam 4	ADU	Deg C
Rad	166	-24.5
CCD	152	-20.5
Elec	216	-7.6
Mirror	252	-30.1
Baffle	146	-18.8
Shutter	Open	N/A
Door	Closed	N/A
BOS	Dark	N/A

5. Measured BOS thresholds:

Cam 3	3.73V
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Cam 4	3.73V
-------	-------

6. Checked typical image files from observation during cold cycle soak:

Files Checked	C3-08581	OK
	C2-08004	OK

7. Reset SMEI and EGSE, with 1533B running at 64 kbps; measured SMEI 28V currents and Shutter DMONs, for the following functions:

Cam 3	Total mA	Delta mA
HOP_TEST	725	603
De-Icer Heater	584	462
Shutter Phase 2	262	140
Shutter Phase 3	258	136
Shutter Phase 0	261	139
Shutter Phase 1	259	137

Cam 4	Total mA	Delta mA
HOP_TEST	717	595
De-Icer Heater	580	458
Shutter Phase 2	264	142
Shutter Phase 3	262	140
Shutter Phase 0	255	133
Shutter Phase 1	254	132

Shutter DMONs read 'Open' for Phase 1; otherwise read 'Closed':

OK

8. Reset SMEI and EGSE, and made short observation in Eng Mode for each camera; measured camera current, dark charge statistics and star peak for typical images.

Time	Camera	Mode	Shutter	Star	Flat Field	Current
23:12	Cam 3	Eng	1	On	Off	203/186

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C3-00005	1021	2.25	1022	2.29	3176

Time	Camera	Mode	Shutter	Star	Flat Field	Current
23:24	Cam 4	Eng	1	On	Off	204/186

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00005	1006	2.42	1006	2.61	20990

9. Made short observations in different modes / shutter positions:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked	Peak
23:30	Cam 3	4 x 4	2	On	On	C3-00006	2749
	Cam 4	4 x 4	2	On	On	C2-00003	10004
23:46	Cam 3	Eng	2	On	On	C3-00003	26862
23:52	Cam 4	Eng	2	On	On	C2-00005	31624

10. Started transition to next hot case:

Date	13-Feb-01	Set Point	60 deg C
Time	00:00		

11. Started observation for transition / hot soak period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
00:02	Cam 3	4 x 4	1	On	On	C3-00010
	Cam 4	4 x 4	1	On	On	C2-00010

SMEI Cameras 3 and 4 Thermal Vacuum Test
Hot Cycle 4 Functional Test

Date	13-Feb-01
Time	09:44

Pressure	5.3E-06 mbar
Set Point	60 deg C

Note: 128 kbps data rate used for this test, except where indicated.

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 3 S-Box I/F	61.4
3	Cam 3 E-Box Rear	63.1
4	Cam 3 Baffle Rear	60.1
5	Cam 3 Baffle Front	57.3
6	Cam 3 Door Centre	55.0
7	Cam 3 Radiator	57.1
8	Base Plate	60.5

Channel	Allocation	Deg C
10	Cam 4 S-Box I/F	61.0
11	Cam 4 E-Box Rear	62.7
12	Cam 4 Baffle Rear	59.4
13	Cam 4 Baffle Front	59.0
14	Cam 4 Door Centre	57.1
15	Cam 4 Radiator	58.3

2. Checked Ch 1 and Ch 10 readings are within +/-3 deg C of spec and have been stable to < 3 deg C / hr for > 30 min:

OK

3. Recorded DHU Analog Monitor readings:

DHU	ADU	Eng Units
SMEI (I)	6	0.10
DHU 5V	130	4.98
PROC (C)	82	35.1
PSU (C)	95	30.9
PROC (I)	44	0.27

Note: Cameras switched OFF at time of above readings

4. Recorded Camera Analog and Digital Monitor readings:

Cam 3	ADU	Deg C
Rad	0	>45.8
CCD	0	>45.8
Elec	0	>74.7
Mirror	18	62.4
Baffle	22	60.0
Shutter	Closed	N/A
Door	Closed	N/A
BOS	dark	N/A

