CALIBRATION REPORT

FOR THE

THERMAL EMISSION SPECTROMETER

(TES II)

FOR THE MARS GLOBAL SURVEYOR MISSION

APPENDICES

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Table A1: Instrument Set Point Temperature (Main Temp. #3) (°C) Thermal Vacuum Pressure (Torr)

BCU-2 BB Set Point Temp. ⇓	Ambient Temp Ambient Pressure	Ambient Temp <1E-5 T	+40 °C <1E-5 T	-15 °C <1E-5 T	-3 °C <1E-5 T	+9 °C <1E-5 T	+21 °C <1E-5 T	+33 °C <1E-5 T
130 K (-143 °C)	N/A	N/A	N/A	②	② & ④	② & ④	② & ④	② & ④
160 K (-113 °C)	N/A	N/A	N/A	N/A	N/A	② & ④	N/A	N/A
200 K (-73 °C)	N/A	N/A	N/A	②	② & ④	② & ④	② & ④	④
240 K (-33 °C)	N/A	N/A	N/A	②	N/A	② & ④	② & ④	④
270 K (-3 °C)	N/A	N/A	N/A	① & ③ ② & ④	① & ③ ② & ④	① & ③ ② & ④	③ ② & ④	③ ② & ④
310 K (+37 °C)	N/A	N/A	N/A	②	② & ④	② & ④	④	④
318 K (+45 °C)	①	①	①	N/A	N/A	N/A	N/A	N/A
325 K (+52 °C)	①	①	①	② & ④	② & ④	② & ④	④	② & ④

Table 1: Test Groups for Thermal / Vacuum Test Sequence

Test Groups:

① 1. act**xn**
2. data1**xn** (PROM)
3. snr**xn** (PROM)
4. w**xn**
5. alb**xn**

② 1. tv**xn** (PROM)

③ 1. act**xn** (if ① not run)
2. data1**xn** (ALGOR)
3. snr**xn** (ALGOR)
4. w**xn** (if ① not run)
5. alb**xn** (if ① not run)

④ 1. tv**xn** (ALGOR)

Notes:

1. For each test, **x** refers to the test sequence version and **n** refers to the incremental run #.
2. To determine version **x** for tests in each Test Group, see Test Summary Version Matrix.
3. Ambient temperature and pressure are defined as 22 ± 5 °C and 760 ± 20 Torr.
4. All blackbody and instrument temperatures should be within ± 5 °C of the set point values.

Table A2: STABLE TEMPERATURE TESTS

Instrument Set Point Temperature (Main Temp. #3) @ High Vacuum

BCU-2 BB Set Point Temp. ⇓	-15 °C	-3 °C	+9 °C	+21 °C	+33 °C
130 K (-143° C)	TV R 4 C Orbit 2	TV T 5	TV T 10	TV T 19	TV T 23
130 K (-143° C) ALGOR	N/A	TV U 4	TV U 9	TV U 17	TV U 23
160 K (-113° C)	N/A	N/A	TV T 11	N/A	N/A
160 K (-113° C) ALGOR	N/A	N/A	TV U 10	N/A	N/A
200 K (-73° C)	TV R 5 D Orbit 2	TV T 6	TV T 12	TV T 20	N/A
200 K (-73° C) ALGOR	N/A	TV U 5	TV U 11	TV U 18	TV U 24
240 K (-33° C)	TV R 6 D Orbit 2	N/A	TV T 13	TV T 21	N/A
240 K (-33° C) ALGOR	N/A	N/A	TV U 12	TV U 19	TV U 25
270 K (-3° C)	TV T 2	TV T 7	TV T 14	TV T 22	TV T 24
270 K (-3° C) ALGOR	TV U 2	TV U 6	TV U 13	TV U 20	TV U 26
310 K (+37° C)	TV T 3	TV T 8	TV T 15	N/A	N/A
310 K (+37° C) ALGOR	N/A	TV U 7	TV U 14	TV U 21	TV U 27
325 K (+52° C)	TV T 4	TV T 9	TV T 17	N/A	TV T 25
325 K (+52° C) ALGOR	TV U 3	TV U 8	TV U 16	TV U 22	TV U 28

Table A-3 Stable Temperature Tests - Spectrometer Dectector Temperature (°C) (tmp[3])

BCU2 BB Set Point	-15°C	-3° C	+9° C	+21° C	+33° C
130 K	tvr4 -17.36° C	tvt5 -3.60° C	tvt10 7.61° C	tvt19 19.74° C	tvt23 31.34° C
130 K Algor	--	tvu4 -3.89	tvu9 8.12	tvu17 19.73	tvu23 31.09
160 K	--	--	tvt11 9.50	--	--
160 K Algor		--	tvu10 9.01	--	--
200 K	tvr5 -17.97	tvt6 -4.99	tvt12 9.17	tvt20 19.22	--
200 K Algor	--	tvu5 -5.07	tvu11 9.50	tvu18 19.25	tvu24 30.14
240 K	tvr6	--	tvt13 9.18	tvt21 19.10	--
240 K Algor	--	--	tvu12 9.62	tvu19 19.33	tvu25 29.98
270 K	tvt2 -17.09	tvt7 -5.22	tvt14 10.80	tvt22 20.11	tvt24 30.13
270 K Algor	tvu2 -17.11	tvu6 -4.92	tvu13 10.89	tvu20 20.23	tvu26 30.49
310 K	tvt3 -16.30	tvt8 -3.96	tvt15 11.01	--	--
310 K Algor	--	tvu7 -3.84	tvu14 11.29	tvu21 20.36	tvu27 31.17
325 K	tvt4 -15.83	tvt9 -3.72	tvt17 12.07	--	tvt25 31.53
325 K Algor	tvu3 -15.62	tvu8 -3.60	tvu16 12.15	tvu22 20.71	tvu28 31.75

Table A4 TV (t,u) Test Description

Sequence start ick	Process. start ick	end ick	# obs.	View	Scan	IMC	Gain	Target
Single IMC off								
15	17	32	16	-60	SNG	off	1	space
35	37	164	128	0	SNG	off	1	planet
175	177	192	16	-60	SNG	off	1	space
196	198	213	16	180	SNG	off	1	ref G1
214	216	231	16	180	SNG	off	2	ref G2
241	243	258	16	-60	SNG	off	1	space
262	264	279	16	180	SNG	off	3	ref G3
280	282	297	16	180	SNG	off	4	ref G4
Double IMC Off								
307	311	341	16	-60	DBL	off	1	space
345	349	379	16	0	DBL	off	1	planet
391	395	425	16	-60	DBL	off	1	space
430	434	464	16	180	DBL	off	1	ref G1
466	470	500	16	180	DBL	off	2	ref G2
511	515	545	16	-60	DBL	off	1	space
550	554	584	16	180	DBL	off	3	ref G3
586	590	620	16	180	DBL	off	4	ref G4

Sequence start ick	Process. start ick	end ick	# obs.	View	Scan	IMC	Gain	Target
Single IMC on								
631	633	648	16	-60	SNG	off	1	space
651	653	668	16	0	SNG	on	1	planet
679	681	696	16	-60	SNG	off	1	space
700	702	717	16	180	SNG	off	1	ref G1
718	720	735	16	180	SNG	off	3	ref G3
Double IMC on								
745	749	779	16	-60	DBL	off	1	space
783	787	817	16	0	DBL	on	1	planet G1
829	833	863	16	-60	DBL	off	1	space
868	872	902	16	180	DBL	off	1	ref G1
904	908	938	16	180	DBL	off	3	ref G3
Gain 2/3/4								
1299	1301	1316	16	0	SNG	off	2	planet G2
1317	1317	1332	16	0	SNG	off	3	planet G3
1333	1333	1348	16	0	SNG	off	4	planet G4
1359	1361	1376	16	0	SNG	on	2	planet G2
1377	1377	1392	16	0	SNG	on	3	planet G3
1393	1393	1408	16	0	SNG	on	4	planet G4
1419	1421	1453	16	0	DBL	off	2	planet G2
1455	1455	1485	16	0	DBL	off	3	planet G3
1487	1487	1517	16	0	DBL	off	4	planet G4
1529	1533	1563	16	0	DBL	on	2	planet G2

1565	1565	1595	16	0	DBL	on	3	planet G3
1597	1597	1627	16	0	DBL	on	4	planet G4
1639	1641	1656	16	-60	SNG	off	1	space G1
1660	1662	1677	16	180	SNG	off	1	ref G1
1678	1680	1695	16	180	SNG	off	3	ref G3
1705	1709	1739	16	-60	DBL	off	1	space G1
1744	1748	1778	16	180	DBL	off	1	ref G1
1780	1784	1814	16	180	DBL	off	3	ref G3

Table A5 STANDARD TEST GROUP (BCU-2 BB Set Point = 270 K) AND TRANSITION TESTS (marssim)

	Ambient	Vacuum	-15°C	-3° C	+9° C	+21° C	+33° C	Ambient
Date	5/14/96	5/16/96	5/17/96	5/19/96	5/21/96	5/24/96	5/25/96	5/26/96
Spect. Det. Temp			-17.1	-5.1	10.8	20.2	30.3	
act	acte110	acte111	acte113	acte114	acte115	acte116	acte117	acte118
alb (ext. lamp on)	albm9	albm11	albm13	albm15	albm17	albm19	albm21	albm23
alb (lamp off)	albm10	albm12	albm14	albm16	albm18	albm20	albm22	albm24
wb	wb82	wb84	wb95	wb86	wb87	wb88	wb89	wb90
data (no algor)	data1b25	data1b26	data1e1	data1e2	data1e4	--	data1e5	data1b27
data (w/ algor)	--	--	--	--	data1f4	data1f5	data1f6	--
snr (no algor)		snrq6	snrr1	snrr2	snrr3	--	--	--
snr (w/ algor)	--	--	--	--	snrs3	snrs4	snrs5	--
tvt (no algor)	--	--	tvt2	tvt7	tvt14	tvt22	tvt24	--
tvu	--	--	tvu2	tvu6	tvu13	tvu20	tvu26	--
marssim		marssime60 - 67		marssime83 - 90		marssime112-116		
			marssime74 - 78		marssime99 - 106			

Table A6: TEMPERATURE TRANSITION TESTS

Instrument Set Point Temperature (Main Temp. #3) @ High Vacuum

BCU-2 BB Temperature Change ⇓	-15 °C	-3 °C	+9 °C	+21 °C	+33 °C
325 K (+52° C) to 130 K (-143° C) and Instr. Transition	MARSSIM E 60 to 67	MARSSIM E 74 to 78	MARSSIM E 83 to 90	MARSSIM E 99 to 106	MARSSIM E 112 to 116
130 K (-143° C) to 160 K (-113° C)	MARSSIM E 68 to 68	MARSSIM E 79 to 79	MARSSIM E 91 to 92	MARSSIM E 107 to 107	MARSSIM E 117 to 117
160 K (-113° C) to 200 K (-73° C)	N/A ⇓	N/A ⇓	MARSSIM E 93 to 93	N/A ⇓	N/A ⇓
200 K (-73° C) to 240 K (-33° C)	MARSSIM E 69 to 69	MARSSIM E 80 to 80	MARSSIM E 94 to 94	MARSSIM E 108 to 108	MARSSIM E 118 to 118
240 K (-33° C) to 270 K (-3° C)	MARSSIM E 70 to 70	N/A ⇓	MARSSIM E 95 to 95	MARSSIM E 109 to 109	MARSSIM E 119 to 119
270 K (-3° C) to 310 K (+37° C)	MARSSIM E 71 to 72	MARSSIM E 81 to 81	MARSSIM E 96 to 96	MARSSIM E 110 to 110	MARSSIM E 120 to 120
310 K (+37° C) to 325 K (+52° C)	MARSSIM E 73 to 73	MARSSIM E 82 to 82	MARSSIM E 97 to 98	MARSSIM E 111 to 111	MARSSIM E 121 to 121

TABLE A7: TES TEST LISTING

Test Name	Date	Time
w2i2	8/15/95	
vfu1	8/16/95	
vfw1	8/16/95	
fvu1	9/5/95	
fvw1	9/5/95	
fvu2	9/7/95	
fvw2	9/7/95	
fvw3	9/8/95	
fvu3	9/8/95	
fvu4	9/8/95	
fvw4	9/8/95	
fvw5	9/8/95	
fvu5	9/13/95	
fvu6	9/14/95	
fvu7	9/15/95	
fvw6	9/15/95	
fvw7	9/15/95	
fvu8	9/18/95	
fvw8	9/18/95	
fvw9	9/18/95	
fvu13	9/19/95	
fvw10	9/19/95	
fvw11	9/19/95	
fvw12	9/19/95	
fvw13	9/19/95	
fvw14	9/20/95	
fvu15	9/21/95	
fvw15	9/21/95	
w2j1	9/22/95	
fvu16	9/25/95	
fvw16	9/25/95	
w2j2	9/26/95	
w2j3	9/27/95	
w2j4	9/27/95	
w2k1	9/27/95	
w2j5	10/2/95	
w2j6	10/4/95	
w2j7	10/6/95	
w2j8	10/6/95	
w2j9	10/10/95	
w2j10	10/13/95	
w2j11	10/17/95	
wa1	10/20/95	
w2j12	10/22/95	
wa2	10/22/95	
wa3	10/23/95	
wb1	10/23/95	
wb2	10/24/95	
wb3	10/25/95	
wb4	10/25/95	
wb5	10/26/95	
wb6	10/27/95	
fvu17	10/31/95	
fvw17	10/31/95	
fvu18	11/1/95	
fvw18	11/1/95	
wb7	11/1/95	
wb8	11/1/95	
fvu19	11/2/95	
fvw19	11/2/95	
wb9	11/13/95	
w2j13	11/14/95	
wb10	11/20/95	
wb11	11/20/95	
w2j14	11/21/95	

wb12	11/22/95	
wb13	11/30/95	
wb14	11/30/95	
wb15	12/1/95	
wb16	12/1/95	
snrm1	12/4/95	
wb17	12/4/95	
wb18	12/4/95	
wb19	12/4/95	
acte1	12/5/95	
acte2	12/5/95	
albf1	12/5/95	
snrm2	12/5/95	
snrn1	12/5/95	
acte3	12/11/95	
albf2	12/11/95	
snrn2	12/11/95	
snrn3	12/11/95	
wb20	12/11/95	
neara2	12/12/95	
w2j	12/12/95	
fara1	12/18/95	
fara2	12/19/95	
w2k2	12/19/95	
w2k3	12/19/95	
w2k4	12/19/95	
w2k5	12/19/95	
w2k6	12/19/95	
w2k7	12/19/95	
acte4	12/22/95	
wb21	12/22/95	
acte5	1/2/96	
wb22	1/2/96	
snrn4	1/3/96	
w2k8	1/3/96	

w2k9	1/4/96	
albf3	1/4/96	
fvaa1	1/8/96	
fvab1	1/8/96	
fvac1	1/8/96	
fvad1	1/8/96	
fvw21	1/8/96	
w2j401	1/9/96	
w2j402	1/10/96	
w2j403	1/10/96	
w2j404	1/10/96	
algor2n1	1/11/96	
algor2o1	1/11/96	
algor2p1	1/11/96	
algor2p2	1/11/96	
te_algor2m1	1/11/96	
w2j405	1/11/96	
w2j406	1/11/96	
w2j407	1/11/96	
w2j408	1/11/96	
w2j409	1/11/96	
algor2p3	1/12/96	
w2j410	1/12/96	
w2j411	1/12/96	
w2j412	1/12/96	
w2j413	1/12/96	
wb23	1/12/96	
w2j414	1/13/96	
w2j415	1/13/96	
w2j416	1/13/96	
w2j417	1/13/96	
wb24	1/13/96	
acte6	1/17/96	
w2j15	1/17/96	
w2j16	1/17/96	

w2j17	1/17/96	
w2j18	1/17/96	
w2j19	1/17/96	
wb25	1/17/96	
slewa1	1/18/96	
slewa2	1/18/96	
slewa3	1/18/96	
slewa4	1/18/96	
slewa5	1/18/96	
slewa6	1/18/96	
slewa7	1/18/96	
w2j20	1/18/96	
w2k10	1/18/96	
w2k11	1/18/96	
w2k12	1/18/96	
w2k13	1/18/96	
w2k14	1/18/96	
w2k15	1/18/96	
slewa8	1/19/96	
slewa9	1/19/96	
w2k16	1/19/96	
w2k17	1/19/96	
w2k18	1/19/96	
w2k19	1/19/96	
w2k20	1/19/96	
w2k21	1/19/96	
w2k22	1/19/96	
w2k23	1/19/96	
w2k24	1/19/96	
w2k25	1/19/96	
w2k26	1/19/96	
w2k27	1/19/96	
w2k28	1/19/96	
w2k29	1/19/96	
w2k30	1/19/96	

