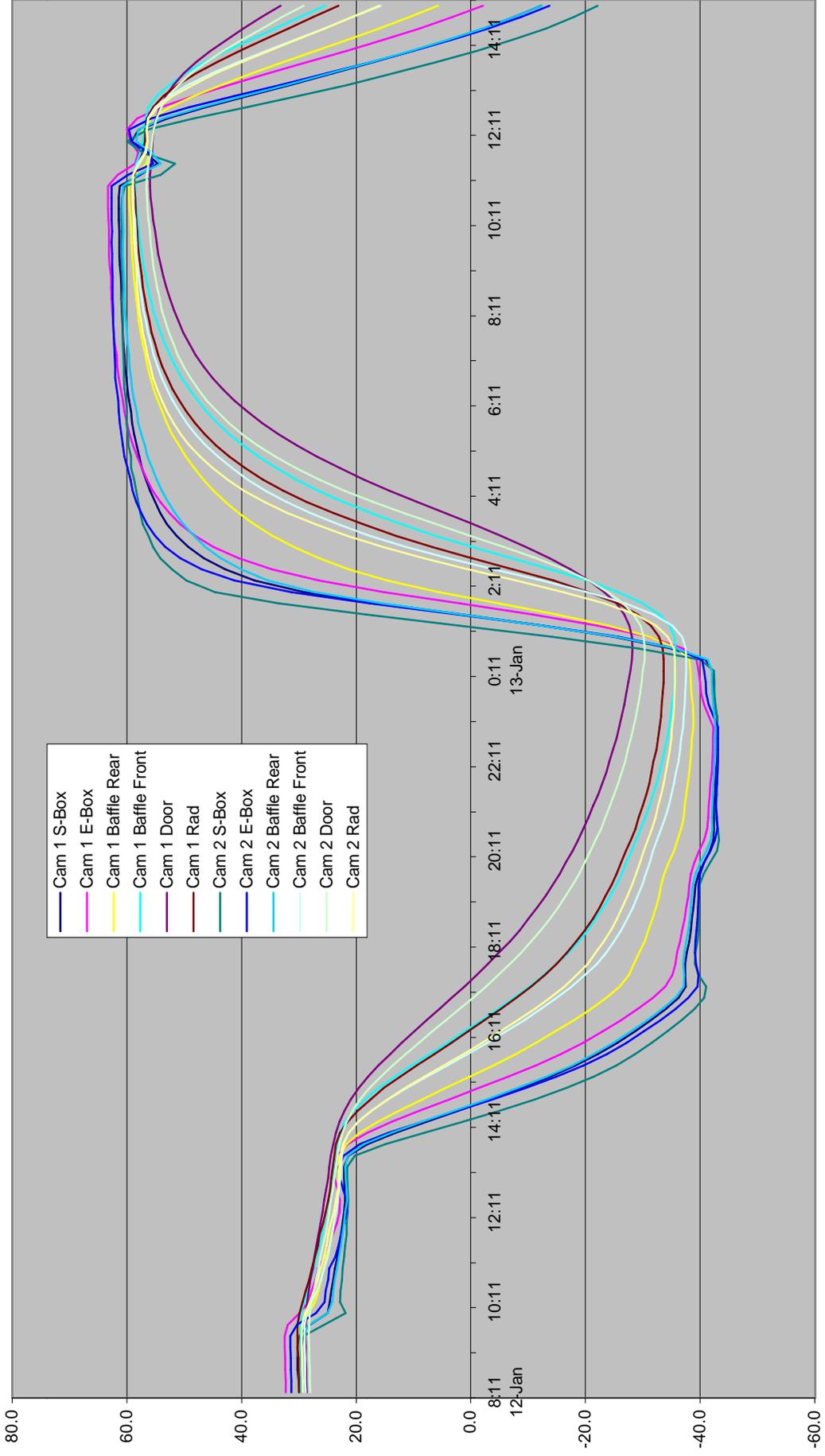
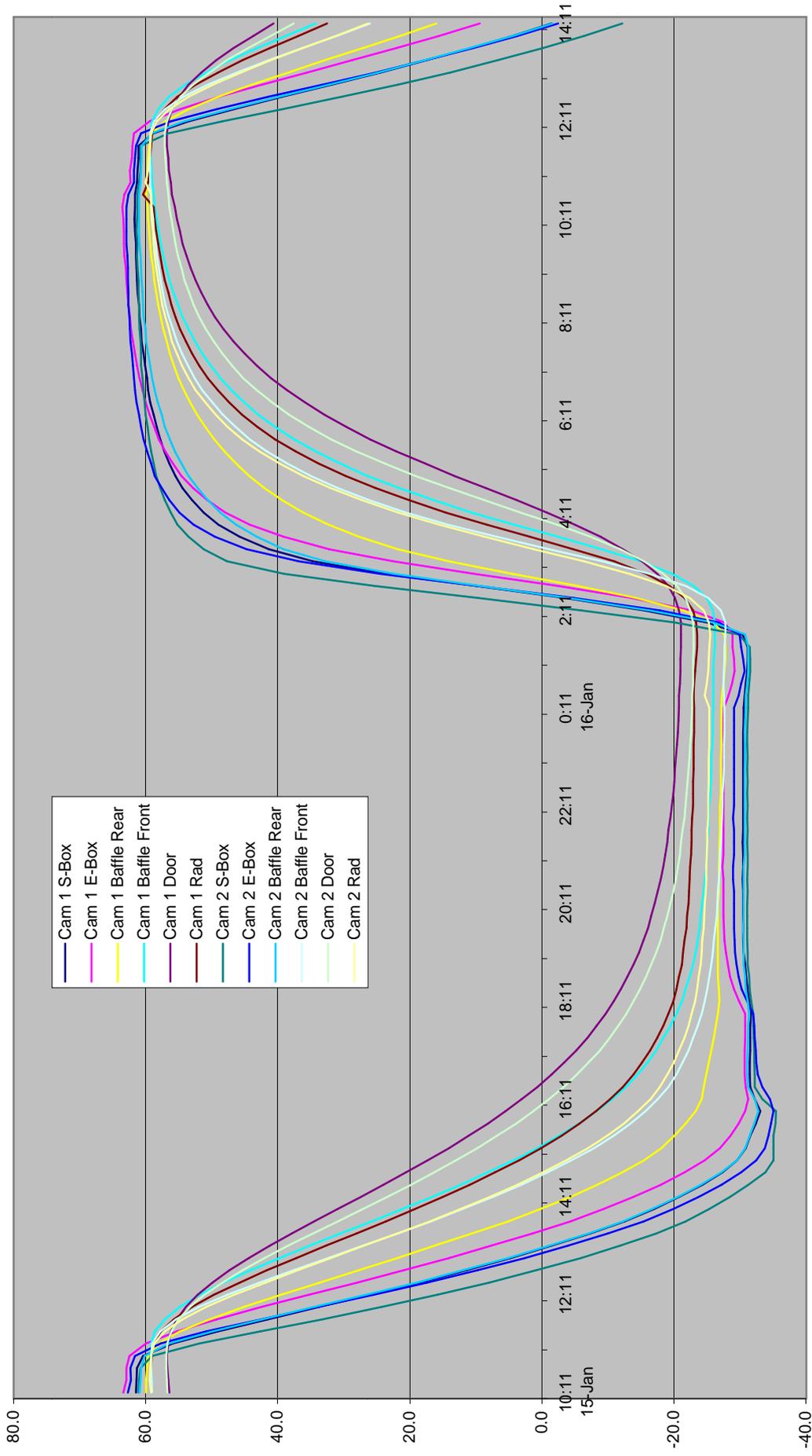