Cam 4	ADU	Deg C
Rad	0	>45.8
CCD	0	>45.8
Elec	0	>74.7
Mirror	18	62.4
Baffle	0	>45.8
Shutter	Closed	N/A
Door	Closed	N/A
BOS	dark	N/A

5. Measured BOS thresholds:

Cam 3	3.71 V
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Cam 4	3.79 V
--------------	--------

6. Checked typical image files from observation during hot cycle soak:

Files Checked	C3-06114	OK
	C2-07009	OK

7. Reset SMEI and EGSE, with 1533B running at 64 kbps; measured SMEI 28V currents and Shutter DMONs, for the following functions:

Cam 3	Total mA	Delta mA
HOP_TEST	714	592
De-Icer Heater	578	456
Shutter Phase 2	217	95
Shutter Phase 3	217	95
Shutter Phase 0	218	96
Shutter Phase 1	218	96

Cam 4	Total mA	Delta mA
HOP_TEST	708	586
De-Icer Heater	574	452
Shutter Phase 2	218	96
Shutter Phase 3	217	95
Shutter Phase 0	215	93
Shutter Phase 1	216	94

Shutter DMONs read 'Open' for Phase 1; otherwise read 'Closed':

OK

8. Reset SMEI and EGSE, and made short observation in Eng Mode for each camera; measured camera current, dark charge statistics and star peak for typical images.

Time	Camera	Mode	Shutter	Star	Flat Field	Current
10:13	Cam 3	Eng	1	On	Off	217 / 199

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C3-00004	1645	9.99	6355	794	~9900

Time	Camera	Mode	Shutter	Star	Flat Field	Current
10:20	Cam 4	Eng	1	On	Off	218 / 199

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00003	1572	10.59	5778	818	~11600

Note: Due to CCD hot pixels it is not possible to use 'statistics function to measure star peak amplitude - can only be estimated using cursor.

9. Made short observations in different modes / shutter positions:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
10:27	Cam 3	4 x 4	0	On	On	C3-00014
	Cam 4	4 x 4	0	On	On	C2-00015

10. Started observation for transition / cold soak period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
10:31	Cam 3	4 x 4	1	On	On	C3-00014
	Cam 4	4 x 4	1	On	On	C2-00013

11. Started transition to next cold case:

Time	10:36	Set Point	-40 deg C
	15:00		-35 deg C

SMEI Cameras 3 and 4 Thermal Vacuum Test
Cold Cycle 5 Functional Test

Date	13-Feb-01
Time	21:35

Pressure	1.1E-06 mbar
Set Point	-35 deg C

Note: 128 kbps data rate used for this test, except where indicated.

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 3 S-Box I/F	-30.1
3	Cam 3 E-Box Rear	-27.4
4	Cam 3 Baffle Rear	-27.7
5	Cam 3 Baffle Front	-22.1
6	Cam 3 Door Centre	-16.9
7	Cam 3 Radiator	-18.6
8	Base Plate	-33.4

Channel	Allocation	Deg C
10	Cam 4 S-Box I/F	-31.7
11	Cam 4 E-Box Rear	-29.5
12	Cam 4 Baffle Rear	-27.9
13	Cam 4 Baffle Front	-27.1
14	Cam 4 Door Centre	-21.8
15	Cam 4 Radiator	-23.4

2. Checked Ch 1 and Ch 10 readings are within +/-3 deg C of spec and have been stable to < 3 deg C / hr for > 30 min:

OK

3. Recorded DHU Analog Monitor readings:

DHU	ADU	Eng Units
SMEI (I)	40	0.52
	53	0.68
DHU 5V	129	4.97
PROC (C)	79	36.1
PSU (C)	94	31.3
PROC (I)	47	0.29
	172	0.98

Note: Typical and peak values for SMEI (I) and PROC (I)