w2k31	1/19/96	
slewa10	1/22/96	
slewa11	1/22/96	
slewa12	1/22/96	
slewa13	1/22/96	
slewa14	1/22/96	
slewa15	1/22/96	
slewa16	1/22/96	
slewa17	1/22/96	
slewa18	1/22/96	
slewa19	1/22/96	
slewa20	1/22/96	
slewa21	1/22/96	
slewa22	1/22/96	
slewa23	1/22/96	
slewa24	1/22/96	
slewa25	1/22/96	
slewa26	1/22/96	
slewa27	1/22/96	
w2k32	1/22/96	
w2k33	1/22/96	
w2k34	1/22/96	
w2k35	1/22/96	
w2k36	1/22/96	
w2k37	1/22/96	
w2k38	1/22/96	
w2k39	1/22/96	
w2k40	1/22/96	
w2k41	1/22/96	
w2k42	1/22/96	
w2k43	1/22/96	
w2k44	1/22/96	
w2k45	1/22/96	
w2k46	1/22/96	
w2k47	1/22/96	

w2k48	1/22/96	
w2k49	1/22/96	
w2k50	1/22/96	
w2k51	1/22/96	
w2k52	1/22/96	
w2k53	1/22/96	
w2k54	1/22/96	
w2k55	1/22/96	
w2k56	1/22/96	
w2k57	1/22/96	
w2k58	1/22/96	
w2k59	1/22/96	
w2k60	1/22/96	
w2k61	1/22/96	
w2k62	1/22/96	
slewa28	1/23/96	
slewa29	1/23/96	
slewa30	1/23/96	
slewa31	1/23/96	
slewa32	1/23/96	
slewa33	1/23/96	
slewa34	1/23/96	
slewa35	1/23/96	
w2k63	1/23/96	
w2k64	1/23/96	
w2k65	1/23/96	
w2k66	1/23/96	
w2k67	1/23/96	
w2k68	1/23/96	
w2k69	1/23/96	
w2k70	1/23/96	
w2k71	1/23/96	
w2k72	1/23/96	
w2k73	1/23/96	
w2k74	1/23/96	

w2k75	1/23/96	
w2k76	1/23/96	
w2k77	1/25/96	
w2k78	1/25/96	
w2k79	1/25/96	
w2k80	1/25/96	
algor2r1	2/1/96	
algor2s1	2/1/96	
fvu22	2/1/96	
fvw22	2/1/96	
fvu23	2/2/96	
fvu24	2/2/96	
fvw23	2/2/96	
fvw24	2/2/96	
fvu25	2/6/96	
w2k81	2/6/96	
w2k82	2/6/96	
w2k83	2/6/96	
acte7	2/7/96	
fvaa2	2/7/96	
fvab2	2/7/96	
fvac2	2/7/96	
fvad2	2/7/96	
wb26	2/7/96	
wb28	2/7/96	
wb29	2/7/96	
wb30	2/7/96	
wb31	2/7/96	
fvw25	2/7/96	
albf4	2/8/96	
albg1	2/8/96	
data1a2	2/8/96	
data1a3	2/8/96	
data1a4	2/8/96	
data1a5	2/8/96	

data1a6	2/8/96	
data1a7	2/8/96	
fvu26	2/8/96	
snrn5	2/8/96	
acte8	2/13/96	
albg2	2/13/96	
albg3	2/13/96	
data1a8	2/13/96	
wb32	2/13/96	
fvu27	2/14/96	
fvu28	2/14/96	
fvw27	2/14/96	
wb33	2/14/96	
alb_scan1	2/15/96	
fvaa3	2/15/96	
fvac3	2/15/96	
fvad3	2/15/96	
fvad3	2/15/96	
fvu29	2/15/96	
fvw29	2/15/96	
alb_scanb1	2/16/96	
fvaa4	2/19/96	
fvab4	2/19/96	
fvac4	2/19/96	
fvad4	2/19/96	
fvu30	2/19/96	
fvw30	2/19/96	
mcmp1a1	2/19/96	
algor2u1	2/20/96	
data1a9	2/20/96	
eqtab1a1	2/20/96	
fvu31	2/20/96	
fvw31	2/20/96	
mcmp1b1	2/20/96	
mcmp1c1	2/20/96	

algor2s2	2/21/96	
algor2u3	2/21/96	
mcmp1e1	2/21/96	
mcmp1f1	2/21/96	
mcmp1f2	2/21/96	
mcmplc4	2/21/96	
mcmplc5	2/21/96	
mcmplc6	2/21/96	
mcmpldl	2/21/96	
mcmplgl	2/21/96	
fvaa5	2/22/96	
fvab5	2/22/96	
fvac5	2/22/96	
fvad5	2/22/96	
fvae1	2/22/96	
fvaf1	2/22/96	
fvag1	2/22/96	
fvu32	2/22/96	
mcmp1h1	2/22/96	
mcmp1i1	2/22/96	
mcmp1i2	2/22/96	
w2k84	2/22/96	
wb34	2/22/96	
wb35	2/22/96	
wb36	2/22/96	
wb37	2/22/96	
wb38	2/22/96	
wb39	2/22/96	
albg4	2/23/96	
albi1	2/23/96	
w2k85	2/23/96	
w2k86	2/23/96	
mcmp1u1	2/26/96	
mcmp1k3	2/27/96	
mcmp1k4	2/27/96	

mcmp1k7	2/27/96	
mcmp1m1	2/27/96	
mcmp1u5	2/27/96	
mcmp1u6	2/27/96	
mcmp7k2	2/27/96	
w2k87	2/27/96	
w2k88	2/27/96	
tvp1	2/28/96	14:35
data1b1	2/28/96	17:53
tvp2	2/28/96	19:50
snro1	2/28/96	21:55
mcmp1u8	2/28/96	
w2k89	2/28/96	
w2m1	2/28/96	
w2m2	2/28/96	
acte9	3/2/96	10:15
scanc1	3/2/96	11:01
albj1	3/2/96	12:17
albk1	3/2/96	12:47
albj2	3/2/96	13:23
albj3	3/2/96	13:36
wb40	3/2/96	13:49
data1b2	3/2/96	14:22
data1b3	3/2/96	15:10
wb41	3/2/96	15:45
acte10	3/2/96	18:07
data1b4	3/2/96	18:29
wb42	3/2/96	18:54
acte11	3/2/96	21:35
data1b5	3/2/96	21:54
wb43	3/2/96	22:20
albj4	3/2/96	22:55
albj5	3/2/96	23:08
data1b6	3/2/96	23:23
wb44	3/2/96	23:48

marssim1	3/3/96	0:26
marssim2	3/3/96	4:30
snrp1	3/3/96	9:15
acte12	3/3/96	10:17
data1b7	3/3/96	10:44
marssim3	3/3/96	12:14
wb45	3/3/96	13:23
data1c1	3/3/96	13:47
albj6	3/3/96	14:24
albj7	3/3/96	15:09
marssim4	3/3/96	15:30
data1c2	3/3/96	16:56
marssim5	3/3/96	17:26
marssim6	3/3/96	18:14
wb46	3/3/96	20:40
wc1	3/3/96	21:01
marssim7	3/3/96	21:20
snrp2	3/3/96	22:16
marssim8	3/3/96	23:14
marssim9	3/4/96	0:24
marssim10	3/4/96	4:31
marssim11	3/4/96	8:40
acte13	3/4/96	12:05
data1b8	3/4/96	12:26
snro2	3/4/96	12:52
wb47	3/4/96	13:56
albj8	3/4/96	14:38
albj9	3/4/96	14:55
marssim12	3/4/96	15:14
data1d1	3/4/96	17:18
marssim13	3/4/96	17:49
data1d2	3/4/96	20:57
data1c3	3/4/96	21:39
marssim14	3/4/96	22:51
marssim15	3/5/96	0:24

marssim16	3/5/96	3:27
marssim17	3/5/96	6:28
marssim18	3/5/96	9:32
marssimb1	3/5/96	10:32
acte14	3/5/96	13:35
marssimb2	3/5/96	13:55
acte15	3/5/96	16:04
marssimb3	3/5/96	16:21
scanc2	3/5/96	17:28
wc2	3/5/96	17:40
acte16	3/5/96	18:41
w2k90	3/5/96	19:00
marssimb4	3/5/96	19:26
acte17	3/5/96	21:44
snrp3	3/5/96	22:01
wb48	3/5/96	23:03
marssimb5	3/6/96	0:09
marssimb6	3/6/96	1:19
marssimb7	3/6/96	3:21
marssimb8	3/6/96	5:24
marssimb9	3/6/96	7:27
w2k91	3/6/96	9:10
marssimb10	3/6/96	9:36
marssimb11	3/6/96	11:46
marssimb12	3/6/96	13:55
marssimb13	3/6/96	16:03
acte18	3/6/96	18:13
data1b9	3/6/96	18:40
data1c4	3/6/96	19:05
wb49	3/6/96	19:34
albj10	3/6/96	19:57
albj11	3/6/96	20:10
defa1	3/6/96	20:28
defa2	3/6/96	20:37
acte19	3/6/96	20:53

marssim19	3/6/96	21:11
acte20	3/6/96	22:54
data1b10	3/6/96	23:10
data1c5	3/6/96	23:34
wb50	3/7/96	0:04
albj12	3/7/96	0:23
albj13	3/7/96	0:35
acte21	3/7/96	0:53
marssim20	3/7/96	1:10
acte22	3/7/96	2:05
marssim21	3/7/96	2:22
acte23	3/7/96	3:27
marssim22	3/7/96	3:44
acte24	3/7/96	4:47
marssim23	3/7/96	5:04
acte25	3/7/96	6:07
marssim24	3/7/96	6:24
acte26	3/7/96	7:25
marssim25	3/7/96	7:42
acte27	3/7/96	8:43
marssim26	3/7/96	9:00
acte28	3/7/96	10:01
marssim27	3/7/96	10:18
acte29	3/7/96	11:19
marssim28	3/7/96	11:36
acte30	3/7/96	12:40
marssim29	3/7/96	13:01
acte31	3/7/96	14:01
marssim30	3/7/96	14:18
marssim31	3/7/96	14:47
acte32	3/7/96	15:49
marssim32	3/7/96	16:04
acte33	3/7/96	17:14
data1b11	3/7/96	17:31
snro3	3/7/96	17:55

wb51	3/7/96	18:56
albj14	3/7/96	19:16
albj15	3/7/96	19:29
marssim33	3/7/96	19:43
acte34	3/7/96	20:46
marssim34	3/7/96	21:07
acte35	3/7/96	22:07
data1b12	3/7/96	22:25
snro4	3/7/96	22:48
wb52	3/7/96	23:48
albj16	3/8/96	0:07
albj17	3/8/96	0:20
acte36	3/11/96	9:05
data1b13	3/11/96	9:22
snro5	3/11/96	9:46
wb53	3/11/96	10:46
albj18	3/11/96	11:05
albj19	3/11/96	11:19
w2n1	3/11/96	17:55
w2k92	3/12/96	11:19
w2k93	3/12/96	14:15
data1b14	3/12/96	
wb54	3/12/96	
w2n2	3/13/96	10:05
w2n3	3/13/96	17:14
acte37	3/15/96	19:02
wb55	3/15/96	19:20
data1b15	3/18/96	19:38
wb56	3/18/96	20:00
scand1	3/19/96	12:08
acte38	3/19/96	16:29
wb57	3/19/96	16:46
acte39	3/19/96	20:33
wb58	3/19/96	20:50
albj20	3/19/96	21:10

albj21	3/19/96	21:23
marssimd1	3/19/96	21:35
acte40	3/19/96	23:35
marssimd2	3/20/96	0:51
acte41	3/20/96	1:52
marssimd3	3/20/96	3:09
acte42	3/20/96	4:10
marssimd4	3/20/96	4:26
acte43	3/20/96	6:27
marssimd5	3/20/96	6:43
w2n4	3/20/96	8:26
wb59	3/20/96	9:50
data1b16	3/20/96	10:19
marssimd6	3/20/96	10:49
acte44	3/20/96	12:53
marssimd7	3/20/96	13:14
wb60	3/20/96	15:20
wb61	3/20/96	15:41
acte45	3/20/96	15:59
marssimd8	3/20/96	16:18
acte46	3/20/96	18:20
wb62	3/20/96	18:38
albj22	3/20/96	18:56
albj23	3/20/96	19:08
data1b17	3/20/96	19:25
snrq1	3/20/96	20:02
marssimd9	3/20/96	21:13
acte47	3/20/96	23:15
marssimd10	3/20/96	23:31
acte48	3/21/96	1:03
marssimd11	3/21/96	1:20
acte49	3/21/96	2:23
marssimd12	3/21/96	2:40
acte50	3/21/96	3:42
marssimd13	3/21/96	4:00

acte51	3/21/96	5:07
marssimd14	3/21/96	5:32
acte52	3/21/96	6:39
marssimd15	3/21/96	6:55
acte53	3/21/96	8:07
marssimd16	3/21/96	8:23
acte54	3/21/96	10:29
marssimd17	3/21/96	10:45
w2j21	3/21/96	12:11
marssimd18	3/21/96	13:23
w2j22	3/21/96	14:19
acte55	3/21/96	14:40
w2q1	3/21/96	14:55
marssimd19	3/21/96	15:18
w2k94	3/21/96	16:30
acte56	3/21/96	17:37
marssimd20	3/21/96	17:54
acte57	3/21/96	19:59
acte58	3/21/96	22:34
marssimd22	3/21/96	22:51
acte59	3/22/96	0:54
marssimd23	3/22/96	1:12
acte60	3/22/96	3:16
marssimd24	3/22/96	3:33
acte61	3/22/96	5:34
marssimd25	3/22/96	5:50
w2j23	3/22/96	7:45
w2q2	3/22/96	9:15
marssimd26	3/22/96	9:41
acte62	3/22/96	11:42
marssimd27	3/22/96	11:58
acte63	3/22/96	13:59
marssimd28	3/22/96	14:15
acte64	3/22/96	16:15
marssimd29	3/22/96	16:35

acte65	3/22/96	18:35
marssimd30	3/22/96	18:55
acte66	3/22/96	20:56
marssimd31	3/22/96	21:17
acte67	3/22/96	23:31
acte68	3/23/96	0:09
data1b18	3/23/96	0:27
wb63	3/23/96	0:53
albj24	3/23/96	1:12
albj25	3/23/96	1:26
marssimd32	3/23/96	1:40
acte69	3/23/96	3:44
marssimd33	3/23/96	4:01
acte70	3/23/96	6:04
marssimd34	3/23/96	6:21
acte71	3/23/96	8:25
marssimd35	3/23/96	8:44
acte72	3/23/96	10:44
marssimd36	3/23/96	11:07
acte73	3/23/96	13:09
acte74	3/23/96	13:28
marssimd37	3/23/96	13:48
w2q3	3/23/96	14:53
acte75	3/23/96	15:24
data1b19	3/23/96	15:43
wb64	3/23/96	16:08
albj26	3/23/96	16:34
albj27	3/23/96	16:46
wb65	3/25/96	16:17
wb66	3/25/96	
w2n5	3/27/96	9:57
w2n6	3/28/96	10:45
w2k95	3/29/96	
w2k96	3/29/96	
wb67	3/29/96	

wb68	3/29/96	
wb69	3/29/96	
wb70	3/30/96	
albi2	4/22/96	
albi3	4/22/96	
data1a10	4/22/96	
w2k97	4/22/96	
wb71	4/25/96	
w2k98	4/26/96	8:57
w2k100	4/26/96	
w2k101	4/26/96	
w2k102	4/26/96	
w2k99	4/26/96	
acte76	4/27/96	
data1a11	4/27/96	
fvu33	4/27/96	
fvw33	4/27/96	
snrn6	4/27/96	
wb72	4/27/96	
acte77	5/1/96	
data1a12	5/1/96	
snrn7	5/1/96	
w2k103	5/2/96	
acte78	5/3/96	
acte79	5/3/96	
data1b20	5/3/96	
snrq2	5/3/96	
w2l1	5/3/96	
wb73	5/3/96	
albi4	5/4/96	
albi5	5/4/96	
fvu34	5/4/96	
fvu35	5/4/96	
fvw35	5/4/96	
marssime1	5/4/96	

marssime2	5/4/96	
albl1	5/5/96	
acte80	5/6/96	16:36
data1b21	5/6/96	16:51
w2n7	5/6/96	17:17
scane2	5/6/96	17:24
wb74	5/6/96	17:51
albm1	5/6/96	18:32
albm2	5/6/96	18:47
acte81	5/6/96	22:04
marssime3	5/6/96	22:21
data1b22	5/6/96	22:42
wb75	5/6/96	23:06
albm3	5/6/96	23:24
albm4	5/6/96	23:40
marssime4	5/6/96	23:56
acte82	5/7/96	2:03
marssime5	5/7/96	2:21
acte83	5/7/96	4:22
marssime6	5/7/96	4:39
acte84	5/7/96	6:30
marssime7	5/7/96	6:47
acte85	5/7/96	8:50
marssime8	5/7/96	9:06
acte86	5/7/96	11:09
marssime9	5/7/96	11:26
acte87	5/7/96	13:34
acte88	5/7/96	14:18
wb76	5/7/96	14:35
acte89	5/7/96	14:56
wb77	5/7/96	15:15
acte90	5/7/96	15:42
data1b23	5/7/96	15:59
snrq3	5/7/96	16:24
wb78	5/7/96	17:26