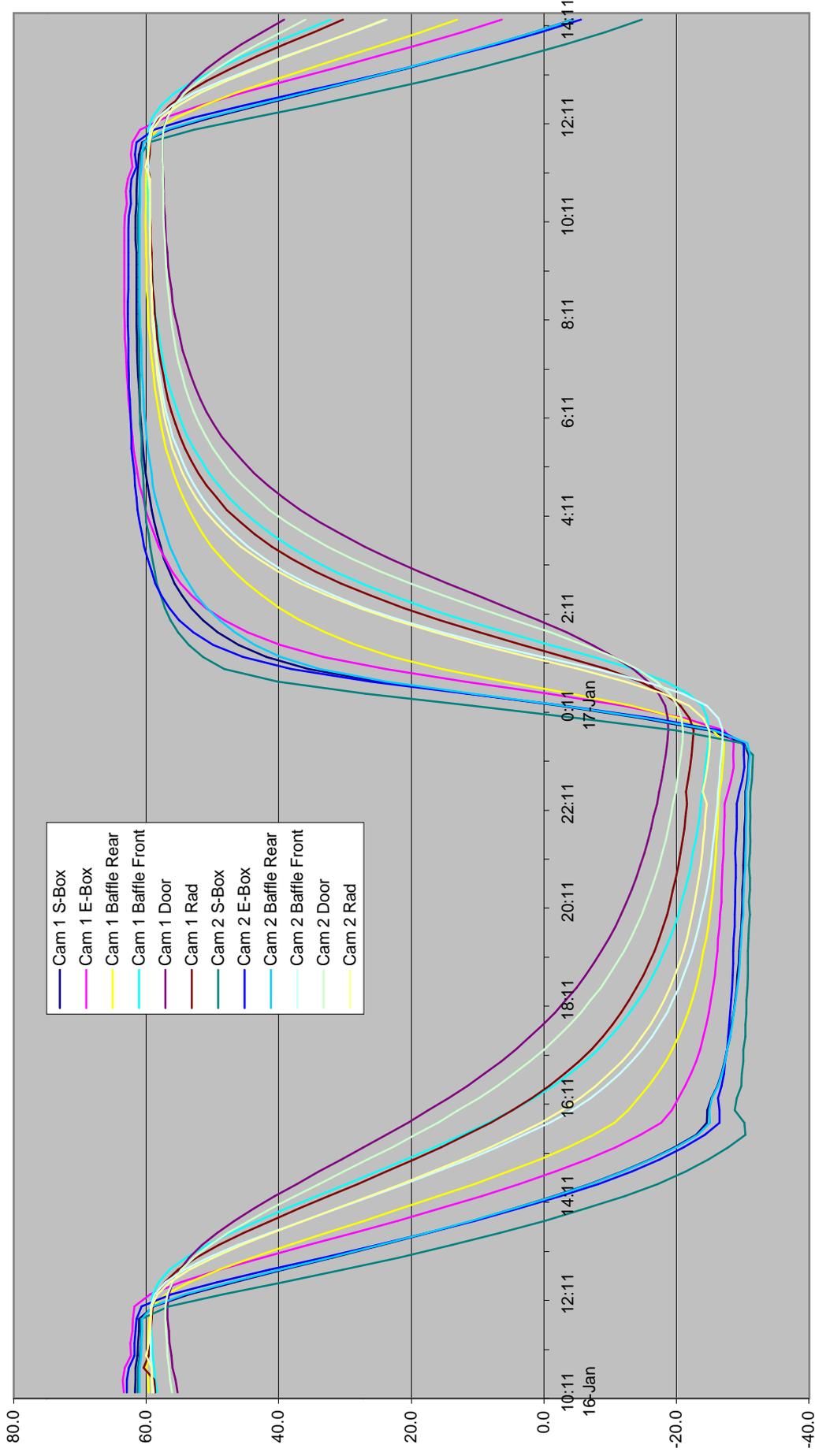
CYCLE 1



CYCLE 4



CYCLE 5



SMEI Cameras 1 and 2 Thermal Vacuum Test
Initial Ambient Functional Test

Date	12-Jan-01
Time	11:20

Pressure	7.5E-06 mbar
Set Point	20 deg C

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 1 S-Box I/F	22.9
3	Cam 1 E-Box Rear	24.8
4	Cam 1 Baffle Rear	24.7
5	Cam 1 Baffle Front	26.4
6	Cam 1 Door Centre	26.9
7	Cam 1 Radiator	26.7

Channel	Allocation	Deg C
10	Cam 2 S-Box I/F	21.9
11	Cam 2 E-Box Rear	23.1
12	Cam 2 Baffle Rear	22.6
13	Cam 2 Baffle Front	24.6
14	Cam 2 Door Centre	25.8
15	Cam 2 Radiator	25.1

Note: Lauda was switched on just previously, starting to pull S-Box down to +20 C.

2. Recorded DHU Analog Monitor readings:

DHU	ADU	Eng Units
SMEI (I)	6	0.10
DHU 5V	130	4.98
PROC (C)	97	30.3
PSU (C)	106	27.5
PROC (I)	47	0.29
	170	0.97

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

3. Recorded Camera Analog and Digital Monitor readings:

Cam 1	ADU	Deg C
Rad	23	27.1
CCD	24	26.5
Elec	110	26.3
Mirror	119	23.5
Baffle	24	26.5
Shutter	Open	N/A
Door	Closed	N/A
BOS	SUN	N/A

Cam 2	ADU	Deg C
Rad	25	25.8
CCD	26	25.2
Elec	115	24.7
Mirror	124	22.0
Baffle	28	23.9
Shutter	Open	N/A
Door	Closed	N/A
BOS	SUN	N/A

4. Measured BOS thresholds:

Cam 1	3.57 V
--------------	--------

Cam 2	3.57 V
--------------	--------

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

Cam 1	Total mA	Delta mA	Cam 2	Total mA	Delta mA
HOP_TEST	725	603	HOP_TEST	711	589
De-Icer Heater	577	455	De-Icer Heater	582	460
Shutter Phase 2	237	115	Shutter Phase 2	235	113
Shutter Phase 3	236	114	Shutter Phase 3	234	112
Shutter Phase 0	234	112	Shutter Phase 0	236	114
Shutter Phase 1	233	111	Shutter Phase 1	235	113

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
12:19	Cam 1	Eng	1	On	Off	215 / 196

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C1-00006	1059	2.47	1163	66.30	13028

Time	Camera	Mode	Shutter	Star	Flat Field	Current
12:36	Cam 2	Eng	1	On	Off	212 / 194

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00006	1065	2.46	1171	66.80	17648

Note: Artificial star image in Camera 2 had a strong 'tail' outside FOV.
 Camera 1 image had only a slight indication of 'tail'.