4. Recorded Camera Analog and Digital Monitor readings:

Cam 3	ADU	Deg C
Rad	160	-22.8
CCD	167	-24.8
Elec	221	-9.9
Mirror	254	-31.9
Baffle	250	-28.4
Shutter	Open	N/A
Door	Closed	N/A
BOS	dark	N/A

Cam 4	ADU	Deg C
Rad	162	-23.4
CCD	150	-19.9
Elec	216	-7.6
Mirror	252	-30.1
Baffle	143	-17.9
Shutter	Open	N/A
Door	Closed	N/A
BOS	dark	N/A

5. Measured BOS thresholds:

Cam 3	3.67 V
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Cam 4	3.59V
--------------	-------

6. Checked typical image files from observation during cold cycle soak:

Files Checked	C3-05697	OK
	C2-05686	OK

7. Reset SMEI and EGSE, with 1533B running at 64 kbps; measured SMEI 28V currents and Shutter DMONs, for the following functions:

Cam 3	Total mA	Delta mA
HOP_TEST	725	603
De-Icer Heater	585	463
Shutter Phase 2	264	142
Shutter Phase 3	260	138
Shutter Phase 0	260	138
Shutter Phase 1	258	136

Cam 4	Total mA	Delta mA
HOP_TEST	718	596
De-Icer Heater	580	458
Shutter Phase 2	265	143
Shutter Phase 3	261	139
Shutter Phase 0	258	136
Shutter Phase 1	256	134

Shutter DMONs read 'Open' for Phase 1; otherwise read 'Closed':

OK

8. Reset SMEI and EGSE, and made short observation in Eng Mode for each camera; measured camera current, dark charge statistics and star peak for typical images.

Time	Camera	Mode	Shutter	Star	Flat Field	Current
21:52	Cam 3	Eng	1	On	Off	203 / 186

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C3-00007	1025	2.25	1026	2.31	11085

Time	Camera	Mode	Shutter	Star	Flat Field	Current
22:00	Cam 4	Eng	1	On	Off	204 / 186

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00005	1012	2.57	1014	2.73	23349

9. Made short observations in different modes / shutter positions:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked	Peak
22:06	Cam 3	4 x 4	2	On	On	C3-00006	13089
	Cam 4	4 x 4	2	On	On	C2-00007	13072
22:15	Cam 3	Eng	2	On	On	C3-00005	26618
22:22	Cam 4	Eng	2	On	On	C2-00004	27542

10. Started transition to next hot case:

Time	22:26	Set Point	60 deg C
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11. Started observation for transition / hot soak period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
22:29	Cam 3	4 x 4	1	On	On	C3-00006
	Cam 4	4 x 4	1	On	On	C2-00006

SMEI Cameras 3 and 4 Thermal Vacuum Test
Hot Cycle 5 Functional Test

Date	14-Feb-01
Time	09:39

Pressure	4.4E-06 mbar
Set Point	60 deg C

Note: 128 kbps data rate used for this test, except where indicated.

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 3 S-Box I/F	61.5
3	Cam 3 E-Box Rear	63.3
4	Cam 3 Baffle Rear	60.5
5	Cam 3 Baffle Front	58.2
6	Cam 3 Door Centre	56.2
7	Cam 3 Radiator	57.7
8	Base Plate	60.8

Channel	Allocation	Deg C
10	Cam 4 S-Box I/F	61.2
11	Cam 4 E-Box Rear	62.8
12	Cam 4 Baffle Rear	59.6
13	Cam 4 Baffle Front	59.4
14	Cam 4 Door Centre	57.7
15	Cam 4 Radiator	58.6

2. Checked Ch 1 and Ch 10 readings are within +/-3 deg C of spec and have been stable to < 3 deg C / hr for > 30 min:

3. Recorded DHU Analog Monitor readings:

DHU	ADU	Eng Units
SMEI (I)	42	0.54
	55	0.70
DHU 5V	130	4.98
PROC (C)	77	36.8
PSU (C)	93	31.6
PROC (I)	46	0.28
	173	0.99

Note: Typical and peak values for SMEI (I) and PROC (I)