albm5	5/7/96	17:45
albm6	5/7/96	18:01
qtza1	5/7/96	18:16
marssime10	5/7/96	18:25
acte91	5/7/96	20:27
marssime11	5/7/96	20:44
qtzb1	5/7/96	22:48
qtzc1	5/7/96	23:07
acte92	5/7/96	23:42
marssime12	5/8/96	0:00
acte93	5/8/96	2:03
marssime13	5/8/96	2:20
acte94	5/8/96	4:24
marssime14	5/8/96	4:41
acte95	5/8/96	6:44
marssime15	5/8/96	7:00
marssime16	5/8/96	9:40
marssime17	5/8/96	11:16
acte96	5/8/96	13:16
tvr1	5/8/96	13:33
tvr2	5/8/96	13:48
marssime18	5/8/96	15:12
marssime19	5/8/96	17:22
acte97	5/8/96	19:25
marssime20	5/8/96	19:43
marssime21	5/8/96	21:17
acte98	5/8/96	23:18
marssime22	5/8/96	23:34
marssime23	5/9/96	1:37
acte99	5/9/96	3:39
marssime24	5/9/96	3:56
marssime25	5/9/96	5:57
acte100	5/9/96	8:00
marssime26	5/9/96	8:17
marssime27	5/9/96	10:18

data1f1	5/9/96	10:30
marssime28	5/9/96	11:07
marssime29	5/9/96	13:15
acte101	5/9/96	15:16
marssime30	5/9/96	15:33
wb79	5/9/96	17:33
wb80	5/9/96	17:52
marssime31	5/9/96	18:12
acte102	5/9/96	20:48
marssime32	5/9/96	21:05
marssime33	5/9/96	23:09
acte103	5/10/96	1:11
marssime34	5/10/96	1:33
marssime35	5/10/96	3:38
acte104	5/10/96	5:38
marssime36	5/10/96	6:07
snrq4	5/10/96	8:09
marssime37	5/10/96	8:44
tvr3	5/10/96	9:51
wb81	5/10/96	11:30
marssime38	5/10/96	11:53
snrq5	5/10/96	12:30
marssime39	5/10/96	13:34
tvs1	5/10/96	15:40
marssime40	5/10/96	17:19
albm7	5/10/96	17:50
albm8	5/10/96	18:05
marssime41	5/10/96	18:59
marssime42	5/10/96	21:02
acte105	5/10/96	23:14
marssime43	5/10/96	23:35
marssime44	5/11/96	1:35
acte106	5/11/96	3:35
marssime45	5/11/96	3:53
marssime46	5/11/96	5:53

acte107	5/11/96	7:53
acte108	5/11/96	8:10
marssime47	5/11/96	8:27
acte109	5/11/96	10:55
data1b24	5/11/96	11:20
w2k104	5/13/96	
w2k105	5/13/96	
w2k106	5/13/96	
acte110	5/14/96	15:05
albm9	5/14/96	15:26
albm10	5/14/96	15:42
data1b25	5/14/96	16:17
wb82	5/14/96	16:50
w2k110	5/14/96	17:41
wb83	5/14/96	18:07
w2k107	5/14/96	
marssime48	5/15/96	8:33
marssime49	5/15/96	10:41
marssime50	5/15/96	12:43
marssime51	5/15/96	14:55
marssime52	5/15/96	16:59
marssime53	5/15/96	18:09
marssime54	5/15/96	20:24
acte111	5/15/96	22:28
albm11	5/15/96	22:45
albm12	5/15/96	23:00
data1b26	5/15/96	23:16
wb84	5/15/96	23:41
snrq6	5/16/96	0:07
marssime55	5/16/96	1:09
marssime56	5/16/96	3:10
marssime57	5/16/96	5:12
marssime58	5/16/96	7:13
marssime59	5/16/96	9:14
marssime60	5/16/96	10:22

marssime61	5/16/96	12:30
marssime62	5/16/96	14:33
marssime63	5/16/96	16:38
marssime64	5/16/96	18:33
marssime65	5/16/96	20:33
marssime66	5/16/96	21:58
marssime67	5/17/96	0:19
acte112	5/17/96	2:29
tvr4	5/17/96	2:46
marssime68	5/17/96	5:50
tvr5	5/17/96	8:32
marssime69	5/17/96	12:47
tvr6	5/17/96	14:54
tvs2	5/17/96	18:23
marssime70	5/17/96	19:48
acte113	5/17/96	21:56
albm13	5/17/96	22:16
albm14	5/17/96	22:35
wb85	5/17/96	22:51
data1e1	5/17/96	23:10
snrr1	5/17/96	23:39
tvt2	5/18/96	0:47
data1f2	5/18/96	2:13
tvu1	5/18/96	2:46
tvu2	5/18/96	3:03
snrs1	5/18/96	4:39
marssime71	5/18/96	5:46
marssime72	5/18/96	7:44
tvt3	5/18/96	10:05
marssime73	5/18/96	11:34
tvt4	5/18/96	13:05
tvu3	5/18/96	14:19
marssime74	5/18/96	15:37
marssime75	5/18/96	17:47
qtzd1	5/18/96	19:50

marssime76	5/18/96	20:11
marssime77	5/18/96	22:43
marssime78	5/19/96	0:45
tvt5	5/19/96	2:48
tvu4	5/19/96	4:10
marssime79	5/19/96	5:32
tvt6	5/19/96	7:30
tvu5	5/19/96	8:46
marssime80	5/19/96	10:15
tvt7	5/19/96	13:34
tvu6	5/19/96	14:51
acte114	5/19/96	16:10
data1e2	5/19/96	16:35
snrr2	5/19/96	17:06
wb86	5/19/96	18:13
albm15	5/19/96	18:32
albm16	5/19/96	18:48
data1f3	5/19/96	19:05
snrs2	5/19/96	19:35
marssime81	5/19/96	20:38
tvt8	5/19/96	23:39
tvu7	5/20/96	0:56
marssime82	5/20/96	2:42
tvt9	5/20/96	4:44
tvu8	5/20/96	6:07
marssime83	5/20/96	7:35
marssime84	5/20/96	9:45
marssime85	5/20/96	11:45
marssime86	5/20/96	13:45
marssime87	5/20/96	15:47
marssime88	5/20/96	17:43
marssime89	5/20/96	19:44
marssime90	5/20/96	21:46
tvt10	5/20/96	23:21
tvu9	5/21/96	0:41

marssime91	5/21/96	2:03
marssime92	5/21/96	4:10
tvt11	5/21/96	5:05
tvu10	5/21/96	6:30
marssime93	5/21/96	8:05
tvt12	5/21/96	10:13
tvu11	5/21/96	11:47
w2k111	5/21/96	12:58
w2k112	5/21/96	14:17
data1e3	5/21/96	14:35
marssime94	5/21/96	15:33
tvt13	5/21/96	16:34
tvu12	5/21/96	18:12
marssime95	5/21/96	19:29
acte115	5/21/96	21:40
albm17	5/21/96	22:09
albm18	5/21/96	22:24
data1e4	5/21/96	22:40
data1f4	5/21/96	23:11
wb87	5/21/96	23:46
snrr3	5/22/96	0:13
snrs3	5/22/96	1:17
tvt14	5/22/96	2:29
tvu13	5/22/96	3:49
marssime96	5/22/96	5:07
tvt15	5/22/96	7:22
tvu14	5/22/96	8:37
marssime97	5/22/96	10:12
tvt16	5/22/96	11:23
tvu15	5/22/96	12:42
marssime98	5/22/96	14:00
tvt17	5/22/96	15:46
tvu16	5/22/96	17:00
marssime99	5/22/96	18:36
tvt18	5/22/96	19:24

marssime100	5/22/96	20:05
w2n8	5/22/96	22:48
marssime101	5/22/96	23:10
marssime102	5/23/96	0:05
marssime103	5/23/96	2:07
marssime104	5/23/96	4:07
marssime105	5/23/96	6:07
marssime106	5/23/96	9:09
tvt19	5/23/96	10:43
tvu17	5/23/96	12:10
marssime107	5/23/96	13:42
tvt20	5/23/96	15:26
w2n9	5/23/96	16:55
tvu18	5/23/96	17:18
marssime108	5/23/96	18:41
tvt21	5/23/96	20:41
tvu19	5/23/96	21:57
marssime109	5/23/96	23:20
acte116	5/24/96	1:42
albm19	5/24/96	1:59
albm20	5/24/96	2:14
wb88	5/24/96	2:31
data1f5	5/24/96	3:12
snrs4	5/24/96	3:42
tvt22	5/24/96	5:28
tvu20	5/24/96	6:46
marssime110	5/24/96	8:10
tvu21	5/24/96	9:51
marssime111	5/24/96	11:20
tvu22	5/24/96	12:14
marssime112	5/24/96	13:29
marssime113	5/24/96	15:30
marssime114	5/24/96	17:31
marssime115	5/24/96	19:32
marssime116	5/24/96	21:55

tvt23	5/24/96	22:58
tvu23	5/25/96	0:20
marssime117	5/25/96	1:39
tvu24	5/25/96	3:17
marssime118	5/25/96	4:37
tvu25	5/25/96	6:10
marssime119	5/25/96	7:25
bcu2	5/25/96	7:39
tvt24	5/25/96	9:35
tvu26	5/25/96	10:50
snrs5	5/25/96	13:14
acte117	5/25/96	13:21
data1f6	5/25/96	13:37
data1e5	5/25/96	14:09
wb89	5/25/96	14:42
albm21	5/25/96	15:01
albm22	5/25/96	15:16
qtze1	5/25/96	15:34
marssime120	5/25/96	16:02
tvu27	5/25/96	17:12
marssime121	5/25/96	18:36
tvt25	5/25/96	19:49
tvu28	5/25/96	21:09
marssime122	5/25/96	22:36
tvu29	5/25/96	23:25
w2n10	5/26/96	0:11
orbit2	5/26/96	0:16
qtze2	5/26/96	0:26
w2n11	5/26/96	0:59
acte118	5/26/96	9:50
albm23	5/26/96	10:08
albm24	5/26/96	10:26
data1b27	5/26/96	10:42
wb90	5/26/96	11:11
wb91	5/26/96	11:28

wb92	5/26/96	11:46
data1b28	5/26/96	14:42
data1b29	5/26/96	15:32
data1b30	5/26/96	16:19
data1b31	5/26/96	16:37
data1b32	5/26/96	17:11
actf1	5/26/96	18:55
wd1	5/26/96	19:40
data1g1	5/26/96	20:01
quiet1b1	5/29/96	11:40
actf2	5/29/96	
actf3	5/29/96	
actf4	5/29/96	
datalg2	5/29/96	
w2r1	5/29/96	
wd2	5/29/96	
tes_data1a1	6/1/96	
tes_data1a2	6/1/96	
tes_funca1	6/1/96	
tes_quiet1a2	6/1/96	
tes_wba1	6/1/96	
tes_scfb1	6/3/96	
tes_scfb2	6/4/96	
tes_scfc1	6/4/96	
tes_scf2a1	6/10/96	
tes_marssima1	6/12/96	
tes_marssima2	6/12/96	
tes_scfc2	6/17/96	
tes_prom3	6/18/96	
tes_prom1	6/20/96	
tes_prom2	6/20/96	
tes_marssimb2	6/24/96	19:15
tes_marssimb1	6/24/96	
tes_marssimb3	6/25/96	16:05
tes_marssimb4	6/25/96	19:33

tes_quiet2a1	6/25/96	19:34
tes_marssimb5	6/25/96	20:04
tes_marssimb6	6/28/96	19:44
tes_marssimb7	6/29/96	13:00
tes_data2a1	6/29/96	14:42
tes_marssimb8	6/29/96	15:29
tes_marssimb9	6/29/96	
tes_marssimb10	6/30/96	13:55
tes_data2b1	7/1/96	13:37
tes_marssimb11	7/1/96	14:07
tes_quiet2a2	7/5/96	16:53
tes_prom4	7/16/96	
tes_scf2a3	7/17/96	
tes_data1a3	7/18/96	20:50
tes_funca2	7/18/96	
tes_quiet1a3	7/18/96	
tes_noisy1a1	7/20/96	
tes_quiet1a4	7/20/96	
tes_quiet1a5	7/20/96	
tes_quiet1a6	7/20/96	
tes_prom5	7/22/96	
tes_prom6	8/20/96	14:00
tes_scf2a4	8/21/96	16:00
tes_scf2a5	8/22/96	
tes_quiet1a7	8/23/96	15:30
tes_noisy1a2	8/23/96	16:14
tes_funca3	8/23/96	16:54
tes_prom7	8/23/96	17:19
tes_data1a4	8/23/96	18:27
tes_prom8	8/27/96	19:05

Table A8
TES Full Functionality Tests

acte1	12/5/95	
acte2	12/5/95	
acte3	12/11/95	
acte4	12/22/95	
acte5	1/2/96	
acte6	1/17/96	
acte7	2/7/96	
acte8	2/13/96	
acte9	3/2/96	10:15
acte10	3/2/96	18:07
acte11	3/2/96	21:35
acte12	3/3/96	10:17
acte13	3/4/96	12:05
acte14	3/5/96	13:35
acte15	3/5/96	16:04
acte16	3/5/96	18:41
acte17	3/5/96	21:44
acte18	3/6/96	18:13
acte19	3/6/96	20:53
acte20	3/6/96	22:54
acte21	3/7/96	0:53
acte22	3/7/96	2:05
acte23	3/7/96	3:27
acte24	3/7/96	4:47
acte25	3/7/96	6:07
acte26	3/7/96	7:25
acte27	3/7/96	8:43
acte28	3/7/96	10:01
acte29	3/7/96	11:19
acte30	3/7/96	12:40
acte31	3/7/96	14:01
acte32	3/7/96	15:49
acte33	3/7/96	17:14
acte34	3/7/96	20:46
acte35	3/7/96	22:07
acte36	3/11/96	9:05
acte37	3/15/96	19:02
acte38	3/19/96	16:29
acte39	3/19/96	20:33
acte40	3/19/96	23:35
acte41	3/20/96	1:52
acte42	3/20/96	4:10
acte43	3/20/96	6:27
acte44	3/20/96	12:53
acte45	3/20/96	15:59
acte46	3/20/96	18:20
acte47	3/20/96	23:15
acte48	3/21/96	1:03
acte49	3/21/96	2:23
acte50	3/21/96	3:42
acte51	3/21/96	5:07
acte52	3/21/96	6:39
acte53	3/21/96	8:07
acte54	3/21/96	10:29
acte55	3/21/96	14:40
acte56	3/21/96	17:37
acte57	3/21/96	19:59
acte58	3/21/96	22:34
acte59	3/22/96	0:54
acte60	3/22/96	3:16
acte61	3/22/96	5:34
acte62	3/22/96	11:42
acte63	3/22/96	13:59
acte64	3/22/96	16:15
acte65	3/22/96	18:35
acte66	3/22/96	20:56
acte67	3/22/96	23:31

acte68	3/23/96	0:09
acte69	3/23/96	3:44
acte70	3/23/96	6:04
acte71	3/23/96	8:25
acte72	3/23/96	10:44
acte73	3/23/96	13:09
acte74	3/23/96	13:28
acte75	3/23/96	15:24
acte76	4/27/96	
acte77	5/1/96	
acte78	5/3/96	
acte79	5/3/96	
acte80	5/6/96	16:36
acte81	5/6/96	22:04
acte82	5/7/96	2:03
acte83	5/7/96	4:22
acte84	5/7/96	6:30
acte85	5/7/96	8:50
acte86	5/7/96	11:09
acte87	5/7/96	13:34
acte88	5/7/96	14:18
acte89	5/7/96	14:56
acte90	5/7/96	15:42
acte91	5/7/96	20:27
acte92	5/7/96	23:42
acte93	5/8/96	2:03
acte94	5/8/96	4:24
acte95	5/8/96	6:44
acte96	5/8/96	13:16
acte97	5/8/96	19:25
acte98	5/8/96	23:18
acte99	5/9/96	3:39
acte100	5/9/96	8:00
acte101	5/9/96	15:16
acte102	5/9/96	20:48

acte103	5/10/96	1:11
acte104	5/10/96	5:38
acte105	5/10/96	23:14
acte106	5/11/96	3:35
acte107	5/11/96	7:53
acte108	5/11/96	8:10
acte109	5/11/96	10:55
acte110	5/14/96	15:05
acte111	5/15/96	22:28
acte112	5/17/96	2:29
acte113	5/17/96	21:56
acte114	5/19/96	16:10
acte115	5/21/96	21:40
acte116	5/24/96	1:42
acte117	5/25/96	13:21
acte118	5/26/96	9:50
actf1	5/26/96	18:55
actf2	5/29/96	
actf3	5/29/96	
actf4	5/29/96	
tes_funca1	6/1/96	
tes_funca2	7/18/96	
tes_funca3	8/23/96	16:54