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

Time	Camera	Mode	Shutter	Star	Flat Field	Files	
						Checked	Peak
12:55	Cam 1	4 x 4	1	On	On	C1-00006	
	Cam 2	4 x 4	1	On	On	C2-00006	
13:04	Cam 1	4 x 4	0	On	On	C1-00016	14759
	Cam 2	4 x 4	0	On	On	C2-00049	20203

8. SWITCHED SMEI OFF

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

Time	13:14	Set Point	-40 deg C
	19:30		-46 deg C

SMEI Cameras 1 and 2 Thermal Vacuum Test
Cold Cycle 1 Functional Test - Cold Switch-On

Date	12-Jan-01
Time	22:30

Pressure	6.0E-06 mbar
Set Point	-46 deg C

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 1 S-Box I/F	-43.0
3	Cam 1 E-Box Rear	-42.2
4	Cam 1 Baffle Rear	-38.5
5	Cam 1 Baffle Front	-33.8
6	Cam 1 Door Centre	-24.8
7	Cam 1 Radiator	-32.4

Channel	Allocation	Deg C
10	Cam 2 S-Box I/F	-43.0
11	Cam 2 E-Box Rear	-43.1
12	Cam 2 Baffle Rear	-42.6
13	Cam 2 Baffle Front	-36.5
14	Cam 2 Door Centre	-27.4
15	Cam 2 Radiator	-34.7

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)	114	25.0
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 1	ADU	Deg C
Rad	191	-31.9
CCD	196	-33.5
Elec	255	<-31.9
Mirror	255	<-31.9
Baffle	200	-34.8
Shutter	Closed	N/A
Door	Closed	N/A
BOS	Dark	N/A

Cam 2	ADU	Deg C
Rad	197	-33.9
CCD	202	-35.5
Elec	255	<-31.9
Mirror	255	<-31.9
Baffle	207	-37.3
Shutter	Closed	N/A
Door	Closed	N/A
BOS	Dark	N/A

5. Measured BOS thresholds:

Cam 1 3.54 V

Cam 2 3.54 V

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

Cam 1	Total mA	Delta mA	Cam 2	Total mA	Delta mA
HOP_TEST	724	602	HOP_TEST	716	594
De-Icer Heater	580	458	De-Icer Heater	585	463
Shutter Phase 1	274	152	Shutter Phase 1	275	153
Shutter Phase 2	274	152	Shutter Phase 2	272	150
Shutter Phase 3	274	152	Shutter Phase 3	272	150
Shutter Phase 0	268	146	Shutter Phase 0	270	148
Shutter Phase 1	268	146	Shutter Phase 1	271	149

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

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
22:55	Cam 1	Eng	1	On	Off	207 / 183

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C1-00005	981	1.88	981	2.16	18467

Time	Camera	Mode	Shutter	Star	Flat Field	Current
23:12	Cam 2	Eng	1	On	Off	204 / 193

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00005	993	1.77	993	2.12	31717

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

Time	Camera	Mode	Shutter	Star	Flat Field	Files	
						Checked	Peak
23:29	Cam 1	4 x 4	1	On	On	C1-00006	
	Cam 2	4 x 4	1	On	On	C2-00006	
23:38	Cam 1	4 x 4	0	On	On	C1-00006	32767
	Cam 2	4 x 4	0	On	On	C2-00006	32767
23:48	Cam 1	Eng	2	On	On	C1-00007	17189
00:00	Cam 2	Eng	2	On	On	C2-00007	35708

Note: Images in Flat Field shutter position are saturated in cold case.
 Assumed this is due to temperature coefficient of Flat Field LED.

9. Started transition to first hot case:

Time	00:10	Set Point	60 deg C
-------------	-------	------------------	----------

10. Started observation for transition / hot soak period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
00:18	Cam 1	4 x 4	1	On	On	C1-00006
	Cam 2	4 x 4	1	On	On	C2-00006

SMEI Cameras 1 and 2 Thermal Vacuum Test
Hot Cycle 1 Functional Test

Date	13-Jan-01
Time	10:45

Pressure	2.0E-05 mbar
Set Point	60 deg C

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 1 S-Box I/F	61.4
3	Cam 1 E-Box Rear	63.3
4	Cam 1 Baffle Rear	59.6
5	Cam 1 Baffle Front	58.5
6	Cam 1 Door Centre	55.9
7	Cam 1 Radiator	58.6

Channel	Allocation	Deg C
10	Cam 2 S-Box I/F	60.9
11	Cam 2 E-Box Rear	62.7
12	Cam 2 Baffle Rear	60.8
13	Cam 2 Baffle Front	58.8
14	Cam 2 Door Centre	56.5
15	Cam 2 Radiator	59.0

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)	44	0.57
	60	0.76
DHU 5V	130	4.98
PROC (C)	90	32.5
PSU (C)	104	28.1
PROC (I)	54	0.33
	170	0.97

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

4. Recorded Camera Analog and Digital Monitor readings:

Cam 1	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

Cam 2	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 1	3.66 V
--------------	--------

Cam 2	3.66 V
--------------	--------

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

Files Checked	C1-06634	OK
	C2-06652	OK

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

Cam 1	Total mA	Delta mA	Cam 2	Total mA	Delta mA
HOP_TEST	725	603	HOP_TEST	724	602
De-Icer Heater	575	453	De-Icer Heater	580	458
Shutter Phase 2	223	101	Shutter Phase 2	221	99
Shutter Phase 3	222	100	Shutter Phase 3	221	99
Shutter Phase 0	220	98	Shutter Phase 0	222	100
Shutter Phase 1	220	98	Shutter Phase 1	223	101

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
11:14	Cam 1	Eng	1	On	Off	222 / 203

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C1-00004	1628	10.7	5874	908	~17000

Time	Camera	Mode	Shutter	Star	Flat Field	Current
11:29	Cam 2	Eng	1	On	Off	219 / 201

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00006	1544	10.3	5324	658	~21000

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
11:44	Cam 1	4 x 4	1	On	On	C1-00006
	Cam 2	4 x 4	1	On	On	C2-00006
11:50	Cam 1	4 x 4	0	On	On	C1-00007
	Cam 2	4 x 4	0	On	On	C2-00007

10. Started transition to next cold case:

Time	11:55	Set Point	-40 deg C
	16:10		-33 deg C

11. Started observation for transition / cold soak period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
11:58	Cam 1	4 x 4	1	On	On	C1-00006
	Cam 2	4 x 4	1	On	On	C2-00006