4. Recorded Camera Analog and Digital Monitor readings:

Cam 3	ADU	Deg C
Rad	0	>45.8
CCD	0	>45.8
Elec	0	>74.7
Mirror	18	62.4
Baffle	21	60.6
Shutter	Open	N/A
Door	Closed	N/A
BOS	dark	N/A

Cam 4	ADU	Deg C
Rad	0	>45.8
CCD	0	>45.8
Elec	0	>74.7
Mirror	18	62.4
Baffle	0	>45.8
Shutter	Open	N/A
Door	Closed	N/A
BOS	dark	N/A

5. Measured BOS thresholds:

Cam 3	3.72 V
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Cam 4	3.67 V
--------------	--------

6. Checked typical image files from observation during hot cycle soak:

Files Checked	C3-07823	OK
	C2-08062	OK

7. Reset SMEI and EGSE, with 1533B running at 64 kbps; measured SMEI 28V currents and Shutter DMONs, for the following functions:

Cam 3	Total mA	Delta mA
HOP_TEST	715	593
De-Icer Heater	579	457
Shutter Phase 2	219	97
Shutter Phase 3	219	97
Shutter Phase 0	220	98
Shutter Phase 1	220	98

Cam 4	Total mA	Delta mA
HOP_TEST	709	587
De-Icer Heater	574	452
Shutter Phase 2	222	100
Shutter Phase 3	221	99
Shutter Phase 0	218	96
Shutter Phase 1	218	96

Shutter DMONs read 'Open' for Phase 1; otherwise read 'Closed':

OK

8. Reset SMEI and EGSE, and made short observation in Eng Mode for each camera; measured camera current, dark charge statistics and star peak for typical images.

Time	Camera	Mode	Shutter	Star	Flat Field	Current
09:56	Cam 3	Eng	1	On	Off	218 / 200

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C3-00004	1664	10.37	6233	814	~20300

Time	Camera	Mode	Shutter	Star	Flat Field	Current
10:02	Cam 4	Eng	1	On	Off	218 / 200

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00004	1604	9.99	6122	820	~15000

Note: Due to CCD hot pixels it is not possible to use 'statistics function to measure star peak amplitude - can only be estimated using cursor.

9. Made short observations in different modes / shutter positions:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
10:08	Cam 3	4 x 4	0	On	On	C3-00010
	Cam 4	4 x 4	0	On	On	C2-00014

10. Started observation for transition / cold soak period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
10:11	Cam 3	4 x 4	1	On	On	C3-00006
	Cam 4	4 x 4	1	On	On	C2-00011

11. Started transition to next cold case:

Time	10:14	Set Point	-40 deg C
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SMEI Cameras 3 and 4 Thermal Vacuum Test
Cold Cycle 6 Functional Test (incl Door Release)

Date	14-Feb-01
Time	21:32

Pressure	1.1E-06 mbar
Set Point	-40 deg C

Note: 128 kbps data rate used for this test, except where indicated.

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 3 S-Box I/F	-34.8
3	Cam 3 E-Box Rear	-32.1
4	Cam 3 Baffle Rear	-32.4
5	Cam 3 Baffle Front	-26.3
6	Cam 3 Door Centre	-20.6
7	Cam 3 Radiator	-22.1
8	Base Plate	-38.3

Channel	Allocation	Deg C
10	Cam 4 S-Box I/F	-36.5
11	Cam 4 E-Box Rear	-34.3
12	Cam 4 Baffle Rear	-32.5
13	Cam 4 Baffle Front	-31.7
14	Cam 4 Door Centre	-25.8
15	Cam 4 Radiator	-27.3

2. Checked Ch 1 and Ch 10 readings are within +/-3 deg C of spec and have been stable to < 3 deg C / hr for > 30 min:

OK

3. Recorded DHU Analog Monitor readings:

DHU	ADU	Eng Units
SMEI (I)	40	0.52
	44	0.57
DHU 5V	130	4.98
PROC (C)	78	36.5
PSU (C)	93	31.6
PROC (I)	47	0.29
	170	0.97

Note: Typical and peak values for SMEI (I) and PROC (I)