Albedo Tests

albf1	12/5/95	
albf2	12/11/95	
albf3	1/4/96	
albf4	2/8/96	
albg1	2/8/96	
albg2	2/13/96	
albg3	2/13/96	
albg4	2/23/96	
albi1	2/23/96	
albi2	4/22/96	
albi3	4/22/96	
albi4	5/4/96	
albi5	5/4/96	
albj1	3/2/96	12:17
albj2	3/2/96	13:23
albj3	3/2/96	13:36
albj4	3/2/96	22:55
albj5	3/2/96	23:08
albj6	3/3/96	14:24
albj7	3/3/96	15:09
albj8	3/4/96	14:38
albj9	3/4/96	14:55
albj10	3/6/96	19:57
albj11	3/6/96	20:10
albj12	3/7/96	0:23
albj13	3/7/96	0:35
albj14	3/7/96	19:16
albj15	3/7/96	19:29
albj16	3/8/96	0:07
albj17	3/8/96	0:20
albj18	3/11/96	11:05
albj19	3/11/96	11:19
albj20	3/19/96	21:10
albj21	3/19/96	21:23
albj22	3/20/96	18:56
albj23	3/20/96	19:08
albj24	3/23/96	1:12
albj25	3/23/96	1:26
albj26	3/23/96	16:34
albj27	3/23/96	16:46
albk1	3/2/96	12:47
albl1	5/5/96	
albm1	5/6/96	18:32
albm2	5/6/96	18:47
albm3	5/6/96	23:24
albm4	5/6/96	23:40
albm5	5/7/96	17:45
albm6	5/7/96	18:01
albm7	5/10/96	17:50
albm8	5/10/96	18:05
albm9	5/14/96	15:26
albm10	5/14/96	15:42
albm11	5/15/96	22:45
albm12	5/15/96	23:00
albm13	5/17/96	22:16
albm14	5/17/96	22:35
albm15	5/19/96	18:32
albm16	5/19/96	18:48
albm17	5/21/96	22:09
albm18	5/21/96	22:24
albm19	5/24/96	1:59
albm20	5/24/96	2:14
albm21	5/25/96	15:01
albm22	5/25/96	15:16
albm23	5/26/96	10:08
albm24	5/26/96	10:26
alb_scan1	2/15/96	
alb_scanb1	2/16/96	

Flight Algorithm Patch Tests

algor2n1	1/11/96	
algor2o1	1/11/96	
algor2p1	1/11/96	
algor2p2	1/11/96	
algor2p3	1/12/96	
algor2r1	2/1/96	
algor2s1	2/1/96	
algor2s2	2/21/96	
algor2u1	2/20/96	
algor2u3	2/21/96	
te_algor2m1	1/11/96	

Data Tests

data1a2	2/8/96	
data1a3	2/8/96	
data1a4	2/8/96	
data1a5	2/8/96	
data1a6	2/8/96	
data1a7	2/8/96	
data1a8	2/13/96	
data1a9	2/20/96	
data1a10	4/22/96	
data1a11	4/27/96	
data1a12	5/1/96	
data1b1	2/28/96	17:53
data1b2	3/2/96	14:22
data1b3	3/2/96	15:10
data1b4	3/2/96	18:29
data1b5	3/2/96	21:54
data1b6	3/2/96	23:23
data1b7	3/3/96	10:44
data1b8	3/4/96	12:26
data1b9	3/6/96	18:40
data1b10	3/6/96	23:10
data1b11	3/7/96	17:31
data1b12	3/7/96	22:25
data1b13	3/11/96	9:22
data1b14	3/12/96	
data1b15	3/18/96	19:38
data1b16	3/20/96	10:19
data1b17	3/20/96	19:25
data1b18	3/23/96	0:27
data1b19	3/23/96	15:43
data1b20	5/3/96	
data1b21	5/6/96	16:51
data1b22	5/6/96	22:42
data1b23	5/7/96	15:59
data1b24	5/11/96	11:20
data1b25	5/14/96	16:17
data1b26	5/15/96	23:16
data1b27	5/26/96	10:42
data1b28	5/26/96	14:42
data1b29	5/26/96	15:32
data1b30	5/26/96	16:19
data1b31	5/26/96	16:37
data1b32	5/26/96	17:11
data1c1	3/3/96	13:47
data1c2	3/3/96	16:56
data1c3	3/4/96	21:39
data1c4	3/6/96	19:05
data1c5	3/6/96	23:34
data1d1	3/4/96	17:18
data1d2	3/4/96	20:57
data1e1	5/17/96	23:10
data1e2	5/19/96	16:35
data1e3	5/21/96	14:35
data1e4	5/21/96	22:40
data1e5	5/25/96	14:09
data1f1	5/9/96	10:30
data1f2	5/18/96	2:13
data1f3	5/19/96	19:05
data1f4	5/21/96	23:11
data1f5	5/24/96	3:12
data1f6	5/25/96	13:37
data1g1	5/26/96	20:01
datalg2	5/29/96	

Field of View Tests

fara1	12/18/95	
fara2	12/19/95	
fvaa1	1/8/96	
fvaa2	2/7/96	
fvaa3	2/15/96	
fvaa4	2/19/96	
fvaa5	2/22/96	
fvab1	1/8/96	
fvab2	2/7/96	
fvab4	2/19/96	
fvab5	2/22/96	
fvac1	1/8/96	
fvac2	2/7/96	
fvac3	2/15/96	
fvac4	2/19/96	
fvac5	2/22/96	
fvad1	1/8/96	
fvad2	2/7/96	
fvad3	2/15/96	
fvad3	2/15/96	
fvad4	2/19/96	
fvad5	2/22/96	
fvae1	2/22/96	
fvaf1	2/22/96	
fvag1	2/22/96	
fvu1	9/5/95	
fvu2	9/7/95	
fvu3	9/8/95	
fvu4	9/8/95	
fvu5	9/13/95	
fvu6	9/14/95	
fvu7	9/15/95	
fvu8	9/18/95	
fvu13	9/19/95	
fvu15	9/21/95	
fvu16	9/25/95	
fvu17	10/31/95	
fvu18	11/1/95	
fvu19	11/2/95	
fvu22	2/1/96	
fvu23	2/2/96	
fvu24	2/2/96	
fvu25	2/6/96	
fvu26	2/8/96	
fvu27	2/14/96	
fvu28	2/14/96	
fvu29	2/15/96	
fvu30	2/19/96	
fvu31	2/20/96	
fvu32	2/22/96	
fvu33	4/27/96	
fvu34	5/4/96	
fvu35	5/4/96	
fvw1	9/5/95	
fvw2	9/7/95	
fvw3	9/8/95	
fvw4	9/8/95	
fvw5	9/8/95	
fvw6	9/15/95	
fvw7	9/15/95	
fvw8	9/18/95	
fvw9	9/18/95	
fvw10	9/19/95	
fvw11	9/19/95	
fvw12	9/19/95	
fvw13	9/19/95	
fvw14	9/20/95	
fvw15	9/21/95	

fvw16	9/25/95	
fvw17	10/31/95	
fvw18	11/1/95	
fvw19	11/2/95	
fvw21	1/8/96	
fvw22	2/1/96	
fvw23	2/2/96	
fvw24	2/2/96	
fvw25	2/7/96	
fvw27	2/14/96	
fvw29	2/15/96	
fvw30	2/19/96	
fvw31	2/20/96	
fvw33	4/27/96	
fvw35	5/4/96	

neara2	12/12/95	

vfu1	8/16/95	
vfw1	8/16/95	

Mars Simulation/Temperature Transition Tests

marssim1	3/3/96	0:26
marssim2	3/3/96	4:30
marssim3	3/3/96	12:14
marssim4	3/3/96	15:30
marssim5	3/3/96	17:26
marssim6	3/3/96	18:14
marssim7	3/3/96	21:20
marssim8	3/3/96	23:14
marssim9	3/4/96	0:24
marssim10	3/4/96	4:31
marssim11	3/4/96	8:40
marssim12	3/4/96	15:14
marssim13	3/4/96	17:49
marssim14	3/4/96	22:51
marssim15	3/5/96	0:24
marssim16	3/5/96	3:27
marssim17	3/5/96	6:28
marssim18	3/5/96	9:32
marssim19	3/6/96	21:11
marssim20	3/7/96	1:10
marssim21	3/7/96	2:22
marssim22	3/7/96	3:44
marssim23	3/7/96	5:04
marssim24	3/7/96	6:24
marssim25	3/7/96	7:42
marssim26	3/7/96	9:00
marssim27	3/7/96	10:18
marssim28	3/7/96	11:36
marssim29	3/7/96	13:01
marssim30	3/7/96	14:18
marssim31	3/7/96	14:47
marssim32	3/7/96	16:04
marssim33	3/7/96	19:43
marssim34	3/7/96	21:07
marssimb1	3/5/96	10:32
marssimb2	3/5/96	13:55
marssimb3	3/5/96	16:21
marssimb4	3/5/96	19:26
marssimb5	3/6/96	0:09
marssimb6	3/6/96	1:19
marssimb7	3/6/96	3:21
marssimb8	3/6/96	5:24
marssimb9	3/6/96	7:27
marssimb10	3/6/96	9:36
marssimb11	3/6/96	11:46
marssimb12	3/6/96	13:55
marssimb13	3/6/96	16:03
marssimd1	3/19/96	21:35
marssimd2	3/20/96	0:51
marssimd3	3/20/96	3:09
marssimd4	3/20/96	4:26
marssimd5	3/20/96	6:43
marssimd6	3/20/96	10:49
marssimd7	3/20/96	13:14
marssimd8	3/20/96	16:18
marssimd9	3/20/96	21:13
marssimd10	3/20/96	23:31
marssimd11	3/21/96	1:20
marssimd12	3/21/96	2:40
marssimd13	3/21/96	4:00
marssimd14	3/21/96	5:32
marssimd15	3/21/96	6:55
marssimd16	3/21/96	8:23
marssimd17	3/21/96	10:45
marssimd18	3/21/96	13:23
marssimd19	3/21/96	15:18
marssimd20	3/21/96	17:54
marssimd22	3/21/96	22:51

marssimd23	3/22/96	1:12
marssimd24	3/22/96	3:33
marssimd25	3/22/96	5:50
marssimd26	3/22/96	9:41
marssimd27	3/22/96	11:58
marssimd28	3/22/96	14:15
marssimd29	3/22/96	16:35
marssimd30	3/22/96	18:55
marssimd31	3/22/96	21:17
marssimd32	3/23/96	1:40
marssimd33	3/23/96	4:01
marssimd34	3/23/96	6:21
marssimd35	3/23/96	8:44
marssimd36	3/23/96	11:07
marssimd37	3/23/96	13:48
marssime1	5/4/96	
marssime2	5/4/96	
marssime3	5/6/96	22:21
marssime4	5/6/96	23:56
marssime5	5/7/96	2:21
marssime6	5/7/96	4:39
marssime7	5/7/96	6:47
marssime8	5/7/96	9:06
marssime9	5/7/96	11:26
marssime10	5/7/96	18:25
marssime11	5/7/96	20:44
marssime12	5/8/96	0:00
marssime13	5/8/96	2:20
marssime14	5/8/96	4:41
marssime15	5/8/96	7:00
marssime16	5/8/96	9:40
marssime17	5/8/96	11:16
marssime18	5/8/96	15:12
marssime19	5/8/96	17:22
marssime20	5/8/96	19:43

marssime21	5/8/96	21:17
marssime22	5/8/96	23:34
marssime23	5/9/96	1:37
marssime24	5/9/96	3:56
marssime25	5/9/96	5:57
marssime26	5/9/96	8:17
marssime27	5/9/96	10:18
marssime28	5/9/96	11:07
marssime29	5/9/96	13:15
marssime30	5/9/96	15:33
marssime31	5/9/96	18:12
marssime32	5/9/96	21:05
marssime33	5/9/96	23:09
marssime34	5/10/96	1:33
marssime35	5/10/96	3:38
marssime36	5/10/96	6:07
marssime37	5/10/96	8:44
marssime38	5/10/96	11:53
marssime39	5/10/96	13:34
marssime40	5/10/96	17:19
marssime41	5/10/96	18:59
marssime42	5/10/96	21:02
marssime43	5/10/96	23:35
marssime44	5/11/96	1:35
marssime45	5/11/96	3:53
marssime46	5/11/96	5:53
marssime47	5/11/96	8:27
marssime48	5/15/96	8:33
marssime49	5/15/96	10:41
marssime50	5/15/96	12:43
marssime51	5/15/96	14:55
marssime52	5/15/96	16:59
marssime53	5/15/96	18:09
marssime54	5/15/96	20:24
marssime55	5/16/96	1:09

marssime56	5/16/96	3:10
marssime57	5/16/96	5:12
marssime58	5/16/96	7:13
marssime59	5/16/96	9:14
marssime60	5/16/96	10:22
marssime61	5/16/96	12:30
marssime62	5/16/96	14:33
marssime63	5/16/96	16:38
marssime64	5/16/96	18:33
marssime65	5/16/96	20:33
marssime66	5/16/96	21:58
marssime67	5/17/96	0:19
marssime68	5/17/96	5:50
marssime69	5/17/96	12:47
marssime70	5/17/96	19:48
marssime71	5/18/96	5:46
marssime72	5/18/96	7:44
marssime73	5/18/96	11:34
marssime74	5/18/96	15:37
marssime75	5/18/96	17:47
marssime76	5/18/96	20:11
marssime77	5/18/96	22:43
marssime78	5/19/96	0:45
marssime79	5/19/96	5:32
marssime80	5/19/96	10:15
marssime81	5/19/96	20:38
marssime82	5/20/96	2:42
marssime83	5/20/96	7:35
marssime84	5/20/96	9:45
marssime85	5/20/96	11:45
marssime86	5/20/96	13:45
marssime87	5/20/96	15:47
marssime88	5/20/96	17:43
marssime89	5/20/96	19:44
marssime90	5/20/96	21:46

marssime91	5/21/96	2:03
marssime92	5/21/96	4:10
marssime93	5/21/96	8:05
marssime94	5/21/96	15:33
marssime95	5/21/96	19:29
marssime96	5/22/96	5:07
marssime97	5/22/96	10:12
marssime98	5/22/96	14:00
marssime99	5/22/96	18:36
marssime100	5/22/96	20:05
marssime101	5/22/96	23:10
marssime102	5/23/96	0:05
marssime103	5/23/96	2:07
marssime104	5/23/96	4:07
marssime105	5/23/96	6:07
marssime106	5/23/96	9:09
marssime107	5/23/96	13:42
marssime108	5/23/96	18:41
marssime109	5/23/96	23:20
marssime110	5/24/96	8:10
marssime111	5/24/96	11:20
marssime112	5/24/96	13:29
marssime113	5/24/96	15:30
marssime114	5/24/96	17:31
marssime115	5/24/96	19:32
marssime116	5/24/96	21:55
marssime117	5/25/96	1:39
marssime118	5/25/96	4:37
marssime119	5/25/96	7:25
marssime120	5/25/96	16:02
marssime121	5/25/96	18:36
marssime122	5/25/96	22:36

tes_marssima1	6/12/96	
tes_marssima2	6/12/96	
tes_marssimb1	6/24/96	
tes_marssimb2	6/24/96	19:15
tes_marssimb3	6/25/96	16:05
tes_marssimb4	6/25/96	19:33
tes_marssimb5	6/25/96	20:04
tes_marssimb6	6/28/96	19:44
tes_marssimb7	6/29/96	13:00
tes_marssimb8	6/29/96	15:29
tes_marssimb9	6/29/96	
tes_marssimb10	6/30/96	13:55
tes_marssimb11	7/1/96	14:07

mcmp1a1	2/19/96	
mcmp1b1	2/20/96	
mcmp1c1	2/20/96	
mcmp1e1	2/21/96	
mcmp1f1	2/21/96	
mcmp1f2	2/21/96	
mcmp1h1	2/22/96	
mcmp1i1	2/22/96	
mcmp1i2	2/22/96	
mcmp1k3	2/27/96	
mcmp1k4	2/27/96	
mcmp1k7	2/27/96	
mcmp1m1	2/27/96	
mcmp1u1	2/26/96	
mcmp1u5	2/27/96	
mcmp1u6	2/27/96	
mcmp1u8	2/28/96	
mcmp7k2	2/27/96	
mcmplc4	2/21/96	
mcmplc5	2/21/96	
mcmplc6	2/21/96	
mcmpldl	2/21/96	
mcmplgl	2/21/96	

Special Quartz Test in TV Chamber

qtza1	5/7/96	18:16
qtzb1	5/7/96	22:48
qtzc1	5/7/96	23:07
qtzd1	5/18/96	19:50
qtze1	5/25/96	15:34
qtze2	5/26/96	0:26

Instrument Quiet Mode Tests

quiet1b1	5/29/96	11:40

tes_quiet1a2	6/1/96	
tes_quiet1a3	7/18/96	
tes_quiet1a4	7/20/96	
tes_quiet1a5	7/20/96	
tes_quiet1a6	7/20/96	
tes_quiet1a7	8/23/96	15:30
tes_quiet2a1	6/25/96	19:34
tes_quiet2a2	7/5/96	16:53