SMEI Cameras 1 and 2 Thermal Vacuum Test
Cold Cycle 2 Functional Test

Date	13-Jan-01
Time	21:30

Pressure	1.3E-06 mbar
Set Point	-33 deg C

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 1 S-Box I/F	-28.4
3	Cam 1 E-Box Rear	-25.4
4	Cam 1 Baffle Rear	-24.2
5	Cam 1 Baffle Front	-21.5
6	Cam 1 Door Centre	-14.9
7	Cam 1 Radiator	-19.8

Channel	Allocation	Deg C
10	Cam 2 S-Box I/F	-29.4
11	Cam 2 E-Box Rear	-27.2
12	Cam 2 Baffle Rear	-28.7
13	Cam 2 Baffle Front	-24.5
14	Cam 2 Door Centre	-17.8
15	Cam 2 Radiator	-22.9

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
	60	0.76
DHU 5V	130	4.98
PROC (C)	86	33.8
PSU (C)	101	29.1
PROC (I)	54	0.33
	170	0.97

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

4. Recorded Camera Analog and Digital Monitor readings:

Cam 1	ADU	Deg C
Rad	150	-19.9
CCD	154	-21.1
Elec	210	-5.0
Mirror	250	-28.4
Baffle	159	-22.5
Shutter	Open	N/A
Door	Closed	N/A
BOS	Dark	N/A

Cam 2	ADU	Deg C
Rad	159	-22.5
CCD	163	-23.7
Elec	219	-8.9
Mirror	252	-30.1
Baffle	170	-25.7
Shutter	Open	N/A
Door	Closed	N/A
BOS	Dark	N/A

5. Measured BOS thresholds:

Cam 1	3.47 V
--------------	--------

Cam 2	3.52 V
--------------	--------

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

Files Checked	C1-06136	OK
	C2-06092	OK

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

Cam 1	Total mA	Delta mA	Cam 2	Total mA	Delta mA
HOP_TEST	726	604	HOP_TEST	716	594
De-Icer Heater	580	458	De-Icer Heater	586	464
Shutter Phase 2	262	140	Shutter Phase 2	262	140
Shutter Phase 3	262	140	Shutter Phase 3	263	141
Shutter Phase 0	260	138	Shutter Phase 0	263	141
Shutter Phase 1	260	138	Shutter Phase 1	260	138

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
22:03	Cam 1	Eng	1	On	Off	209 / 190

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C1-00005	1007	2.21	1007	2.40	14733

Time	Camera	Mode	Shutter	Star	Flat Field	Current
22:15	Cam 2	Eng	1	On	Off	206 /188

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00005	1012	2.06	1012	2.27	30514

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

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked	Peak
22:29	Cam 1	4 x 4	0	On	On	C1-00006	32767
	Cam 2	4 x 4	0	On	On	C2-00006	32767
22:33	Cam 1	4 x 4	2	On	On	C1-00006	
	Cam 2	4 x 4	2	On	On	C2-00006	
22:41	Cam 1	Eng	2	On	On	C1-00005	15755
22:51	Cam 2	Eng	2	On	On	C2-00005	27197

10. Started transition to next hot case:

Time	23:00	Set Point	60 deg C
-------------	-------	------------------	----------

11. Started observation for transition / hot soak period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
23:08	Cam 1	4 x 4	1	On	On	C1-00006
	Cam 2	4 x 4	1	On	On	C2-00006

SMEI Cameras 1 and 2 Thermal Vacuum Test
Hot Cycle 2 Functional Test

Date	14-Jan-01
Time	09:26

Pressure	1.0E-05 mbar
Set Point	60 deg C

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 1 S-Box I/F	61.5
3	Cam 1 E-Box Rear	63.3
4	Cam 1 Baffle Rear	59.7
5	Cam 1 Baffle Front	58.7
6	Cam 1 Door Centre	56.1
7	Cam 1 Radiator	58.8

Channel	Allocation	Deg C
10	Cam 2 S-Box I/F	61.0
11	Cam 2 E-Box Rear	62.7
12	Cam 2 Baffle Rear	60.8
13	Cam 2 Baffle Front	58.9
14	Cam 2 Door Centre	56.5
15	Cam 2 Radiator	59.0

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
	58	0.74
DHU 5V	130	4.98
PROC (C)	90	32.5
PSU (C)	105	27.8
PROC (I)	54	0.33
	170	0.97

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

4. Recorded Camera Analog and Digital Monitor readings:

Cam 1	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

Cam 2	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 1	3.71 V
--------------	--------

Cam 2	3.71 V
--------------	--------

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

Files Checked		OK
		OK

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

Cam 1	Total mA	Delta mA	Cam 2	Total mA	Delta mA
HOP_TEST	725	603	HOP_TEST	707	585
De-Icer Heater	575	453	De-Icer Heater	580	458
Shutter Phase 2	222	100	Shutter Phase 2	222	100
Shutter Phase 3	221	99	Shutter Phase 3	221	99
Shutter Phase 0	219	97	Shutter Phase 0	221	99
Shutter Phase 1	219	97	Shutter Phase 1	222	100

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
09:58	Cam 1	Eng	1	On	Off	223 / 203

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C1-00005	1670	9.9	6290	866	~16905

Time	Camera	Mode	Shutter	Star	Flat Field	Current
10:13	Cam 2	Eng	1	On	Off	220 / 202

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00005	1689	10.6	6751	1031	~22055

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
10:25	Cam 1	4 x 4	1	On	On	C1-00018
	Cam 2	4 x 4	1	On	On	C2-00018

10. Started observation for transition / cold soak period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
10:35	Cam 1	4 x 4	0	On	On	C1-00015
	Cam 2	4 x 4	0	On	On	C2-00015

Note: This puts shutter in Flat-Field position for transition and next cold soak.
Peak of images will go into saturation as cameras cool.

11. Started transition to next cold case:

Time	10:48	Set Point	-40 deg C
	15:00		-35 deg C

SMEI Cameras 1 and 2 Thermal Vacuum Test
Cold Cycle 3 Functional Test

Date	14-Jan-01
Time	21:50

Pressure	1.5E-06 mbar
Set Point	-35 deg C

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 1 S-Box I/F	-30.6
3	Cam 1 E-Box Rear	-27.5
4	Cam 1 Baffle Rear	-27.0
5	Cam 1 Baffle Front	-24.4
6	Cam 1 Door Centre	-18.4
7	Cam 1 Radiator	-22.6

Channel	Allocation	Deg C
10	Cam 2 S-Box I/F	-31.4
11	Cam 2 E-Box Rear	-29.2
12	Cam 2 Baffle Rear	-30.8
13	Cam 2 Baffle Front	-26.9
14	Cam 2 Door Centre	-20.9
15	Cam 2 Radiator	-25.2

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
	57	0.73
DHU 5V	130	4.98
PROC (C)	92	31.9
PSU (C)	106	27.5
PROC (I)	52	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 1	ADU	Deg C
Rad	159	-22.5
CCD	164	-24.0
Elec	216	-7.6
Mirror	252	-30.1
Baffle	170	-25.7
Shutter	Closed	N/A
Door	Closed	N/A
BOS	SUN	N/A