4. Recorded Camera Analog and Digital Monitor readings:

Cam 3	ADU	Deg C
Rad	174	-26.9
CCD	180	-28.6
Elec	230	-14.6
Mirror	255	<-31.9
Baffle	255	<-31.9
Shutter	Open	N/A
Door	Closed	N/A
BOS	Dark	N/A

Cam 4	ADU	Deg C
Rad	176	-27.4
CCD	162	-23.4
Elec	225	-11.9
Mirror	255	<-31.9
Baffle	155	-21.4
Shutter	Open	N/A
Door	Closed	N/A
BOS	Dark	N/A

5. Measured BOS thresholds:

Cam 3	3.62 V
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Cam 4	3.62 V
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6. Checked typical image files from observation during cold cycle soak:

Files Checked	C3-08005	OK
	C2-08005	OK

7. Reset SMEI and EGSE, with 1533B running at 64 kbps; measured SMEI 28V currents and Shutter DMONS, for the following functions:

Cam 3	Total mA	Delta mA
HOP_TEST	725	603
De-Icer Heater	585	463
Shutter Phase 2	266	144
Shutter Phase 3	262	140
Shutter Phase 0	264	142
Shutter Phase 1	263	141

Cam 4	Total mA	Delta mA
HOP_TEST	718	596
De-Icer Heater	580	458
Shutter Phase 2	265	143
Shutter Phase 3	266	144
Shutter Phase 0	257	135
Shutter Phase 1	256	134

Shutter DMONS read 'Open' for Phase 1; otherwise read 'Closed':

OK

8. Reset SMEI and EGSE, and made short observation in Eng Mode for each camera; measured camera current, dark charge statistics and star peak for typical images.

Time	Camera	Mode	Shutter	Star	Flat Field	Current
21:59	Cam 3	Eng	1	On	Off	203/185

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C3-00005	1018	2.25	1018	2.30	4475

Time	Camera	Mode	Shutter	Star	Flat Field	Current
22:05	Cam 4	Eng	1	On	Off	204/192

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00005	1006	2.27	1007	2.64	24226

9. Made short observations in different modes / shutter positions:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked	Peak
22:11	Cam 3	4 x 4	2	On	On	C3-00005	14073
	Cam 4	4 x 4	2	On	On	C2-00005	14310
22:14	Cam 3	Eng	2	On	On	C3-00003	29109
22:17	Cam 4	Eng	2	On	On	C2-00003	30000

**10. Reset SMEI and EGSE, with 1533B running at 64 kbps;
 issued HOP_ENA and HOP_ACT commands to each camera in turn;
 recorded Door Monitor status, SMEI 28V current and time to open.**

Time	Camera	Door Monitor		Opening Time	Total mA	Delta mA
		Initial	Final			
22:25	Cam 3	Closed	Open	150s	719	597
22:29	Cam 4	Closed	Open	150s	712	590

Current returned to normal value after Door opens:

11. Started transition to ambient:

Time	22:39	Set Point	25 deg C
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12. Started observation for transition period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
22:40	Cam 3	4 x 4	1	On	On	C3-00005
	Cam 4	4 x 4	1	On	On	C2-00005

13. Vented chamber and opened.

Date	15-Feb-01
Time	09:15

14. Inspected Door latches on both Cameras; reset HOPs and re-latched Doors

Both latch mechanisms had released with 1-2 mm clearance between rollers and striker plates.
 Doors were free.

15. Closed chamber and started pumpdown

Time	10:30
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16. Started observation for pumpdown period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
11:08	Cam 3	4 x 4	1	On	On	C3-00005
	Cam 4	4 x 4	1	On	On	C2-00005

SMEI Cameras 3 and 4 Thermal Vacuum Test
Ambient Functional Test

Date	15-Feb-01
Time	12:10

Pressure	2.6E-05 mbar
Set Point	25 deg C

Note: 128 kbps data rate used for this test, except where indicated.