TES Noisy Tests

tes_noisy1a1	7/20/96	
tes_noisy1a2	8/23/96	16:14

TV Position Scan Tests

scanc1	3/2/96	11:01
scanc2	3/5/96	17:28
scand1	3/19/96	12:08
scane2	5/6/96	17:24

EMC/EMI Slew Noise Generation Tests

slewa1	1/18/96	
slewa2	1/18/96	
slewa3	1/18/96	
slewa4	1/18/96	
slewa5	1/18/96	
slewa6	1/18/96	
slewa7	1/18/96	
slewa8	1/19/96	
slewa9	1/19/96	
slewa10	1/22/96	
slewa11	1/22/96	
slewa12	1/22/96	
slewa13	1/22/96	
slewa14	1/22/96	
slewa15	1/22/96	
slewa16	1/22/96	
slewa17	1/22/96	
slewa18	1/22/96	
slewa19	1/22/96	
slewa20	1/22/96	
slewa21	1/22/96	
slewa22	1/22/96	
slewa23	1/22/96	
slewa24	1/22/96	
slewa25	1/22/96	
slewa26	1/22/96	
slewa27	1/22/96	
slewa28	1/23/96	
slewa29	1/23/96	
slewa30	1/23/96	
slewa31	1/23/96	
slewa32	1/23/96	
slewa33	1/23/96	
slewa34	1/23/96	
slewa35	1/23/96	

SNR Tests

snrm1	12/4/95	
snrm2	12/5/95	
snrn1	12/5/95	
snrn2	12/11/95	
snrn3	12/11/95	
snrn4	1/3/96	
snrn5	2/8/96	
snrn6	4/27/96	
snrn7	5/1/96	
snro1	2/28/96	21:55
snro2	3/4/96	12:52
snro3	3/7/96	17:55
snro4	3/7/96	22:48
snro5	3/11/96	9:46
snrp1	3/3/96	9:15
snrp2	3/3/96	22:16
snrp3	3/5/96	22:01
snrq1	3/20/96	20:02
snrq2	5/3/96	
snrq3	5/7/96	16:24
snrq4	5/10/96	8:09
snrq5	5/10/96	12:30
snrq6	5/16/96	0:07
snrr1	5/17/96	23:39
snrr2	5/19/96	17:06
snrr3	5/22/96	0:13
snrs1	5/18/96	4:39
snrs2	5/19/96	19:35
snrs3	5/22/96	1:17
snrs4	5/24/96	3:42
snrs5	5/25/96	13:14

TES Turn-on PROM Tests

tes_prom1	6/20/96	
tes_prom2	6/20/96	
tes_prom3	6/18/96	
tes_prom4	7/16/96	
tes_prom5	7/22/96	
tes_prom6	8/20/96	14:00
tes_prom7	8/23/96	17:19
tes_prom8	8/27/96	19:05

tes_scf2a1	6/10/96	
tes_scf2a3	7/17/96	
tes_scf2a4	8/21/96	16:00
tes_scf2a5	8/22/96	
tes_scfb1	6/3/96	
tes_scfb2	6/4/96	
tes_scfc1	6/4/96	
tes_scfc2	6/17/96	

Thermal Vacuum Tests

tvp1	2/28/96	14:35
tvp2	2/28/96	19:50
tvr1	5/8/96	13:33
tvr2	5/8/96	13:48
tvr3	5/10/96	9:51
tvr4	5/17/96	2:46
tvr5	5/17/96	8:32
tvr6	5/17/96	14:54
tvs1	5/10/96	15:40
tvs2	5/17/96	18:23
tvt2	5/18/96	0:47
tvt3	5/18/96	10:05
tvt4	5/18/96	13:05
tvt5	5/19/96	2:48
tvt6	5/19/96	7:30
tvt7	5/19/96	13:34
tvt8	5/19/96	23:39
tvt9	5/20/96	4:44
tvt10	5/20/96	23:21
tvt11	5/21/96	5:05
tvt12	5/21/96	10:13
tvt13	5/21/96	16:34
tvt14	5/22/96	2:29
tvt15	5/22/96	7:22
tvt16	5/22/96	11:23
tvt17	5/22/96	15:46
tvt18	5/22/96	19:24
tvt19	5/23/96	10:43
tvt20	5/23/96	15:26
tvt21	5/23/96	20:41
tvt22	5/24/96	5:28
tvt23	5/24/96	22:58
tvt24	5/25/96	9:35
tvt25	5/25/96	19:49
tvu1	5/18/96	2:46
tvu2	5/18/96	3:03
tvu3	5/18/96	14:19
tvu4	5/19/96	4:10
tvu5	5/19/96	8:46
tvu6	5/19/96	14:51
tvu7	5/20/96	0:56
tvu8	5/20/96	6:07
tvu9	5/21/96	0:41
tvu10	5/21/96	6:30
tvu11	5/21/96	11:47
tvu12	5/21/96	18:12
tvu13	5/22/96	3:49
tvu14	5/22/96	8:37
tvu15	5/22/96	12:42
tvu16	5/22/96	17:00
tvu17	5/23/96	12:10
tvu18	5/23/96	17:18
tvu19	5/23/96	21:57
tvu20	5/24/96	6:46
tvu21	5/24/96	9:51
tvu22	5/24/96	12:14
tvu23	5/25/96	0:20
tvu24	5/25/96	3:17
tvu25	5/25/96	6:10
tvu26	5/25/96	10:50
tvu27	5/25/96	17:12
tvu28	5/25/96	21:09
tvu29	5/25/96	23:25

TES Basic Operation Tests

w2i2	8/15/95	
w2j	12/12/95	
w2j1	9/22/95	
w2j2	9/26/95	
w2j3	9/27/95	
w2j4	9/27/95	
w2j5	10/2/95	
w2j6	10/4/95	
w2j7	10/6/95	
w2j8	10/6/95	
w2j9	10/10/95	
w2j10	10/13/95	
w2j11	10/17/95	
w2j12	10/22/95	
w2j13	11/14/95	
w2j14	11/21/95	
w2j15	1/17/96	
w2j16	1/17/96	
w2j17	1/17/96	
w2j18	1/17/96	
w2j19	1/17/96	
w2j20	1/18/96	
w2j21	3/21/96	12:11
w2j22	3/21/96	14:19
w2j23	3/22/96	7:45
w2j401	1/9/96	
w2j402	1/10/96	
w2j403	1/10/96	
w2j404	1/10/96	
w2j405	1/11/96	
w2j406	1/11/96	
w2j407	1/11/96	
w2j408	1/11/96	
w2j409	1/11/96	
w2j410	1/12/96	
w2j411	1/12/96	
w2j412	1/12/96	
w2j413	1/12/96	
w2j414	1/13/96	
w2j415	1/13/96	
w2j416	1/13/96	
w2j417	1/13/96	
w2k1	9/27/95	
w2k2	12/19/95	
w2k3	12/19/95	
w2k4	12/19/95	
w2k5	12/19/95	
w2k6	12/19/95	
w2k7	12/19/95	
w2k8	1/3/96	
w2k9	1/4/96	
w2k10	1/18/96	
w2k11	1/18/96	
w2k12	1/18/96	
w2k13	1/18/96	
w2k14	1/18/96	
w2k15	1/18/96	
w2k16	1/19/96	
w2k17	1/19/96	
w2k18	1/19/96	
w2k19	1/19/96	
w2k20	1/19/96	
w2k21	1/19/96	
w2k22	1/19/96	
w2k23	1/19/96	
w2k24	1/19/96	
w2k25	1/19/96	
w2k26	1/19/96	

w2k27	1/19/96	
w2k28	1/19/96	
w2k29	1/19/96	
w2k30	1/19/96	
w2k31	1/19/96	
w2k32	1/22/96	
w2k33	1/22/96	
w2k34	1/22/96	
w2k35	1/22/96	
w2k36	1/22/96	
w2k37	1/22/96	
w2k38	1/22/96	
w2k39	1/22/96	
w2k40	1/22/96	
w2k41	1/22/96	
w2k42	1/22/96	
w2k43	1/22/96	
w2k44	1/22/96	
w2k45	1/22/96	
w2k46	1/22/96	
w2k47	1/22/96	
w2k48	1/22/96	
w2k49	1/22/96	
w2k50	1/22/96	
w2k51	1/22/96	
w2k52	1/22/96	
w2k53	1/22/96	
w2k54	1/22/96	
w2k55	1/22/96	
w2k56	1/22/96	
w2k57	1/22/96	
w2k58	1/22/96	
w2k59	1/22/96	
w2k60	1/22/96	
w2k61	1/22/96	

w2k62	1/22/96	
w2k63	1/23/96	
w2k64	1/23/96	
w2k65	1/23/96	
w2k66	1/23/96	
w2k67	1/23/96	
w2k68	1/23/96	
w2k69	1/23/96	
w2k70	1/23/96	
w2k71	1/23/96	
w2k72	1/23/96	
w2k73	1/23/96	
w2k74	1/23/96	
w2k75	1/23/96	
w2k76	1/23/96	
w2k77	1/25/96	
w2k78	1/25/96	
w2k79	1/25/96	
w2k80	1/25/96	
w2k81	2/6/96	
w2k82	2/6/96	
w2k83	2/6/96	
w2k84	2/22/96	
w2k85	2/23/96	
w2k86	2/23/96	
w2k87	2/27/96	
w2k88	2/27/96	
w2k89	2/28/96	
w2k90	3/5/96	19:00
w2k91	3/6/96	9:10
w2k92	3/12/96	11:19
w2k93	3/12/96	14:15
w2k94	3/21/96	16:30
w2k95	3/29/96	
w2k96	3/29/96	

w2k97	4/22/96	
w2k98	4/26/96	8:57
w2k99	4/26/96	
w2k100	4/26/96	
w2k101	4/26/96	
w2k102	4/26/96	
w2k103	5/2/96	
w2k104	5/13/96	
w2k105	5/13/96	
w2k106	5/13/96	
w2k107	5/14/96	
w2k110	5/14/96	17:41
w2k111	5/21/96	12:58
w2k112	5/21/96	14:17
w2l1	5/3/96	
w2m1	2/28/96	
w2m2	2/28/96	
w2n1	3/11/96	17:55
w2n10	5/26/96	0:11
w2n11	5/26/96	0:59
w2n2	3/13/96	10:05
w2n3	3/13/96	17:14
w2n4	3/20/96	8:26
w2n5	3/27/96	9:57
w2n6	3/28/96	10:45
w2n7	5/6/96	17:17
w2n8	5/22/96	22:48
w2n9	5/23/96	16:55
w2q1	3/21/96	14:55
w2q2	3/22/96	9:15
w2q3	3/23/96	14:53
w2r1	5/29/96	

TES Simple Functional Tests

wa1	10/20/95	
wa2	10/22/95	
wa3	10/23/95	
wb1	10/23/95	
wb2	10/24/95	
wb3	10/25/95	
wb4	10/25/95	
wb5	10/26/95	
wb6	10/27/95	
wb7	11/1/95	
wb8	11/1/95	
wb9	11/13/95	
wb10	11/20/95	
wb11	11/20/95	
wb12	11/22/95	
wb13	11/30/95	
wb14	11/30/95	
wb15	12/1/95	
wb16	12/1/95	
wb17	12/4/95	
wb18	12/4/95	
wb19	12/4/95	
wb20	12/11/95	
wb21	12/22/95	
wb22	1/2/96	
wb23	1/12/96	
wb24	1/13/96	
wb25	1/17/96	
wb26	2/7/96	
wb28	2/7/96	
wb29	2/7/96	
wb30	2/7/96	
wb31	2/7/96	
wb32	2/13/96	
wb33	2/14/96	
wb34	2/22/96	
wb35	2/22/96	
wb36	2/22/96	
wb37	2/22/96	
wb38	2/22/96	
wb39	2/22/96	
wb40	3/2/96	13:49
wb41	3/2/96	15:45
wb42	3/2/96	18:54
wb43	3/2/96	22:20
wb44	3/2/96	23:48
wb45	3/3/96	13:23
wb46	3/3/96	20:40
wb47	3/4/96	13:56
wb48	3/5/96	23:03
wb49	3/6/96	19:34
wb50	3/7/96	0:04
wb51	3/7/96	18:56
wb52	3/7/96	23:48
wb53	3/11/96	10:46
wb54	3/12/96	
wb55	3/15/96	19:20
wb56	3/18/96	20:00
wb57	3/19/96	16:46
wb58	3/19/96	20:50
wb59	3/20/96	9:50
wb60	3/20/96	15:20
wb61	3/20/96	15:41
wb62	3/20/96	18:38
wb63	3/23/96	0:53
wb64	3/23/96	16:08
wb65	3/25/96	16:17
wb66	3/25/96	

wb67	3/29/96	
wb68	3/29/96	
wb69	3/29/96	
wb70	3/30/96	
wb71	4/25/96	
wb72	4/27/96	
wb73	5/3/96	
wb74	5/6/96	17:51
wb75	5/6/96	23:06
wb76	5/7/96	14:35
wb77	5/7/96	15:15
wb78	5/7/96	17:26
wb79	5/9/96	17:33
wb80	5/9/96	17:52
wb81	5/10/96	11:30
wb82	5/14/96	16:50
wb83	5/14/96	18:07
wb84	5/15/96	23:41
wb85	5/17/96	22:51
wb86	5/19/96	18:13
wb87	5/21/96	23:46
wb88	5/24/96	2:31
wb89	5/25/96	14:42
wb90	5/26/96	11:11
wb91	5/26/96	11:28
wb92	5/26/96	11:46
wc1	3/3/96	21:01
wc2	3/5/96	17:40
wd1	5/26/96	19:40
wd2	5/29/96	

Table A9

Bench Acceptance Tests

P. Christensen

4/11/96
Rev. A 5/5/96

act

Test the function of all actuators, detectors, neon bulbs, optical switches, calibration lamps, and gain states in a short (~20 minute) test. Little attempt is made at radiometric calibration, so high-quality targets are not required and relatively few (~10 ICKS) are collected in each state. Single and double scans are collected with imc off and on with both optical switches and both neon bulbs. Good test to track long-term alignment (neon zpd and amplitude) and albedo response and internal lamp levels.

data

Basic radiometric calibration test - designed to be short (~25 minutes) but test basic performance. Only a subset of instrument states are tested, but sufficient observations are collected (10) and targets are used (hot plate or blackbody) to permit instrument response to be calculated to ~5% and noise levels to be accurately determined. Single and double scan observations are collected of the target with imc off and on in all four gain states. The internal reference surface is observed in all four gain states. Single scan interferograms are collected of the target; single and double interferograms are collected of the reference surface. The albedo cal lamps are observed with same sequence used in "alb". Does not test backup optical switches or neon bulbs.

snr

Full bench-level radiometric test. Similar to "data", but designed to test more instrument states. A higher number of ICKS are observed; the same targets are used. Single and double scans are collected in each instrument state. Instrument states observed are:

State	Target	Gain	IMC	Optical Switch	Neon Bulb	Chopper	#Observations (Single & Double)
1	Nadir	1	On	00	1	On	40
2	Nadir	1	Off	00	1	On	40
3	Nadir	1	On	00	2	On	40
4	Nadir	1	On	11	1	On	40
5	Nadir	1	Off	11	1	On	40
6	Nadir	1	Off	00	1	Off	40
7	Nadir	2	On	00	1	On	20
8	Nadir	3	On	00	1	On	20
9	Nadir	4	On	00	1	On	20
10	RefB	1	Off	00	1	On	40
11	RefB	4	Off	00	1	On	40

tv

Official thermal vacuum radiometric calibration test. Primary objective is to transfer calibration of external blackbody targets to internal reference surface. Secondary objective is to test instrument linearity and determine actual gain states. Planet and Space blackbodies are observed, along with internal reference surface. Single and Double scans collected with IMC off and on. All four gains states observed for reference surface; appropriate gain states used for Planet target based on temperature. Only primary neon lamp and optical switch are used.

TV Test Matrix

# obs.	View	Scan	IMC	Gain
Single IMC off				
16	Space	SNG	off	1
128	Planet	SNG	off	1
16	Space	SNG	off	1
16	RefB	SNG	off	1
16	RefB	SNG	off	2
16	Space	SNG	off	1
16	RefB	SNG	off	3
16	RefB	SNG	off	4
Double IMC Off				
16	Space	DBL	off	1
16	Planet	DBL	off	1
16	Space	DBL	off	1
16	RefB	DBL	off	1
16	RefB	DBL	off	2
16	Space	DBL	off	1
16	RefB	DBL	off	3
16	RefB	DBL	off	4
Single IMC on				
16	Space	SNG	off	1
16	Planet	SNG	on	1
16	Space	SNG	off	1
16	RefB	SNG	off	1
16	RefB	SNG	off	3
Double IMC on				
16	Space	DBL	off	1
16	Planet	DBL	on	1
16	Space	DBL	off	1
16	RefB	DBL	off	1
16	RefB	DBL	off	3

marssim

Designed to simulate Mars orbit operation. Two sequences (A and B) that are 268 ICKS long are repeated. Sequences differ only in number of interferograms collected so that buffer does not overflow. Within each sequence there are two loops, ~5.5 and 3.5 minutes long, that simulate view to space and reference surface every 5.5 and 3.5 minutes. Space view simulates duration of space/limb view for Mars orbit. Single and double scans with and without imc are collected in long loop; singles only are collected in short loop. One interferogram is collected for single and double views of space and reference at beginning of long loop. One interferogram is collected from each detector in single and double scan in long loop in Sequence A; singles only in long loop in Sequence B.

wb

Very short (10 minute) test designed for a quick check of instrument response on bench. Collects data in single scan only at a gain of 1 and 2 with imc off and on (gain 1 only). Three consecutive interferograms are collected from each detector at gain 1 and 2, along with two cycles through the detectors at gain 1. A long history of data from this test has been accumulated during instrument integration and test.

alb

Albedo calibration test. External standard lamp is observed for 20 observations in SNG and DBL at low and high gain. Internal calibration lamps are observed in the following sequence: a) Lamp 1 - SNG, Low Gain, b) lamp 1 SNG, High Gain; c) pause to allow lamp to darken and cool; d) lamp 2 SNG, Low Gain; e) lamp 2 SNG, High Gain; f) pause; g) lamp 1 DBL, Low Gain; h) lamp 1 DBL, High Gain; i) pause; j) lamp 2 DBL, Low Gain; j) lamp 2 DBL, High Gain. Albedo lamp and thermal ref position observed for 5 obs. SNG and DBL in high and low gain at end for "dark current" (after albl only).