Cam 2	ADU	Deg C
Rad	168	-25.1
CCD	172	-26.3
Elec	223	-10.8
Mirror	254	-31.9
Baffle	178	-28.0
Shutter	Closed	N/A
Door	Closed	N/A
BOS	SUN	N/A

5. Measured BOS thresholds:

Cam 1 3.48 V

Cam 2 3.50 V

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

Files Checked	C1-07220	OK
	C2-07165	OK

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

Cam 1	Total mA	Delta mA	Cam 2	Total mA	Delta mA
HOP_TEST	725	603	HOP_TEST	715	593
De-Icer Heater	580	458	De-Icer Heater	585	463
Shutter Phase 1	265	143	Shutter Phase 1	263	141
Shutter Phase 2	265	143	Shutter Phase 2	263	141
Shutter Phase 3	263	141	Shutter Phase 3	263	141
Shutter Phase 0	261	139	Shutter Phase 0	263	141
Shutter Phase 1	261	139	Shutter Phase 1	263	141

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
22:20	Cam 1	Eng	1	On	Off	209 / 190

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C1-0005	1003	2.08	1003	2.27	14345

Time	Camera	Mode	Shutter	Star	Flat Field	Current
22:32	Cam 2	Eng	1	On	Off	206 / 188

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00004	1008	2.13	1009	2.30	30235

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

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked	Peak
22:43	Cam 1	4 x 4	2	On	On	C1-00005	8257
	Cam 2	4 x 4	2	On	On	C2-00005	14081
22:49	Cam 1	Eng	2	On	On	C1-00003	16351
23:01	Cam 2	Eng	2	On	On	C2-00008	27344

10. Started transition to next hot case:

Time	23:14	Set Point	60 deg C
-------------	-------	------------------	----------

11. Started observation for transition / hot soak period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
23:16	Cam 1	4 x 4	1	On	On	C1-00020
	Cam 2	4 x 4	1	On	On	C2-00020

SMEI Cameras 1 and 2 Thermal Vacuum Test
Hot Cycle 3 Functional Test

Date	15-Jan-01
Time	10:00

Pressure	7.3E-06 mbar
Set Point	60 deg C

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 1 S-Box I/F	61.5
3	Cam 1 E-Box Rear	63.4
4	Cam 1 Baffle Rear	59.8
5	Cam 1 Baffle Front	58.9
6	Cam 1 Door Centre	56.3
7	Cam 1 Radiator	59.0

Channel	Allocation	Deg C
10	Cam 2 S-Box I/F	61.1
11	Cam 2 E-Box Rear	62.7
12	Cam 2 Baffle Rear	60.9
13	Cam 2 Baffle Front	59.0
14	Cam 2 Door Centre	56.6
15	Cam 2 Radiator	59.1

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
	60	0.76
DHU 5V	130	4.98
PROC (C)	88	33.2
PSU (C)	102	28.7
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 1	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

Cam 2	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 1	3.62 V
--------------	--------

Cam 2	3.65 V
--------------	--------

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

Files Checked	C1-06715	OK
	C2-06801	OK

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

Cam 1	Total mA	Delta mA	Cam 2	Total mA	Delta mA
HOP_TEST	724	602	HOP_TEST	706	584
De-Icer Heater	574	452	De-Icer Heater	579	457
Shutter Phase 2	221	99	Shutter Phase 2	220	98
Shutter Phase 3	222	100	Shutter Phase 3	220	98
Shutter Phase 0	219	97	Shutter Phase 0	221	99
Shutter Phase 1	219	97	Shutter Phase 1	220	98

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 1	Eng	1	On	Off	222

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C1-00003	1676.7	10.7	6412	889	~16000

Time	Camera	Mode	Shutter	Star	Flat Field	Current
10:33	Cam 2	Eng	1	On	Off	220

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00006	1682	11.8	6717	1056	~21000

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
10:42	Cam 1	4 x 4	0	On	On	C1-00015
	Cam 2	4 x 4	0	On	On	C2-00029

10. Started transition to next cold case:

Time	10:45	Set Point	-40 deg C
	18:00		-35 deg C

11. Started observation for transition / cold soak period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
17:51	Cam 1	4 x 4	1	On	On	C1-00020
	Cam 2	4 x 4	1	On	On	C2-00020

Note: Observation started late due to backup between data disks.
Also cameras OFF between 10:45 and 17:55

SMEI Cameras 1 and 2 Thermal Vacuum Test
Cold Cycle 4 Functional Test

Date	15-Jan-01
Time	23:55

Pressure	9.5E-07 mbar
Set Point	-35 deg C

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 1 S-Box I/F	-30.6
3	Cam 1 E-Box Rear	-27.5
4	Cam 1 Baffle Rear	-27.2
5	Cam 1 Baffle Front	-25.9
6	Cam 1 Door Centre	-20.7
7	Cam 1 Radiator	-23.1

Channel	Allocation	Deg C
10	Cam 2 S-Box I/F	-31.2
11	Cam 2 E-Box Rear	-29.1
12	Cam 2 Baffle Rear	-30.8
13	Cam 2 Baffle Front	-27.7
14	Cam 2 Door Centre	-22.7
15	Cam 2 Radiator	-25.4

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)	84	34.5
PSU (C)	98	30.0
PROC (I)	52	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 1	ADU	Deg C
Rad	160	-22.8
CCD	165	-24.2
Elec	215	-7.1
Mirror	252	-30.1
Baffle	174	-26.9
Shutter	Open	N/A
Door	Closed	N/A
BOS	Dark	N/A

Cam 2	ADU	Deg C
Rad	168	-25.1
CCD	172	-26.3
Elec	223	-10.8
Mirror	254	-31.9
Baffle	180	-28.6
Shutter	Open	N/A
Door	Closed	N/A
BOS	Dark	N/A

5. Measured BOS thresholds:

Cam 1 3.52 V

Cam 2 3.52 V

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

Files Checked	C1-03925	OK
	C2-03887	OK

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

Cam 1	Total mA	Delta mA	Cam 2	Total mA	Delta mA
HOP_TEST	714	592	HOP_TEST	714	592
De-Icer Heater	579	457	De-Icer Heater	583	461
Shutter Phase 2	263	141	Shutter Phase 2	262	140
Shutter Phase 3	263	141	Shutter Phase 3	262	140
Shutter Phase 0	260	138	Shutter Phase 0	261	139
Shutter Phase 1	260	138	Shutter Phase 1	260	138

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
00:33	Cam 1	Eng	1	On	Off	207 / 189

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C1-00003	999	2.23	999	2.33	14619

Time	Camera	Mode	Shutter	Star	Flat Field	Current
00:55	Cam 2	Eng	1	On	Off	205 / 187

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00015	1008	2.12	1008	2.31	30418

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

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked	Peak
01:11	Cam 1	4 x 4	2	On	On	C1-00014	8073
	Cam 2	4 x 4	2	On	On	C2-00014	13682
01:17	Cam 1	Eng	2	On	On	C1-00003	16462
01:26	Cam 2	Eng	2	On	On	C2-00003	27837

10. Started transition to next hot case:

Time	01:31	Set Point	60 deg C
-------------	-------	------------------	----------

Note: DHU and Camera 1 and 2 left powered ON, but no data acquisition until later.