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 3 S-Box I/F	27.4
3	Cam 3 E-Box Rear	29.1
4	Cam 3 Baffle Rear	27.2
5	Cam 3 Baffle Front	26.5
6	Cam 3 Door Centre	26.2
7	Cam 3 Radiator	26.4
8	Base Plate	26.6

Channel	Allocation	Deg C
10	Cam 4 S-Box I/F	27.2
11	Cam 4 E-Box Rear	28.7
12	Cam 4 Baffle Rear	26.9
13	Cam 4 Baffle Front	26.6
14	Cam 4 Door Centre	26.2
15	Cam 4 Radiator	26.3

2. Checked Ch 1 and Ch 10 readings are within +/-3 deg C of spec and have been stable to < 3 deg C / hr for > 30 min:

OK

3. Recorded DHU Analog Monitor readings:

DHU	ADU	Eng Units
SMEI (I)	42	0.54
	54	0.69
DHU 5V	130	4.98
PROC (C)	82	35.1
PSU (C)	97	30.3
PROC (I)	47	0.29
	174	0.99

Note: Typical and peak values for SMEI (I) and PROC (I)

4. Recorded Camera Analog and Digital Monitor readings:

Cam 3	ADU	Deg C
Rad	23	27.1
CCD	22	27.8
Elec	50	46.6
Mirror	105	27.8
Baffle	108	26.9
Shutter	Open	N/A
Door	Closed	N/A
BOS	SUN	N/A

Cam 4	ADU	Deg C
Rad	22	27.8
CCD	23	27.1
Elec	50	46.6
Mirror	104	28.1
Baffle	22	27.8
Shutter	Open	N/A
Door	Closed	N/A
BOS	SUN	N/A

5. Measured BOS thresholds:

Cam 3	3.60 V
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Cam 4	3.54 V
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6. Reset SMEI and EGSE, with 1533B running at 64 kbps; measured SMEI 28V currents and Shutter DMONs, for the following functions:

Cam 3	Total mA	Delta mA
HOP_TEST	720	598
De-Icer Heater	581	459
Shutter Phase 2	232	110
Shutter Phase 3	231	109
Shutter Phase 0	232	110
Shutter Phase 1	232	110

Cam 4	Total mA	Delta mA
HOP_TEST	713	591
De-Icer Heater	577	455
Shutter Phase 2	234	112
Shutter Phase 3	232	110
Shutter Phase 0	230	108
Shutter Phase 1	228	106

Shutter DMONs read 'Open' for Phase 1; otherwise read 'Closed':

OK

7. Reset SMEI and EGSE, and made short observation in Eng Mode for each camera; measured camera current, dark charge statistics and star peak for typical images.

Time	Camera	Mode	Shutter	Star	Flat Field	Current
12:35	Cam 3	Eng	1	On	Off	212 / 194

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C3-00004	1088	2.65	1233	67.77	~9300

Time	Camera	Mode	Shutter	Star	Flat Field	Current
12:41	Cam 4	Eng	1	On	Off	212 / 194

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
c2-00004	1076	3.02	1234	77.85	~20663

8. Made short observations in different modes / shutter positions:

Time	Camera	Mode	Shutter	Star	Flat Field	Files	
						Checked	Peak
12:52	Cam 3	4 x 4	0	On	On	C3-00004	23134
	Cam 4	4 x 4	0	On	On	C2-00004	23649
12:55	Cam 3	4 x 4	1	On	On	C3-00005	11324
	Cam 4	4 x 4	1	On	On	C2-00005	11702
12:58	Cam 3	4 x 4	2	On	On	C3-00005	5768
	Cam 4	4 x 4	2	On	On	C2-00005	6126

9. Started transition to next hot case:

Time	13:05	Set Point	60 deg C
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10. Started observation for transition / hot soak period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
13:04	Cam 3	4 x 4	1	On	On	C3-00004
	Cam 4	4 x 4	1	On	On	C2-00004

SMEI Cameras 3 and 4 Thermal Vacuum Test
Hot Cycle 6 Functional Test (incl Door Release)

Date	16-Feb-01
Time	09:15

Pressure	4.0E-06 mbar
Set Point	60 deg C

Note: 128 kbps data rate used for this test, except where indicated.