TEST SUMMARY TV Cycle 3 5/6/96

test	Bench	Vacuum Ambient	Vacuum Vacuum	Vacuum "Algor"
act	acte	acte	acte	-----
alb	albl	albm	albm	-----
data	data1b	data1b	data1e	data1f
snr	snrq	snrq	snrr	snrs
tv	-----	-----	tvr	tvs
w	wb	wb	wb	-----
marssim	marssime	marssime	marssime	-----

TEST SUMMARY TV Cycle 4+ 5/18/96

test	Bench	Vacuum Ambient	Vacuum Vacuum	Vacuum "Algor"	Martin BAT
act	acte	acte	acte	-----	actf
alb	albl	albm	albm	-----	-----
data	data1b	data1b	data1e	data1f	data1gf
snr	snrq	snrq	snrr	snrs	-----
tv	-----	-----	tvt	tvu	-----
w	wb	wb	wb	-----	wd
marssim	marssime	marssime	marssime	-----	-----

test	S/C FET	S/C Ambient	S/C Vacuum
act	tes_funca	tes_funca	tes_funca
data	tes_data1a	tes_data1a	tes_data2b
marssim	-	-	tes_marssimb
quiet	-	tes_quiet1a	
scf	tes_scf2a		

ACT

acta	Actuator tests
actb	Modified from acta by: Nadir view changed to +30°; IMC set to 17 for angles < = 45°. Modified criteria_actb
actc	actb with reference detector for preprocessing changed from 1 to 3 (nb: 9/22/91). Also detector heaters are turned "on".
actd	actb but reference detector changed to 3. Heaters "off".

TES II

acte	acta modified for TES PROM tables
actf	acte modified to place target at -90° for Lockheed/Martin BAT
tes_funca	Modifed from actf for LMA ambient testing. 5/31/96 glm

ALB

alba Albedo calibration test. target at +90 fore

albb Modified from alba. target set to -90 aft. (correct for TV chamber)

albc Reference detector for preprocessing changed from 1 to 3. Also, detector heaters are left "on".

albd Reference detector for precomposer set to 3. Detector heaters "off".

TES II

albe

albf Modified from albd. Changed target view from +90° to nadir. Changed reference detector back to nominal (Det. 1).

albg Added 10 ICKS between reference lamp 1 (REFA1) and lamp 2 (REFA) to allow lamps to fully transition. Not used.

albh Loop over lamp 1 and lamp 2 10 times to study consistency of turn on. Not used.

albi Major rearrangement of reference lamp sequence. Observe: a) Lamp 1 - SNG, Low Gain, b) lamp 1 SNG, High Gain; c) pause; d) lamp 2 SNG, Low Gain; e) lamp 2 SNG, High Gain; f) pause; g) lamp 1 DBL, Low Gain; h) lamp 1 DBL, High Gain; i) pause; j) lamp 2 DBL, Low Gain; j) lamp 2 DBL, High Gain.

albj Same as albi with target set to external Bemco chamber window.

albk Stare at Bemco window. Used for chamber external lamp alignment.

albl Modified from albi. Collect data during pauses in SNG, low and high gain and collect 5 ICKS each in SNG and DBL at low and high gain looking at both the albedo lamp position (165°) and the thermal ref position (180°). 5/5/96.

albm Same as albl with target set to external Bemco chamber window.

DATA

dataa — Standard data collection mode for FET. Space view is observed, but minmum of ifgm for zpd (hot target).

datab — Same as A but with IMC rates set to 17 at all angles. Switch set to 00. Target at -45 aft. GE

datac — Same as datab but with target at +30 fore. 9/9/91. Switch set to 00. Minimum of ifgm is used for zpd (hot target). Used in SBRC thermal vacuum.

datad — Same as datac but target set to +30 fore for G.E. BAT test. 10/21/91

datae — Target at -90. Start with "space" look at 0° (space_cal seq.) but still used minmum of ifgm for zpd (hot target). 10/21/91

dataf — "Trying to get around warm start problem" ?? Start with "space" look at 0° but still used minmum of ifgm for zpd (hot target). Target at -90°. 10/24/91.

te_data1a — Derived from datac. Did not run "space_cal" at beginning of schedule. Target at -45°. Minimum of ifgm for zpd (warm target). 10/17/91.

te_data1b — Target at 0°. Other changes ??? Minimum of ifgm for zpd (warm target).

te_data1c — Target at -45°. Other changes ??? Minimum of ifgm for zpd (warm target).

te_data1d — Target at -45°. Other changes ??? Minimum of ifgm for zpd (warm target).

te_data1e — Lightning SEPET. Space view removed. Target at +180°. Minimum of ifgm for zpd (warm target).

TES II

data1a — Modified from te_data1b. No space views observed in standard sequence and removed "space_cal" sequence. Added 3 interferograms per detector collection sequence at start. Minimum of ifgm for zpd (warm target) - use data1a for ambient tests.

data1b — Modified data1a to incorporate albedo cal lamp sequence from albi. This sequence observes: a) Lamp 1 - SNG, Low, b) lamp 1 SNG, High; c) pause; d) lamp 2 SNG, Low; e) lamp 2 SNG, High; f) pause; g) lamp 1 DBL, Low; h) lamp 1 DBL, High; i) pause; j) lamp 2 DBL, Low; j) lamp 2 DBL, High. Minimum of ifgm for zpd (warm target) - use data1b for ambient tests.

Modified on 5/5/96 to collect data in SNG, low and high gain during 10 ICK pauses between lamps. Made to be similar to albl. Could not make identical due to length-of-sequence constraint; 3rd pause is low gain only.

data1c Same as data1b but use default PROM (cold space) algorithm to find zpd. Space_cal sequence added at beginning of main sequence and start icks offset. 3/1/96. Target at nadir.

data1d Same as data1c (and data1b) but use algor patch. For use in TV tests, but never used. 3/4/96.

data1e Same as data1c but put TV cold target at -60° Use in TV Cycle 3 tests. Same ICKS as data1c. 3/19/96.

data1f Same as data1d (algor patch) with space target at -60°. Use in TV Cycle 3 tests

data1g Same at data1b modified for target at -90°. Use in Martin BAT.

tes_data1a Modified from data1g for LMA integration. Target at -90° aft. Ambient.

tes_data2a Modified from tes_data1a. Removed half of observations to shorten test to ~15 minutes. Target at 0°. LMA thermal vacuum test. 6/28/96.

tes_data2b Modified from tes_data2a. Changed equator cross time, removed IMC table mods. Changed zpd mode to use cold space. LMA thermal vacuum test. 7/1/96.

HT

HTA Heater test.

Cycles:

	temp. off	30-60 sec	
bol	temp on	100	=ick 50
	temp. off	120	
alb	temp. on	140	
	temp. off	160	
spc	temp. on	180	
	temp. off	200	
alb	on	220	
bol	on	220	
all	on	240	
all	off	260	
stow		300	
end		340	

HTB

HTC

MARSSIM

marssim	Initial TV transition test. Assumes hot target and uses minimum of interferogram for zpd. Has long and short loops, with SNG and DBL space and reference view at start of each loop. Collects ifgms SNG only at planet. Collects SNG imc on and off. No DBLs collected at planet. Used during 1st and last part of 1st TES II TV cool down.
marssimb	Same as marssim, but uses space view to determine zpd. Used during central part of 1st TES II TV cool down
marssimc	Modified from marssim. Used minimum of ifgm for zpd so that IR zpd position is downlinked each ICK. Changed: 1) added 1 ifgm (Det. 2) SNG and DBL at space and reference in long loop; 2) added DBL's imc on and off, with 1 cycle of ifgms imc; 3) added 3 consecutive SNG ifgms (Det. 2) at planet; 4) removed ifgms short loop to keep buffer from filling; 5) changed loop loop to include SNG-DBL-S NG transitions; 6) added complex data collection to ifgms; 7) kept loop lengths the same to simplify analysis software; 8) kept short loop essentially the same (except removing ifgms).
marssimd	Same as marssimc except: 1) space target (BCU-1) moved to -60°; 2) sequence start ick changed from15 to 14 to accomodate larger slew angle to -60° (was -40°); 3) short loop duration tweeked to keep loop duration the same as marssim and marssimb with -60° space views.
marssime	Similar to marssimd but make 2 sequences that are identical except for the number of interferograms collected. One interferogram is collected for single and double views of space and reference at beginning of long loop. One interferogram is collected from each detector in single and double scan in long loop in Sequence A; singles only in long loop in Sequence B. Changed for TV Cycle 3 to keep buffer from falling behind and eventually filling. LMA thermal vacuum test. 4/3/96.
tes_marssima	Modified from marssime to fit in HRC data rate by: remove ifgms, aggregate 6 detectors, changed spectral masks, etc. Changed to use space to find zpd. Added equator cross command. 6/6/96. prc and glm.
tes_marssimb	Modified from tes_marssima to change space view to -60° and orbit period from 7020 to 7200 seconds. LMA thermal vacuum test. 6/21/96. glm
tes_marssim2a	Modified from tes_marssimb to add algor patch. 6/21/96. glm Not used.

CMD

cmda

cmdb

NOISY

noisya Standard "noisy" mode for FET.

noisyb Same as A but with IMC rates set to 17 at all angles. Switch set to 00. Target at -45° aft. (GE)

noisyc Same as B but with target set to +30° fore. 9/9/91 (T.V.)

TES II

tes_noisy1a Modified from tes_scf2a (~tes_marssima). Removed alb cal loop. Replaced quiet views with imc. 7/16/96. glm.

PROM

TES II

tes_prom Run TES PROM sequence

QUIET

quieta Standard "quiet" mode for FET.

quietb Same as A but with IMC rates set to 17 at all angles. Switch set to 00. Target at -45° aft. (GE)

quietc Same as B but with target set to +30° fore. 9/9/91 Thermal Vacuum.

TES II

quiet1a

quiet1b

tes_quiet1a Modified from quiet1a to place target at -90°. LMA ambient testing. 5/29/96 prc

tes_quiet2a Modified from tes_quiet1a to place target at nadir. Add space looks and expand looping sequence. LMA thermal vacuum testing. 6/24/96. glm

SCF

TES II

tes_scfa Modified from tes_data1a for LMA spacecraft functional test. Ambient S/C testing. 6/1/96 glm.

tes_scfb Modified from tes_scfa to lower bandwith by declaring detectors 2,3,4, and 6 "bad" and added built-in equator cross. Ambient S/C testing. 6/3/96 glm.

tes_scfc Modified from tes_scfb to change upload timing and equator cross time. Ambient S/C testing. 6/3/96 glm.

tes_scf2a Modifed from tes_marssima. Changed target to -90°, used minimum of ifgm for zpd. Added equator cross and albedo lamp loop. Ambient S/C testing. 6/7/96 glm.

TRAF

TRAFA

TRAFB Identical to TRAFA. Only changed to allow some semblance of uniformity with other tests.

SCAN

scanc	Scan around targets to test alignment. Used in TV Cycle 1. 3/1/96
scand	Improved to increase scanning angles to +25 to -85°. Used in TV Cycles 2 and 3.
scane	Improved to increase scanning angles ot +65 to -85°. Used in TV Cycle 3.

SNR

CON file	Description
snra	Bench SNR sequence. Target (100 icks single and double) IMC on/off; thermal reference, albedo reference, lamp1 (20 icks single and double), albedo reference lamp; lamp 2 (20 icks single and double)
snrb	
snrc	
snrd	Target at nadir
snre	SNRD with target at 30° fore--TV. Use with hot target and no space view (bench).
snrf	SNRE but has space look between each view to determine ZPD. Use only with cold space view. (TV). Primary SBRC TV test.
snrg	Reference detector for preprocessing changed from 1 to 3. Detector heaters are also "on".
snrh	SNRF (heaters turned off) with precompressor detector set to detector 3 from detector 1. Primary SBRC TV test.
snrj	SNRH with only bolometer heater turned off.
snrk	snrh with target at -90 for BAT at G.E
snrl	snrk with detector 4 declared as "bad" to test effect of autoscale on detector 1

TES II

snrm	Modified from snrd for starting point for TES II - ambient conditions.
snrn	Extended length of test from 3000 to 3400 sec for poorer TES II data compression. Changed idle angle at end from "nadir" to "safe".
snro	Removed albedo cal lamp observations. Added 3 interferograms per detector (18 total observations) cycle to start of nadir, low gain, IMC on, SNG sequence and to thermal reference, low gain, SNG sequence. Ambient condition sequence.
snrp	Same as snro but use default PROM (cold space) algorithm to find zpd. Added space_cal sequence before each target view to get space view for zpd algorithm. 3/1/96. Thermal vacuum condition sequence.

Changed after snrp1 to remove ifgm for planet view with chopper off, and planet views at Gain 3 and 4. 3/3/96. (Probably should have incremented version letter, but didn't.)

snrq — Modified from snrp for ambient case - intended to be like snro using minimum of interferogram for zpd and assuming a hot target, but used snrp as starting point due to extensive changes made in snrp. Left in space_cal sequences, even though not used, to simplifty con-file building and to make analysis software more uniform.

snrr — Modified from snrp (cold space to find zpd) to place space target at -60° aft. For use in TV Cycle 3. 4/28/96.

snrs — Same as snrr (cold space to find zpd), but with algor patch. For use in TV Cycle 3. 5/3/96.

TV

1.	tva_a	Gain 1	[Basic sequence set. IMC set to 17
	tvb_a	Gain 1,2	at all angles. Default: heaters off;
	tvc_a	Gain 1,2,3	switch 00.
	tvd_a	Gain 1,2,3,4	Cold target (space view)= -30 aft.
			Hot target (dayview) = +30 fore.]

2. tva_a > tva_b
   tvb_a > tvb_b
   tvc_a > tvc_b
   tcd_a > tvd_b

   added "stabilize" sequence & schedule (9/14/91)

use when "Planet" target is <u>hotter</u> than instrument

3. tva_c > tvd_c -use default zpd finding algorithm

   -look at space for 2 SNG, 1 DBL at start of each sequence

4. tva_d >tvd_d Same as _c but with change to "stabilize" (now "stab") to change order of observations. Removed "END" statement. Problems wiht tva_c1 test.

5. tvd.conAll combined into one operator uploads tva, tvb, tvc, tvd, stab, or drift

6. tve.conFirst try at major post-science team meeting

7. tvf.con Second try. PChristensen/JPearl. "Working" but forgot B & C Gain states

8. tvg skipped

9. tvh skipped

10. tvi Pearl fixed TVF to include tvb & tvc gain states. O'Reilly added 5 minute idle between gains. Silverman removed detector heaters off command on VAX sim file after tvi4. Christensen brought SUN version up to date on 9/24/91 by removing heaters off command. Rebuilt and reset to VAX. (ie. heaters left on).

11. tvj tvi with reference compression detector changed to detector 3 (from detector 1). Heaters <u>on</u> as in tvi. 9/24/91

12. tvk tvj but heaters off command in -- i.e. heaters <u>off.</u>

13. tvl — tvj with pause between Gain states increased from 5 to approx. 12 minutes. Heaters on.

14. tvn — tvk with pause between Gain states increased from 5 to approx. 12 minutes. Heaters off.

TES II

15. tvo — Not used.

16. tvp — Modified from TES I tvn for new PROM, etc. Added 18 interferograms (3 per detector) to planet, gain 1 sequence. Replace stab sequence, used for stablization with mars_sim. mars_sim looks at space for 3 ICKS SNG and DBL, thermal reference for 3 ICK SNG and DBL, planet 70 ICKS imc off, planet 70 ICKS SNG imc on, space, ref, planet 35 ICKS SNG imc off, planet 35 ICKS SNG imc on.

17. tvr — Same as tvp but with space BCU (BCU_2) moved to -60° aft. ICK values for sequences change - changes made to summary_tv script. For use in TV Cycle 3. 4/28/96.

18. tvs — Same as tvr but with algor patch. For use in TV Cycle 3. 5/4/96.

19. tvt — Major change. Gain 1 sequence (TVA) left alone. Removed TVB, TVC, TVD tests and replaced with a sequence that views planet for 16 ICKS in SNG and DBL with imc on and off and then views space and reference in SNG and DBL. Operator not given a choice of sequence; this sequence run for all matrix conditions, even in saturate in higer gain states.

20. tvu — Same as tvt, but with "algor" patch. Used in TV Cycle 4.