11. Started observation for transition / hot soak period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
	Cam 1	4 x 4	1	On	On	
	Cam 2	4 x 4	1	On	On	

SMEI Cameras 1 and 2 Thermal Vacuum Test
Hot Cycle 4 Functional Test

Date	16-Jan-01
Time	10:24

Pressure	5.8E-06 mbar
Set Point	60 deg C

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 1 S-Box I/F	61.7
3	Cam 1 E-Box Rear	63.4
4	Cam 1 Baffle Rear	59.6
5	Cam 1 Baffle Front	58.3
6	Cam 1 Door Centre	55.3
7	Cam 1 Radiator	58.6

Channel	Allocation	Deg C
10	Cam 2 S-Box I/F	61.3
11	Cam 2 E-Box Rear	62.9
12	Cam 2 Baffle Rear	61.0
13	Cam 2 Baffle Front	58.9
14	Cam 2 Door Centre	56.1
15	Cam 2 Radiator	59.1

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)	95	30.9
PROC (I)	52	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 1	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

Cam 2	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 1	3.76 V
--------------	--------

Cam 2	3.76 V
--------------	--------

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

Files Checked	C1-04633	OK
	C2-04673	OK

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

Cam 1			Cam 2		
	Total mA	Delta mA		Total mA	Delta mA
HOP_TEST	708	586	HOP_TEST	704	582
De-Icer Heater	572	450	De-Icer Heater	577	455
Shutter Phase 2	220	98	Shutter Phase 2	217	95
Shutter Phase 3	219	97	Shutter Phase 3	217	95
Shutter Phase 0	217	95	Shutter Phase 0	218	96
Shutter Phase 1	217	95	Shutter Phase 1	219	97

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
10:55	Cam 1	Eng	1	On	Off	221

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C1-00003	1703	11.7	6898	971	~17500

Time	Camera	Mode	Shutter	Star	Flat Field	Current
11:05	Cam 2	Eng	1	On	Off	218

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00003	1716.5	11.2	7227	1103	~21700

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
11:31	Cam 1	4 x 4	0	On	On	C1-00013
	Cam 2	4 x 4	0	On	On	C2-00029

10. Started transition to next cold case:

Time	11:37	Set Point	-40 deg C
	15:30		-35 deg C

11. Started observation for transition / cold soak period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
11:37	Cam 1	4 x 4	1	On	On	C1-00034
	Cam 2	4 x 4	1	On	On	C2-00039

SMEI Cameras 1 and 2 Thermal Vacuum Test
Cold Cycle 5 Functional Test

Date	16-Jan-01
Time	22:00

Pressure	8.3E-07 mbar
Set Point	-35 deg C

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 1 S-Box I/F	-30.4
3	Cam 1 E-Box Rear	-27.3
4	Cam 1 Baffle Rear	-26.4
5	Cam 1 Baffle Front	-23.5
6	Cam 1 Door Centre	-16.8
7	Cam 1 Radiator	-21.5

Channel	Allocation	Deg C
10	Cam 2 S-Box I/F	-31.3
11	Cam 2 E-Box Rear	-29.1
12	Cam 2 Baffle Rear	-30.6
13	Cam 2 Baffle Front	-26.1
14	Cam 2 Door Centre	-19.3
15	Cam 2 Radiator	-24.5

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)	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
	170	0.97

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

4. Recorded Camera Analog and Digital Monitor readings:

Cam 1	ADU	Deg C
Rad	155	-21.4
CCD	159	-22.5
Elec	214	-6.7
Mirror	252	-30.1
Baffle	166	-24.5
Shutter	Open	N/A
Door	Closed	N/A
BOS	Sun	N/A

Cam 2	ADU	Deg C
Rad	164	-24.0
CCD	168	-25.1
Elec	223	-10.8
Mirror	254	-31.9
Baffle	175	-27.1
Shutter	Open	N/A
Door	Closed	N/A
BOS	Sun	N/A

5. Measured BOS thresholds:

Cam 1 3.47 V

Cam 2 3.50 V

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

Files Checked	C1-06610	OK
	C2-06580	OK

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

Cam 1	Total mA	Delta mA	Cam 2	Total mA	Delta mA
HOP_TEST	714	592	HOP_TEST	713	591
De-Icer Heater	578	456	De-Icer Heater	583	461
Shutter Phase 2	262	140	Shutter Phase 2	263	141
Shutter Phase 3	264	142	Shutter Phase 3	258	136
Shutter Phase 0	258	136	Shutter Phase 0	258	136
Shutter Phase 1	254	132	Shutter Phase 1	252	130

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
22:26	Cam 1	Eng	1	On	Off	207 / 188

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C1-00004	1002	2.43	1003	2.31	14549

Time	Camera	Mode	Shutter	Star	Flat Field	Current
22:40	Cam 2	Eng	1	On	Off	205 / 187

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00004	1004	2.05	1005	1.98	26934

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

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked	Peak
22:51	Cam 1	4 x 4	2	On	On	C1-00016	8108
22:51	Cam 2	4 x 4	2	On	On	C2-00016	13946
22:55	Cam 1	Eng	2	On	On	C1-00003	16393
23:01	Cam 2	Eng	2	On	On	C2-00003	28364

10. Started transition to next hot case:

Time	23:11	Set Point	60 deg C
-------------	-------	------------------	----------

11. Started observation for transition / hot soak period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
23:36	Cam 1	4 x 4	3	On	On	
	Cam 2	4 x 4	3	On	On	

SMEI Cameras 1 and 2 Thermal Vacuum Test
Hot Cycle 5 Functional Test

Date	17-Jan-01
Time	10:12

Pressure	4.6E-06 mbar
Set Point	60 deg C

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 1 S-Box I/F	61.6
3	Cam 1 E-Box Rear	63.3
4	Cam 1 Baffle Rear	60.1
5	Cam 1 Baffle Front	59.5
6	Cam 1 Door Centre	57.1
7	Cam 1 Radiator	59.3

Channel	Allocation	Deg C
10	Cam 2 S-Box I/F	61.2
11	Cam 2 E-Box Rear	62.7
12	Cam 2 Baffle Rear	61.0
13	Cam 2 Baffle Front	59.5
14	Cam 2 Door Centre	57.3
15	Cam 2 Radiator	59.4

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)	42	0.54
	54	0.69
DHU 5V	130	4.98
PROC (C)	84	34.5
PSU (C)	95	30.9
PROC (I)	50	0.30
	170	0.97

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

4. Recorded Camera Analog and Digital Monitor readings:

Cam 1	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

Cam 2	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

Note: Camera 2 Shutter had been left in position 3, returned to position 1.

5. Measured BOS thresholds:

Cam 1	3.69 V
--------------	--------

Cam 2	3.69 V
--------------	--------

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

Note: Data logging had stopped early morning due to disk being full.
 Logging restarted at 10:09 and typical image files checked.