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 3 S-Box I/F	61.1
3	Cam 3 E-Box Rear	63.3
4	Cam 3 Baffle Rear	60.6
5	Cam 3 Baffle Front	58.7
6	Cam 3 Door Centre	56.8
7	Cam 3 Radiator	57.9
8	Base Plate	60.9

Channel	Allocation	Deg C
10	Cam 4 S-Box I/F	61.3
11	Cam 4 E-Box Rear	62.8
12	Cam 4 Baffle Rear	59.5
13	Cam 4 Baffle Front	59.6
14	Cam 4 Door Centre	58.0
15	Cam 4 Radiator	58.2

2. Checked Ch 1 and Ch 10 readings are within +/-3 deg C of spec and have been stable to < 3 deg C / hr for > 30 min:

OK

3. Recorded DHU Analog Monitor readings:

DHU	ADU	Eng Units
SMEI (I)	42	0.54
	56	0.71
DHU 5V	130	4.98
PROC (C)	78	36.5
PSU (C)	94	31.3
PROC (I)	46	0.28
	172	0.98

Note: Typical and peak values for SMEI (I) and PROC (I)

4. Recorded Camera Analog and Digital Monitor readings:

Cam 3	ADU	Deg C
Rad	0	>45.8
CCD	0	>45.8
Elec	0	>74.7
Mirror	18	62.4
Baffle	20	61.2
Shutter	Open	N/A
Door	Closed	N/A
BOS	dark	N/A

Cam 4	ADU	Deg C
Rad	0	>45.8
CCD	0	>45.8
Elec	0	>74.7
Mirror	18	62.4
Baffle	0	>45.8
Shutter	Open	N/A
Door	Closed	N/A
BOS	dark	N/A

5. Measured BOS thresholds:

Cam 3	3.70 V
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Cam 4	3.65 V
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6. Checked typical image files from observation during hot cycle soak:

Files Checked	C3-12381	OK
	C2-12667	OK

7. Reset SMEI and EGSE, with 1533B running at 64 kbps; measured SMEI 28V currents and Shutter DMONs, for the following functions:

Cam 3	Total mA	Delta mA
HOP_TEST	716	594
De-Icer Heater	579	457
Shutter Phase 2	217	95
Shutter Phase 3	218	96
Shutter Phase 0	220	98
Shutter Phase 1	220	98

Cam 4	Total mA	Delta mA
HOP_TEST	710	588
De-Icer Heater	575	453
Shutter Phase 2	222	100
Shutter Phase 3	220	98
Shutter Phase 0	218	96
Shutter Phase 1	218	96

Shutter DMONs read 'Open' for Phase 1; otherwise read 'Closed':

OK

8. Reset SMEI and EGSE, and made short observation in Eng Mode for each camera; measured camera current, dark charge statistics and star peak for typical images.

Time	Camera	Mode	Shutter	Star	Flat Field	Current
09:27	Cam 3	Eng	1	On	Off	217 / 199

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C3-00004	1654	11.05	6329	744	~13000

Time	Camera	Mode	Shutter	Star	Flat Field	Current
09:34	Cam 4	Eng	1	On	Off	219 / 200

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00004	1609	11.13	6109	811	~15600

Note: Due to CCD hot pixels it is not possible to use 'statistics function to measure star peak amplitude - can only be estimated using cursor.