TV (j,k,l,n) .CON File

TVA-TVD

Seq. start ick	.spm start ick	View	Scan	IMC	Gain	Target
Single IMC off						
15	17	-30	SNG	off	1	space
35	37	+30	SNG	off	1	planet
175	177	-30	SNG	off	1	space
197	199	180	SNG	off	1	ref G1
215	217	180	SNG	off	2	ref G2
241	243	-30	SNG	off	1	space
263	265	180	SNG	off	3	ref G3
281	283	180	SNG	off	4	ref G4
Double IMC Off						
307	311	-30	DBL	off	1	space
345	349	+30	DBL	off	1	planet
391	395	-30	DBL	off	1	space
431	435	180	DBL	off	1	ref G1
467	471				2	ref G2
511	515	-30	DBL	off	1	space
551	555	180			3	ref G3
587	591	180			4	ref G4

Seq. start ick	.spm start ick	View	Scan	IMC	Gain	Target
Single IMC on						
631	633	-30	SNG	off	1	space
651	653	+30	SNG	on	1	planet
679	681	-30	SNG	off	1	space
701	703	180	SNG	off	1	ref G1
719	721	180	SNG	off	3	ref G3
Double IMC on						
745	749	-30	DBL	off	1	space
783	787	+30	DBL	on	1	planet G1
829	833	-30	DBL	off	1	space
869	873	180	DBL	off	1	ref G1
905	909	180	DBL	off	3	ref G3

tvb = tva +1284

tvc = tva + 2568

tvd = tva +3852

	first ick	last ick
tva	15	939
tvb	1299	2223
tvc	2583	3507
tvd	3867	4791

TV (p) .CON File

TVA-TVD

Seq. start ick	.spm start ck	end ick	# obs.	View	Scan	IMC	Gain	Target
Single IMC off								
15	17	32	16	-30	SNG	off	1	space
34	36	163	128	+30	SNG	off	1	planet
175	177	192	16	-30	SNG	off	1	space
196	198	213	16	180	SNG	off	1	ref G1
214	216	231	16	180	SNG	off	2	ref G2
241	243	258	16	-30	SNG	off	1	space
262	264	279	16	180	SNG	off	3	ref G3
280	282	297	16	180	SNG	off	4	ref G4
Double IMC Off								
307	311	341	16	-30	DBL	off	1	space
344	348	378	16	+30	DBL	off	1	planet
391	395	425	16	-30	DBL	off	1	space
430	434	464	16	180	DBL	off	1	ref G1
466	470	500	16	180	DBL	off	2	ref G2
511	515	545	16	-30	DBL	off	1	space
550	554	584	16	180	DBL	off	3	ref G3
586	590	620	16	180	DBL	off	4	ref G4

Seq. start ick	.spm start ck	end ick	# obs.	View	Scan	IMC	Gain	Target
Single IMC on								
631	633	648	16	-30	SNG	off	1	space
650	652	667	16	+30	SNG	on	1	planet
679	681	696	16	-30	SNG	off	1	space
700	702	717	16	180	SNG	off	1	ref G1
718	720	735	16	180	SNG	off	3	ref G3
Double IMC on								
745	749	779	16	-30	DBL	off	1	space
782	786	816	16	+30	DBL	on	1	planet G1
829	833	863	16	-30	DBL	off	1	space
868	872	902	16	180	DBL	off	1	ref G1
904	908	938	16	180	DBL	off	3	ref G3

$$tvb = tva + 1284$$

$$tvc = tva + 2568$$

$$tvd = tva + 3852$$

	first ick	last ick
tva	15	938
tvb	1299	2223
tvc	2583	3507
tvd	3867	4791

TV (r, s) .CON File

TVA-TVD

Seq. start ick	.spm start ck	end ick	# obs.	View	Scan	IMC	Gain	Target
Single IMC off								
15	17	32	16	-60	SNG	off	1	space
35	37	164	128	0	SNG	off	1	planet
175	177	192	16	-60	SNG	off	1	space
196	198	213	16	180	SNG	off	1	ref G1
214	216	231	16	180	SNG	off	2	ref G2
241	243	258	16	-60	SNG	off	1	space
262	264	279	16	180	SNG	off	3	ref G3
280	282	297	16	180	SNG	off	4	ref G4
Double IMC Off								
307	311	341	16	-60	DBL	off	1	space
345	349	379	16	0	DBL	off	1	planet
391	395	425	16	-60	DBL	off	1	space
430	434	464	16	180	DBL	off	1	ref G1
466	470	500	16	180	DBL	off	2	ref G2
511	515	545	16	-60	DBL	off	1	space
550	554	584	16	180	DBL	off	3	ref G3
586	590	620	16	180	DBL	off	4	ref G4

Seq. start ick	.spm start ck	end ick	# obs.	View	Scan	IMC	Gain	Target
Single IMC on								
631	633	648	16	-60	SNG	off	1	space
651	653	668	16	0	SNG	on	1	planet
679	681	696	16	-60	SNG	off	1	space
700	702	717	16	180	SNG	off	1	ref G1
718	720	735	16	180	SNG	off	3	ref G3
Double IMC on								
745	749	779	16	-60	DBL	off	1	space
783	787	817	16	0	DBL	on	1	planet G1
829	833	863	16	-60	DBL	off	1	space
868	872	902	16	180	DBL	off	1	ref G1
904	908	938	16	180	DBL	off	3	ref G3

$tvb = tva + 1284$

$tvc = tva + 2568$

$tvd = tva + 3852$

	first ick	last ick
tva	15	939
tvb	1299	2223
tvc	2583	3507
tvd	3867	4791

TV (t) .CON File

Seq. start ick	.spm start ck	end ick	# obs.	View	Scan	IMC	Gain	Target
Single IMC off								
15	17	32	16	-60	SNG	off	1	space
35	37	164	128	0	SNG	off	1	planet
175	177	192	16	-60	SNG	off	1	space
196	198	213	16	180	SNG	off	1	ref G1
214	216	231	16	180	SNG	off	2	ref G2
241	243	258	16	-60	SNG	off	1	space
262	264	279	16	180	SNG	off	3	ref G3
280	282	297	16	180	SNG	off	4	ref G4
Double IMC Off								
307	311	341	16	-60	DBL	off	1	space
345	349	379	16	0	DBL	off	1	planet
391	395	425	16	-60	DBL	off	1	space
430	434	464	16	180	DBL	off	1	ref G1
466	470	500	16	180	DBL	off	2	ref G2
511	515	545	16	-60	DBL	off	1	space
550	554	584	16	180	DBL	off	3	ref G3
586	590	620	16	180	DBL	off	4	ref G4

Seq. start ick	.spm start ck	end ick	# obs.	View	Scan	IMC	Gain	Target
Single IMC on								
631	633	648	16	-60	SNG	off	1	space
651	653	668	16	0	SNG	on	1	planet
679	681	696	16	-60	SNG	off	1	space
700	702	717	16	180	SNG	off	1	ref G1
718	720	735	16	180	SNG	off	3	ref G3
Double IMC on								
745	749	779	16	-60	DBL	off	1	space
783	787	817	16	0	DBL	on	1	planet G1
829	833	863	16	-60	DBL	off	1	space
868	872	902	16	180	DBL	off	1	ref G1
904	908	938	16	180	DBL	off	3	ref G3
Gain 2/3/4								
1299	1301	1316	16	0	SNG	off	2	planet G2
1317	1317	1332	16	0	SNG	off	3	planet G3
1333	1333	1348	16	0	SNG	off	4	planet G4
1359	1361	1376	16	0	SNG	on	2	planet G2
1377	1377	1392	16	0	SNG	on	3	planet G3
1393	1393	1408	16	0	SNG	on	4	planet G4
1419	1421	1453	16	0	DBL	off	2	planet G2
1455	1455	1485	16	0	DBL	off	3	planet G3
1487	1487	1517	16	0	DBL	off	4	planet G4
1529	1533	1563	16	0	DBL	on	2	planet G2
1565	1565	1595	16	0	DBL	on	3	planet G3

1597	1597	1627	16	0	DBL	on	4	planet G4
1639	1641	1656	16	-60	SNG	off	1	space G1
1660	1662	1677	16	180	SNG	off	1	ref G1
1678	1680	1695	16	180	SNG	off	3	ref G3
1705	1709	1739	16	-60	DBL	off	1	space G1
1744	1748	1778	16	180	DBL	off	1	ref G1
1780	1784	1814	16	180	DBL	off	3	ref G3

SNR (n, o) .CON File

Run	Target	Gain	IMC	Switch	Neon	Chopper	#ICKS	SNG ICKS	DBL ICKS
1	Nadir	1	On	00	1	On	120	16-55	56-134
2	Nadir	1	Off	00	1	On	120	146-185	186-264
3	Nadir	1	On	00	2	On	120	276-315	316-394
	Nadir	1	On	11	1	On	120	406-445	446-524
5	Nadir	1	Off	11	1	On	120	536-575	576-654
6	Nadir	1	Off	00	1	Off	120	666-705	706-784
7	Nadir	2	On	00	1	On	60	796-815	816-854
8	Nadir	3	On	00	1	On	60	858-877	878-916
9	Nadir	4	On	00	1	On	60	920-939	940-978
10	RefB	1	Off	00	1	On	120	986-1025	1026-1104
11	RefB	4	Off	00	1	On	120	1107-1146	1147-1225

SNR (p, q, r, s) .CON File

Run	Target	Gain	IMC	Switch	Neon	Chopper	#ICKS	SNG ICKS	DBL ICKS
1	Nadir	1	On	00	1	On	120	26-65	66-144
2	Nadir	1	Off	00	1	On	120	166-205	206-284
3	Nadir	1	On	00	2	On	120	306-345	346-424
	Nadir	1	On	11	1	On	120	446-485	486-564
5	Nadir	1	Off	11	1	On	120	586-625	626-704
6	Nadir	1	Off	00	1	Off	120	726-765	766-844
7	Nadir	2	On	00	1	On	60	866-885	886-924
8	Nadir	3	On	00	1	On	60	928-947	948-986
9	Nadir	4	On	00	1	On	60	990-1009	1010-1048
10	RefB	1	Off	00	1	On	120	1066-1105	1106-1184
11	RefB	4	Off	00	1	On	120	1187-1226	1227-1305

Table A10. TES II Field of View Data - Azimuth fov_azimuth_final_fvu35

Table A10a. Visible Bolometer

Azmith Angle (mrad)	Normalized Signal					
	Det.1	Det. 2	Det. 3	Det. 4	Det. 5	Det. 6
16	0.009	0.022	0.016	0.004	0.011	0.021
15	0.010	0.023	0.016	0.005	0.010	0.022
14	0.010	0.023	0.015	0.005	0.012	0.021
13	0.011	0.023	0.015	0.005	0.012	0.022
12	0.014	0.023	0.016	0.003	0.009	0.021
11	0.044	0.011	0.030	0.001	0.001	0.007
10	0.275	0.204	0.204	0.002	0.005	0.015
9	0.538	0.559	0.283	0.004	0.009	0.019
8	0.855	0.860	0.718	0.005	0.012	0.022
7	1.000	0.968	0.935	0.007	0.012	0.023
6	0.976	0.875	0.942	0.007	0.012	0.024
5	0.808	0.776	0.816	0.006	0.013	0.023
4	0.753	0.830	0.777	0.008	0.014	0.023
3	0.872	0.975	0.885	0.008	0.014	0.023
2	0.884	1.000	1.000	0.011	0.015	0.022
1	0.643	0.774	0.775	0.033	0.017	0.042
0	0.094	0.173	0.235	0.369	0.239	0.366
-1	0.011	0.017	0.016	0.820	0.733	0.914
-2	0.007	0.015	0.009	0.957	1.000	1.000
-3	0.003	0.016	0.009	0.889	0.917	0.881
-4	0.005	0.015	0.009	0.810	0.792	0.794
-5	0.003	0.014	0.009	0.840	0.825	0.830
-6	0.004	0.014	0.009	0.975	0.957	0.949
-7	0.003	0.014	0.008	1.000	0.944	0.969
-8	0.004	0.012	0.007	0.852	0.834	0.803
-9	0.003	0.011	0.006	0.466	0.631	0.511
-10	0.000	0.009	0.005	0.118	0.300	0.173
-11	0.000	0.001	0.003	0.015	0.026	0.003
-12	0.000	0.000	0.000	0.000	0.000	0.000
-13	0.002	0.010	0.005	0.013	0.018	0.029
-14	0.003	0.014	0.007	0.015	0.019	0.032

-15	0.003	0.013	0.007	0.016	0.020	0.033
-16	0.003	0.014	0.008	0.015	0.020	0.032

Table A10b. Thermal Bolometer

Azimuth Angle (mrad)	Normalized Signal					
	Det.1	Det. 2	Det. 3	Det. 4	Det. 5	Det. 6
16	0.028	0.025	0.026	0.000	0.000	0.000
15	0.027	0.024	0.024	0.001	0.001	0.002
14	0.028	0.025	0.027	0.003	0.003	0.004
13	0.028	0.027	0.027	0.005	0.005	0.006
12	0.030	0.028	0.027	0.008	0.005	0.006
11	0.046	0.038	0.036	0.010	0.006	0.007
10	0.154	0.136	0.108	0.017	0.016	0.014
9	0.335	0.340	0.324	0.018	0.017	0.017
8	0.466	0.531	0.611	0.022	0.020	0.017
7	0.880	0.902	0.932	0.019	0.014	0.012
6	1.000	0.982	0.983	0.016	0.009	0.008
5	0.892	0.928	0.945	0.016	0.008	0.010
4	0.771	0.960	0.952	0.019	0.012	0.011
3	0.851	1.000	0.999	0.021	0.014	0.014
2	0.967	0.958	1.000	0.027	0.018	0.018
1	0.889	0.814	0.856	0.039	0.032	0.027
0	0.569	0.524	0.436	0.105	0.087	0.094
-1	0.154	0.137	0.109	0.438	0.434	0.567
-2	0.046	0.037	0.037	0.811	0.794	0.924
-3	0.027	0.025	0.025	1.000	0.992	1.000
-4	0.019	0.019	0.017	0.995	1.000	0.994
-5	0.017	0.016	0.016	0.879	0.900	0.916
-6	0.013	0.013	0.012	0.831	0.917	0.872
-7	0.012	0.011	0.011	0.911	0.998	0.940
-8	0.014	0.013	0.012	0.847	0.952	0.894
-9	0.022	0.025	0.022	0.414	0.536	0.483
-10	0.017	0.019	0.017	0.105	0.116	0.106
-11	0.010	0.010	0.010	0.036	0.029	0.026
-12	0.007	0.006	0.008	0.022	0.013	0.013
-13	0.007	0.005	0.007	0.019	0.010	0.010
-14	0.006	0.004	0.005	0.017	0.008	0.008

-15	0.004	0.003	0.003	0.016	0.007	0.008
-16	0.000	0.000	0.000	0.016	0.007	0.008

Table A10c. Spectometer

Azimuth Angle (mrad)	Normalized Signal					
	Det.1	Det. 2	Det. 3	Det. 4	Det. 5	Det. 6
16	0.023	0.022	0.020	0.002	0.000	0.000
15	0.022	0.021	0.019	0.001	0.000	0.000
14	0.022	0.023	0.021	0.000	0.001	0.001
13	0.023	0.023	0.021	0.000	0.001	0.002
12	0.021	0.021	0.019	0.000	0.001	0.002
11	0.021	0.022	0.021	0.000	0.002	0.002
10	0.024	0.026	0.026	0.001	0.002	0.002
9	0.207	0.255	0.342	0.001	0.001	0.002
8	0.809	1.000	0.852	0.010	0.003	0.004
7	0.984	1.000	0.971	0.020	0.009	0.015
6	0.990	0.972	0.982	0.026	0.020	0.020
5	0.984	0.966	0.993	0.028	0.024	0.024
4	1.000	0.988	1.000	0.030	0.026	0.027
3	0.993	0.995	0.997	0.027	0.026	0.026
2	0.981	0.976	0.969	0.023	0.023	0.024
1	0.850	0.889	0.777	0.016	0.021	0.022
0	0.368	0.283	0.219	0.066	0.018	0.144
-1	0.040	0.025	0.024	0.637	0.591	0.813
-2	0.033	0.028	0.026	1.000	0.973	1.000
-3	0.034	0.031	0.029	0.987	0.984	0.994
-4	0.033	0.032	0.030	0.962	0.998	0.955
-5	0.032	0.034	0.031	0.953	1.000	0.952
-6	0.027	0.032	0.029	0.949	0.985	0.933
-7	0.021	0.028	0.026	0.924	0.954	0.877
-8	0.015	0.022	0.026	0.864	0.880	0.717
-9	0.008	0.013	0.012	0.463	0.526	0.289
-10	0.008	0.009	0.010	0.012	0.012	0.013
-11	0.007	0.008	0.010	0.006	0.005	0.008
-12	0.006	0.007	0.009	0.004	0.001	0.006
-13	0.005	0.006	0.007	0.004	0.002	0.007
-14	0.003	0.004	0.004	0.004	0.001	0.006