Files Checked	C1-00124	OK
	C2-00126	OK

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

Cam 1	Total mA	Delta mA
HOP_TEST	708	586
De-Icer Heater	572	450
Shutter Phase 2	220	98
Shutter Phase 3	219	97
Shutter Phase 0	217	95
Shutter Phase 1	217	95

Cam 2	Total mA	Delta mA
HOP_TEST	704	582
De-Icer Heater	577	455
Shutter Phase 2	217	95
Shutter Phase 3	217	95
Shutter Phase 0	218	96
Shutter Phase 1	218	96

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

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
11:11	Cam 1	Eng	1	On	Off	220

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C1-00003	1716.4	11.5	6972	919	~16000

Time	Camera	Mode	Shutter	Star	Flat Field	Current
11:19	Cam 2	Eng	1	On	Off	218

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00003	1724.7	11.7	7130	1138	~20500

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
11:27	Cam 1	4 x 4	0	On	On	C1-00005
	Cam 2	4 x 4	0	On	On	C2-00005

10. Started transition to next cold case:

Time	11:32	Set Point	-40 deg C
	16:10		-35 deg C

11. Started observation for transition / cold soak period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
11:32	Cam 1	4 x 4	1	On	On	C1-00005
	Cam 2	4 x 4	1	On	On	C2-00005

SMEI Cameras 1 and 2 Thermal Vacuum Test
Cold Cycle 6 Functional Test (incl Door Release)

Date	17-Jan-01
Time	21:15

Pressure	7.7E-07 mbar
Set Point	-35 deg C

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 1 S-Box I/F	-29.8
3	Cam 1 E-Box Rear	-26.8
4	Cam 1 Baffle Rear	-25.6
5	Cam 1 Baffle Front	-22.3
6	Cam 1 Door Centre	-15.1
7	Cam 1 Radiator	-20.5

Channel	Allocation	Deg C
10	Cam 2 S-Box I/F	-30.8
11	Cam 2 E-Box Rear	-28.6
12	Cam 2 Baffle Rear	-30.1
13	Cam 2 Baffle Front	-25.0
14	Cam 2 Door Centre	-17.6
15	Cam 2 Radiator	-23.7

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)	86	33.8
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 1	ADU	Deg C
Rad	156	-21.7
CCD	161	-23.1
Elec	251	-29.2
Mirror	252	-30.1
Baffle	166	-24.5
Shutter	Open	N/A
Door	Closed	N/A
BOS	Sun	N/A

Cam 2	ADU	Deg C
Rad	164	-24.0
CCD	170	-25.7
Elec	254	-31.9
Mirror	254	-31.9
Baffle	175	-27.1
Shutter	Open	N/A
Door	Closed	N/A
BOS	Sun	N/A

Note: Camera Electronics temperatures low because Cameras have been off for ~1 hr due to EGSE problems.

5. Measured BOS thresholds:

Cam 1	3.49 V
--------------	--------

Cam 2	3.50 V
--------------	--------

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

Files Checked	C1-03291	OK
	C2-03254	OK

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

Cam 1	Total mA	Delta mA
HOP_TEST	714	592
De-Icer Heater	578	456
Shutter Phase 2	260	138
Shutter Phase 3	259	137
Shutter Phase 0	258	136
Shutter Phase 1	256	134

Cam 2	Total mA	Delta mA
HOP_TEST	713	591
De-Icer Heater	582	460
Shutter Phase 2	262	140
Shutter Phase 3	260	138
Shutter Phase 0	259	137
Shutter Phase 1	258	136

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
22:48	Cam 1	Eng	1	On	Off	207 / 189

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C1-00005	1000	2.15	1001	2.35	13509

Time	Camera	Mode	Shutter	Star	Flat Field	Current
22:58	Cam 2	Eng	1	On	Off	204 / 186

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00008	1007	2.09	1008	2.22	27081

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

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked	Peak
23:11	Cam 1	4 x 4	2	On	On	C1-00040	8283
	Cam 2	4 x 4	2	On	On	C2-00040	14678
23:17	Cam 1	Eng	2	On	On	C1-00003	16903
23:26	Cam 2	Eng	2	On	On	C2-00003	30131

**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			
23:36	Cam 2	Closed	Open	165 s	705	583
23:54	Cam 1	Closed	Open	150 s	714	592

Current returned to normal value after Door opens:

11. Started transition to ambient:

Time	23:55	Set Point	25 deg C
-------------	-------	------------------	----------

12. Started observation for transition period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
18-Jan-01 00:02	Cam 1	4 x 4	1	On	On	C1-00006
	Cam 2	4 x 4	1	On	On	C2-00006

13. Vented chamber and opened.

Date	18-Jan-01
Time	09:00

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	10:20
-------------	-------

SMEI Cameras 1 and 2 Thermal Vacuum Test
Ambient Functional Test

Date	18-Jan-01
Time	10:35

Pressure	1.7E-04 mbar
Set Point	25 deg C

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 1 S-Box I/F	24.5
3	Cam 1 E-Box Rear	24.9
4	Cam 1 Baffle Rear	24.8
5	Cam 1 Baffle Front	25.7
6	Cam 1 Door Centre	25.2
7	Cam 1 Radiator	25.1

Channel	Allocation	Deg C
10	Cam 2 S-Box I/F	24.4
8	Cam 2 E-Box Rear	24.9
12	Cam 2 Baffle Rear	24.8
13	Cam 2 Baffle Front	25.7
14	Cam 2 Door Centre	25.3
15	Cam 2 Radiator	25.2

Note: Camera 2 E-Box temperature monitor was plugged into channel 8 instead of channel 11 after opening chamber and resetting HOPs.

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

3. Recorded DHU Analog Monitor readings:

DHU	ADU	Eng Units
SMEI (I)	41	0.53
	54	0.69
DHU 5V	130	4.98
PROC (C)	95	30.9
PSU (C)	101	29.1
PROC (I)	50	0.30
	170	0.97

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

4. Recorded Camera Analog and Digital Monitor readings:

Cam 1	ADU	Deg C
Rad	26	25.2
CCD	26	25.2
Elec	110	26.3
Mirror	116	24.4
Baffle	25	25.8
Shutter	Open	N/A
Door	Closed	N/A
BOS	Sun	N/A

Cam 2	ADU	Deg C
Rad	25	25.8
CCD	26	25.2
Elec	108	26.9
Mirror	118	23.8
Baffle	25	25.8
Shutter	Open	N/A
Door	Closed	N/A
BOS	Sun	N/A

5. Measured BOS thresholds:

Cam 1	3.58 V
-------	--------

Cam 2	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 1	Total mA	Delta mA
HOP_TEST	709	587
De-Icer Heater	574	452
Shutter Phase 2	232	110
Shutter Phase 3	233	111
Shutter Phase 0	230	108
Shutter Phase 1	230	108

Cam 2	Total mA	Delta mA
HOP_TEST	707	585
De-Icer Heater	578	456
Shutter Phase 2	228	106
Shutter Phase 3	229	107
Shutter Phase 0	229	107
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
11:37	Cam 1	Eng	1	On	Off	216