9. Made short observations in different modes / shutter positions:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
09:39	Cam 3	4 x 4	0	On	On	C3-00007
	Cam 4	4 x 4	0	On	On	C2-00013

**10. Reset SMEI and EGSE, with 1533B running at 64 kbps;
 issued HOP_ENA and HOP_ACT commands to each camera in turn;
 recorded Door Monitor status, SMEI 28V current and time to open.**

Time	Camera	Door Monitor		Opening Time	Total mA	Delta mA
		Initial	Final			
09:48	Cam 3	Closed	Open	09:49:25	714	592
09:45	Cam 4	Closed	Open	09:46	706	584

Current returned to normal value after Door opened:

11. Started transition to ambient:

Time	09:49	Set Point	25 deg C
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12. Started observation for transition period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
09:50	Cam 3	4 x 4	1	On	On	C3-00009
	Cam 4	4 x 4	1	On	On	C2-00014

SMEI Cameras 3 and 4 Thermal Vacuum Test
Final Ambient Functional Test

Date	16-Feb-01
Time	12:45

Pressure	3.0E-06 mbar
Set Point	25 deg C

Note: 128 kbps data rate used for this test, except where indicated.

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 3 S-Box I/F	29.2
3	Cam 3 E-Box Rear	31.0
4	Cam 3 Baffle Rear	31.8
5	Cam 3 Baffle Front	36.4
6	Cam 3 Door Centre	35.5
7	Cam 3 Radiator	33.2
8	Base Plate	26.2

Channel	Allocation	Deg C
10	Cam 4 S-Box I/F	27.9
11	Cam 4 E-Box Rear	30.2
12	Cam 4 Baffle Rear	31.1
13	Cam 4 Baffle Front	36.2
14	Cam 4 Door Centre	36.6
15	Cam 4 Radiator	34.4

2. Checked Ch 1 and Ch 10 readings are within +/-3 deg C of spec and have been stable to < 3 deg C / hr for > 30 min:

N/A

Note: Due to time constraints the final ambient checks were performed before final thermal equilibrium had been reached.

3. Recorded DHU Analog Monitor readings:

DHU	ADU	Eng Units
SMEI (I)	42	0.54
	54	0.69
DHU 5V	130	4.98
PROC (C)	78	36.5
PSU (C)	93	31.6
PROC (I)	47	0.29
	172	0.98

Note: Typical and peak values for SMEI (I) and PROC (I)

4. Recorded Camera Analog and Digital Monitor readings:

Cam 3	ADU	Deg C
Rad	14	33.8
CCD	15	33.0
Elec	44	49.1
Mirror	94	31.3
Baffle	80	35.8
Shutter	Open	N/A
Door	Closed	N/A
BOS	SUN	N/A

Cam 4	ADU	Deg C
Rad	13	34.6
CCD	12	35.4
Elec	48	47.4
Mirror	98	30.0
Baffle	11	36.3
Shutter	Open	N/A
Door	Closed	N/A
BOS	SUN	N/A

5. Measured BOS thresholds:

Cam 3	3.58 V
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Cam 4	3.54 V
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6. Checked typical image files from observation during transition period:

Files Checked	C3-07823	OK
	C2-08062	OK

Note: These files from end of transition period were checked to confirm operation at ambient.
Due to time constraints no other camera imaging tests performed in final ambient case.

7. Reset SMEI and EGSE, with 1533B running at 64 kbps; measured SMEI 28V currents and Shutter DMONs, for the following functions:

Cam 3	Total mA	Delta mA
HOP_TEST	715	593
De-Icer Heater	580	458
Shutter Phase 2	230	108
Shutter Phase 3	228	106
Shutter Phase 0	228	106
Shutter Phase 1	232	110

Cam 4	Total mA	Delta mA
HOP_TEST	714	592
De-Icer Heater	578	456
Shutter Phase 2	229	107
Shutter Phase 3	228	106
Shutter Phase 0	232	110
Shutter Phase 1	230	108

Shutter DMONs read 'Open' for Phase 1; otherwise read 'Closed':

OK

8. Vented chamber and opened.

Time	14:30
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9. Inspected Door latches on both Cameras; reset HOPs and re-latched Doors

Both latch mechanisms had released with HOP actuators fully retracted.
Doors were free.

*** END OF TEST ***