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C1-00003	1069	3.1	1268.5	103.3	~10500

Time	Camera	Mode	Shutter	Star	Flat Field	Current
11:50	Cam 2	Eng	1	On	Off	214

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00003	1086.1	3.49	1420.4	155.4	~17000

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

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
11:59	Cam 1	4 x 4	0	On	On	C1-00029
	Cam 2	4 x 4	0	On	On	C2-00029

9. Started transition to next hot case:

Time	10:35
------	-------

Set Point	60 deg C
-----------	----------

10. Started observation for transition / hot soak period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
	Cam 1	4 x 4	1	On	On	
	Cam 2	4 x 4	1	On	On	

SMEI Cameras 1 and 2 Thermal Vacuum Test
Hot Cycle 6 Functional Test (incl Door Release)

Date	18-Jan-01
Time	21:15

Pressure	5.8E-06 mbar
Set Point	60 deg C

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 1 S-Box I/F	?
3	Cam 1 E-Box Rear	62.4
4	Cam 1 Baffle Rear	58.7
5	Cam 1 Baffle Front	57.8
6	Cam 1 Door Centre	54.6
7	Cam 1 Radiator	57.9

Channel	Allocation	Deg C
10	Cam 2 S-Box I/F	60.0
8	Cam 2 E-Box Rear	61.9
12	Cam 2 Baffle Rear	59.9
13	Cam 2 Baffle Front	58.1
14	Cam 2 Door Centre	55.5
15	Cam 2 Radiator	58.3

Note: Channel 1 monitor not working at this time - intermittent fault.

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:

Ch 10 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)	79	36.1
PSU (C)	92	31.9
PROC (I)	50	0.30
	170	0.97

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

4. Recorded Camera Analog and Digital Monitor readings:

Cam 1	ADU	Deg C
Rad	0	>45.8
CCD	0	>45.8
Elec	0	>74.7
Mirror	19	61.8
Baffle	0	>45.8
Shutter	Closed	N/A
Door	Closed	N/A
BOS	Dark	N/A

Cam 2	ADU	Deg C
Rad	0	>45.8
CCD	0	>45.8
Elec	0	>74.7
Mirror	19	61.8
Baffle	0	>45.8
Shutter	Closed	N/A
Door	Closed	N/A
BOS	Dark	N/A

5. Measured BOS thresholds:

Cam 1	3.70 V
--------------	--------

Cam 2	3.75 V
--------------	--------

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

Files Checked	C1-03293	OK
	C2-03319	OK

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

Cam 1	Total mA	Delta mA
HOP_TEST	709	587
De-Icer Heater	572	450
Shutter Phase 1	219	97
Shutter Phase 2	220	98
Shutter Phase 3	219	97
Shutter Phase 0	218	96
Shutter Phase 1	218	96

Cam 2	Total mA	Delta mA
HOP_TEST	704	582
De-Icer Heater	576	454
Shutter Phase 1	220	98
Shutter Phase 2	218	96
Shutter Phase 3	217	95
Shutter Phase 0	219	97
Shutter Phase 1	219	97

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

OK

Note: Previous observation made in Shutter Position 0, so started with Phase 1.

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
22:02	Cam 1	Eng	1	On	Off	222 / 202

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C1-00006	1584	10.4	5554	853	~14000

Time	Camera	Mode	Shutter	Star	Flat Field	Current
22:15	Cam 2	Eng	1	On	Off	218 / 200

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00006	1606	10.5	6005	1009	~18000

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
22:26	Cam 1	4 x 4	0	On	On	C1-00004
	Cam 2	4 x 4	0	On	On	C2-00004

**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			
22:40	Cam 2	Closed	Open	55 s	704	582
22:43	Cam 1	Closed	Open	52 s	706	584

Current returned to normal value after Door opened:

11. Started transition to ambient:

Time	22:46	Set Point	25 deg C
-------------	-------	------------------	----------

12. Started observation for transition period:

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
22:52	Cam 1	4 x 4	1	On	On	C1-00006
	Cam 2	4 x 4	1	On	On	C2-00006

SMEI Cameras 1 and 2 Thermal Vacuum Test
Final Ambient Functional Test

Date	19-Jan-01
Time	08:55

Pressure	1.5E-06 mbar
Set Point	25 deg C

1. Recorded external temperature monitor readings:

Channel	Allocation	Deg C
1	Cam 1 S-Box I/F	26.5
3	Cam 1 E-Box Rear	28.8
4	Cam 1 Baffle Rear	27.0
5	Cam 1 Baffle Front	27.0
6	Cam 1 Door Centre	26.8
7	Cam 1 Radiator	26.8

Channel	Allocation	Deg C
10	Cam 2 S-Box I/F	25.9
8	Cam 2 E-Box Rear	27.9
12	Cam 2 Baffle Rear	26.1
13	Cam 2 Baffle Front	26.1
14	Cam 2 Door Centre	26.1
15	Cam 2 Radiator	26.7

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)	41	0.53
	54	0.69
DHU 5V	130	4.98
PROC (C)	78	36.5
PSU (C)	90	32.5
PROC (I)	53	0.32
	170	0.97

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

4. Recorded Camera Analog and Digital Monitor readings:

Cam 1	ADU	Deg C
Rad	21	28.5
CCD	22	27.8
Elec	50	46.6
Mirror	106	27.5
Baffle	22	27.8
Shutter	Open	N/A
Door	Open	N/A
BOS	Dark	N/A

Cam 2	ADU	Deg C
Rad	22	27.8
CCD	22	27.8
Elec	54	45.0
Mirror	109	26.6
Baffle	24	26.5
Shutter	Open	N/A
Door	Open	N/A
BOS	Dark	N/A

5. Measured BOS thresholds:

Cam 1 3.57 V

Cam 2 3.60 V

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

Cam 1	Total mA	Delta mA
HOP_TEST	712	590
De-Icer Heater	574	452
Shutter Phase 2	232	110
Shutter Phase 3	232	110
Shutter Phase 0	228	106
Shutter Phase 1	229	107

Cam 2	Total mA	Delta mA
HOP_TEST	708	586
De-Icer Heater	579	457
Shutter Phase 2	230	108
Shutter Phase 3	230	108
Shutter Phase 0	231	109
Shutter Phase 1	232	110

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

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
09:25	Cam 1	Eng	1	On	Off	216 / 198

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C1-00006	1065	2.71	1228	96.5	13267

Time	Camera	Mode	Shutter	Star	Flat Field	Current
09:52	Cam 2	Eng	1	On	Off	216 / 197

Image File	Underscan		Top Left Image		Star Peak
	Mean	Sigma	Mean	Sigma	
C2-00006	1071	2.83	1238	91.5	11988

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

Time	Camera	Mode	Shutter	Star	Flat Field	Files Checked
10:00	Cam 1	4 x 4	0	On	On	C1-00006
	Cam 2	4 x 4	0	On	On	C2-00006

9. Vented chamber and opened.

10. 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 ***