-15	0.001	0.002	0.002	0.003	0.001	0.006
-16	0.000	0.000	0.000	0.004	0.001	0.006

Table A11 - Field of View Data - Elevation - fov_elevation_final_fvw35

Table A11a. Visible Bolometer

Elevation Angle (mrad)	Normalized Signal					
	Det.1	Det. 2	Det. 3	Det. 4	Det. 5	Det. 6
20	0.003	0.010	0.005	0.008	0.009	0.013
19	0.005	0.010	0.005	0.008	0.009	0.013
18	0.007	0.012	0.003	0.012	0.011	0.011
17	0.014	0.005	0.001	0.008	0.004	0.006
16	0.012	0.001	0.000	0.009	0.002	0.006
15	0.035	0.003	0.001	0.146	0.003	0.006
14	0.358	0.009	0.001	0.663	0.010	0.008
13	0.800	0.015	0.004	0.945	0.012	0.010
12	0.904	0.015	0.002	1.000	0.012	0.008
11	0.878	0.015	0.004	0.983	0.013	0.011
10	0.769	0.016	0.004	0.872	0.013	0.011
9	0.751	0.015	0.005	0.888	0.013	0.011
8	0.883	0.015	0.005	0.956	0.014	0.011
7	1.000	0.017	0.004	0.987	0.014	0.009
6	0.898	0.036	0.004	0.871	0.035	0.009
5	0.366	0.303	0.005	0.260	0.279	0.009
4	0.021	0.855	0.010	0.027	0.759	0.013
3	0.014	0.911	0.010	0.018	0.922	0.016
2	0.013	0.781	0.007	0.019	0.832	0.015
1	0.013	0.816	0.008	0.016	0.737	0.014
0	0.013	0.915	0.010	0.018	0.822	0.015
-1	0.013	0.992	0.010	0.020	0.990	0.016
-2	0.013	1.000	0.009	0.019	1.000	0.017
-3	0.013	0.979	0.013	0.016	0.911	0.016
-4	0.009	0.542	0.071	0.012	0.582	0.044
-5	0.002	0.054	0.570	0.004	0.130	0.359
-6	0.002	0.010	1.000	0.002	0.013	0.847
-7	0.001	0.005	0.990	0.002	0.003	0.887
-8	0.001	0.004	0.791	0.003	0.003	0.743

-9	0.001	0.005	0.650	0.002	0.007	0.736
-10	0.000	0.008	0.703	0.001	0.007	0.890
-11	0.000	0.005	0.887	0.001	0.008	1.000
-12	0.001	0.007	0.971	0.001	0.007	0.964
-13	0.001	0.007	0.816	0.001	0.006	0.848
-14	0.001	0.002	0.343	0.001	0.000	0.337
-15	0.001	0.000	0.030	0.000	0.000	0.000
-16	0.001	0.004	0.014	0.001	0.002	0.007
-17	0.002	0.008	0.014	0.004	0.008	0.016
-18	0.001	0.008	0.009	0.003	0.008	0.015
-19	0.003	0.007	0.008	0.004	0.007	0.014
-20	0.002	0.008	0.008	0.002	0.007	0.015

Table A11b. Thermal Bolometer

Elevation Angle (mrad)	Normalized Signal					
	Det.1	Det. 2	Det. 3	Det. 4	Det. 5	Det. 6
20	0.030	0.011	0.000	0.033	0.011	0.000
19	0.035	0.013	0.001	0.048	0.014	0.000
18	0.077	0.022	0.005	0.092	0.022	0.004
17	0.078	0.021	0.002	0.095	0.020	0.002
16	0.106	0.021	0.002	0.137	0.021	0.002
15	0.208	0.022	0.003	0.287	0.024	0.004
14	0.508	0.024	0.004	0.664	0.026	0.006
13	0.728	0.027	0.007	0.916	0.030	0.008
12	0.807	0.029	0.010	1.000	0.033	0.011
11	0.805	0.027	0.011	0.958	0.032	0.012
10	0.769	0.028	0.013	0.821	0.031	0.013
9	0.832	0.030	0.015	0.775	0.034	0.017
8	0.972	0.032	0.018	0.865	0.038	0.019
7	1.000	0.043	0.021	0.911	0.058	0.021
6	0.813	0.089	0.023	0.814	0.119	0.023
5	0.381	0.397	0.027	0.392	0.446	0.026
4	0.079	0.803	0.032	0.083	0.859	0.028
3	0.043	0.881	0.034	0.048	1.000	0.030
2	0.037	0.909	0.037	0.038	0.968	0.032
1	0.034	0.894	0.037	0.034	0.834	0.031
0	0.033	0.907	0.039	0.032	0.810	0.036
-1	0.031	1.000	0.043	0.031	0.900	0.040
-2	0.030	0.997	0.052	0.030	0.905	0.052
-3	0.027	0.918	0.083	0.028	0.809	0.084
-4	0.024	0.652	0.217	0.025	0.532	0.263
-5	0.019	0.166	0.748	0.019	0.114	0.742
-6	0.015	0.038	0.957	0.018	0.035	0.985
-7	0.015	0.027	0.974	0.016	0.023	1.000
-8	0.015	0.021	0.955	0.016	0.019	0.906
-9	0.014	0.018	0.911	0.015	0.016	0.820
-10	0.013	0.016	0.956	0.014	0.014	0.865

-11	0.011	0.014	1.000	0.013	0.013	0.892
-12	0.011	0.013	0.952	0.011	0.013	0.825
-13	0.008	0.012	0.814	0.009	0.012	0.596
-14	0.008	0.011	0.352	0.008	0.011	0.155
-15	0.007	0.010	0.085	0.008	0.010	0.064
-16	0.007	0.012	0.073	0.007	0.012	0.066
-17	0.004	0.010	0.063	0.005	0.008	0.045
-18	0.002	0.005	0.030	0.001	0.004	0.024
-19	0.001	0.003	0.021	0.001	0.002	0.021
-20	0.000	0.000	0.019	0.000	0.000	0.019

Table A11c. Spectrometer

Elevation Angle (mrad)	Normalized Signal					
	Det.1	Det. 2	Det. 3	Det. 4	Det. 5	Det. 6
20	0.014	0.011	0.003	0.013	0.011	0.002
19	0.013	0.013	0.003	0.013	0.014	0.001
18	0.014	0.015	0.003	0.013	0.015	0.002
17	0.015	0.016	0.002	0.013	0.016	0.001
16	0.015	0.017	0.002	0.014	0.017	0.001
15	0.017	0.017	0.001	0.015	0.017	0.000
14	0.021	0.018	0.000	0.021	0.018	0.000
13	0.332	0.019	0.003	0.386	0.019	0.002
12	0.882	0.019	0.016	0.855	0.018	0.019
11	0.961	0.018	0.022	0.900	0.018	0.026
10	0.988	0.017	0.026	0.934	0.017	0.028
9	0.999	0.018	0.028	0.972	0.018	0.028
8	1.000	0.017	0.028	0.998	0.018	0.025
7	0.979	0.019	0.024	1.000	0.019	0.017
6	0.909	0.021	0.019	0.953	0.022	0.013
5	0.309	0.029	0.015	0.251	0.031	0.011
4	0.023	0.574	0.015	0.017	0.562	0.011
3	0.021	0.931	0.015	0.013	0.885	0.011
2	0.018	0.979	0.014	0.011	0.966	0.010
1	0.018	1.000	0.015	0.010	0.993	0.011
0	0.017	0.996	0.017	0.011	1.000	0.014
-1	0.016	0.996	0.017	0.009	0.998	0.013
-2	0.015	0.987	0.018	0.008	0.967	0.015
-3	0.013	0.942	0.018	0.007	0.846	0.016
-4	0.011	0.617	0.025	0.007	0.381	0.023
-5	0.008	0.027	0.217	0.007	0.019	0.297
-6	0.016	0.016	0.888	0.021	0.012	0.850
-7	0.021	0.013	0.974	0.026	0.010	0.968
-8	0.024	0.012	0.991	0.029	0.009	1.000
-9	0.024	0.010	1.000	0.030	0.008	0.990
-10	0.022	0.008	0.991	0.028	0.007	0.959

-11	0.016	0.008	0.971	0.020	0.006	0.911
-12	0.007	0.007	0.911	0.009	0.006	0.830
-13	0.000	0.006	0.765	0.001	0.005	0.564
-14	0.000	0.004	0.148	0.000	0.004	0.046
-15	0.001	0.004	0.017	0.000	0.004	0.012
-16	0.002	0.003	0.013	0.002	0.002	0.009
-17	0.004	0.002	0.011	0.003	0.002	0.007
-18	0.004	0.002	0.010	0.004	0.002	0.006
-19	0.006	0.001	0.010	0.005	0.001	0.006
-20	0.005	0.000	0.009	0.005	0.000	0.006

Table A12. Spectrometer Wavenumber Position – Double Scan

Sample	Det. 1	Det. 2	Det. 3	Det. 4	Det. 5	Det. 6
1	148.66	148.57	148.66	148.36	148.45	148.36
2	153.99	153.89	153.99	153.66	153.74	153.66
3	159.31	159.21	159.31	158.95	159.06	158.95
4	164.61	164.50	164.61	164.25	164.35	164.25
5	169.94	169.82	169.94	169.58	169.64	169.58
6	175.23	175.11	175.23	174.87	174.96	174.87
7	180.56	180.43	180.56	180.17	180.25	180.17
8	185.86	185.75	185.86	185.47	185.57	185.47
9	191.19	191.04	191.19	190.77	190.86	190.77
10	196.51	196.36	196.51	196.06	196.15	196.06
11	201.81	201.65	201.81	201.36	201.47	201.36
12	207.14	206.97	207.14	206.69	206.76	206.69
13	212.43	212.29	212.43	211.98	212.08	211.98
14	217.76	217.58	217.76	217.28	217.37	217.28
15	223.06	222.90	223.06	222.58	222.66	222.58
16	228.38	228.19	228.38	227.87	227.98	227.87
17	233.68	233.52	233.68	233.17	233.28	233.17
18	239.01	238.81	239.01	238.50	238.60	238.50
19	244.31	244.13	244.31	243.79	243.89	243.79
20	249.60	249.45	249.60	249.09	249.18	249.09
21	254.93	254.74	254.93	254.39	254.50	254.39
22	260.23	260.06	260.23	259.69	259.79	259.69
23	265.55	265.35	265.55	264.98	265.11	264.98
24	270.85	270.67	270.85	270.28	270.40	270.28
25	276.18	275.99	276.18	275.58	275.69	275.58
26	281.47	281.28	281.47	280.90	281.01	280.90
27	286.80	286.60	286.80	286.20	286.30	286.20
28	292.10	291.89	292.10	291.50	291.62	291.50
29	297.42	297.21	297.42	296.79	296.91	296.79
30	302.72	302.50	302.72	302.09	302.20	302.09
31	308.02	307.82	308.02	307.39	307.52	307.39

32	313.35	313.14	313.35	312.69	312.81	312.69
33	318.64	318.43	318.64	317.98	318.13	317.98
34	323.97	323.75	323.97	323.28	323.42	323.28
35	329.27	329.04	329.27	328.58	328.71	328.58
36	334.59	334.36	334.59	333.87	334.03	333.87
37	339.89	339.65	339.89	339.20	339.32	339.20
38	345.19	344.97	345.19	344.50	344.64	344.50
39	350.51	350.30	350.51	349.79	349.93	349.79
40	355.81	355.59	355.81	355.09	355.23	355.09
41	361.14	360.91	361.14	360.39	360.55	360.39
42	366.44	366.20	366.44	365.68	365.84	365.68
43	371.73	371.52	371.73	370.98	371.16	370.98
44	377.06	376.81	377.06	376.28	376.45	376.28
45	382.36	382.13	382.36	381.58	381.74	381.58
46	387.68	387.45	387.68	386.87	387.06	386.87
47	392.98	392.74	392.98	392.17	392.35	392.17
48	398.28	398.06	398.28	397.47	397.67	397.47
49	403.60	403.35	403.60	402.76	402.96	402.76
50	408.90	408.67	408.90	408.09	408.25	408.09
51	414.23	413.96	414.23	413.39	413.57	413.39
52	419.52	419.28	419.52	418.68	418.86	418.68
53	424.85	424.60	424.85	423.98	424.18	423.98
54	430.15	429.89	430.15	429.28	429.47	429.28
55	435.45	435.21	435.45	434.57	434.76	434.57
56	440.77	440.50	440.77	439.87	440.08	439.87
57	446.07	445.82	446.07	445.17	445.37	445.17
58	451.40	451.14	451.40	450.47	450.69	450.47
59	456.69	456.43	456.69	455.76	455.98	455.76
60	462.02	461.75	462.02	461.06	461.27	461.06
61	467.32	467.05	467.32	466.36	466.59	466.36
62	472.64	472.37	472.64	471.65	471.89	471.65
63	477.94	477.66	477.94	476.95	477.21	476.95
64	483.24	482.98	483.24	482.25	482.50	482.25

65	488.56	488.30	488.56	487.54	487.79	487.54
66	493.86	493.59	493.86	492.84	493.11	492.84
67	499.19	498.91	499.19	498.17	498.40	498.17
68	504.49	504.20	504.49	503.47	503.69	503.47
69	509.81	509.52	509.81	508.76	509.01	508.76
70	515.11	514.84	515.11	514.06	514.30	514.06
71	520.41	520.13	520.41	519.36	519.62	519.36
72	525.73	525.45	525.73	524.65	524.91	524.65
73	531.03	530.74	531.03	529.95	530.20	529.95
74	536.36	536.06	536.36	535.25	535.52	535.25
75	541.65	541.35	541.65	540.54	540.81	540.54
76	546.98	546.67	546.98	545.84	546.13	545.84
77	552.28	551.99	552.28	551.14	551.42	551.14
78	557.61	557.28	557.61	556.43	556.71	556.43
79	562.90	562.60	562.90	561.73	562.03	561.73
80	568.23	567.89	568.23	567.03	567.32	567.03
81	573.53	573.21	573.53	572.36	572.64	572.36
82	578.85	578.50	578.85	577.65	577.93	577.65
83	584.15	583.82	584.15	582.95	583.22	582.95
84	589.48	589.15	589.48	588.25	588.55	588.25
85	594.77	594.44	594.77	593.54	593.84	593.54
86	600.07	599.76	600.07	598.84	599.16	598.84
87	605.40	605.05	605.40	604.14	604.45	604.14
88	610.69	610.37	610.69	609.43	609.74	609.43
89	616.02	615.66	616.02	614.73	615.06	614.73
90	621.32	620.98	621.32	620.03	620.35	620.03
91	626.65	626.30	626.65	625.32	625.67	625.32
92	631.94	631.59	631.94	630.65	630.96	630.65
93	637.27	636.91	637.27	635.95	636.25	635.95
94	642.57	642.20	642.57	641.25	641.57	641.25
95	647.86	647.52	647.86	646.54	646.86	646.54
96	653.19	652.81	653.19	651.84	652.18	651.84
97	658.49	658.13	658.49	657.14	657.47	657.14

98	663.81	663.42	663.81	662.43	662.76	662.43
99	669.11	668.74	669.11	667.73	668.08	667.73
100	674.44	674.06	674.44	673.03	673.37	673.03
101	679.74	679.35	679.74	678.32	678.69	678.32
102	685.06	684.67	685.06	683.62	683.98	683.62
103	690.36	689.96	690.36	688.95	689.27	688.95
104	695.66	695.28	695.66	694.25	694.59	694.25
105	700.98	700.57	700.98	699.54	699.88	699.54
106	706.28	705.90	706.28	704.84	705.20	704.84
107	711.61	711.22	711.61	710.14	710.50	710.14
108	716.90	716.51	716.90	715.43	715.79	715.43
109	722.23	721.83	722.23	720.73	721.11	720.73
110	727.53	727.12	727.53	726.03	726.40	726.03
111	732.82	732.44	732.82	731.32	731.72	731.32
112	738.15	737.76	738.15	736.62	737.01	736.62
113	743.45	743.05	743.45	741.95	742.30	741.95
114	748.78	748.37	748.78	747.24	747.62	747.24
115	754.07	753.66	754.07	752.54	752.91	752.54
116	759.37	758.98	759.37	757.84	758.23	757.84
117	764.70	764.27	764.70	763.14	763.52	763.14
118	769.99	769.59	769.99	768.43	768.81	768.43
119	775.32	774.91	775.32	773.73	774.13	773.73
120	780.62	780.20	780.62	779.03	779.42	779.03
121	785.94	785.52	785.94	784.32	784.74	784.32
122	791.24	790.81	791.24	789.62	790.03	789.62
123	796.54	796.13	796.54	794.92	795.32	794.92
124	801.86	801.42	801.86	800.24	800.64	800.24
125	807.16	806.74	807.16	805.54	805.93	805.54
126	812.49	812.06	812.49	810.84	811.25	810.84
127	817.79	817.35	817.79	816.13	816.54	816.13
128	823.11	822.68	823.11	821.43	821.83	821.43
129	828.41	827.97	828.41	826.73	827.16	826.73
130	833.71	833.29	833.71	832.03	832.45	832.03

131	839.03	838.58	839.03	837.32	837.77	837.32
132	844.33	843.90	844.33	842.62	843.06	842.62
133	849.66	849.22	849.66	847.92	848.35	847.92
134	854.95	854.51	854.95	853.21	853.67	853.21
135	860.25	859.83	860.25	858.51	858.96	858.51
136	865.58	865.12	865.58	863.81	864.28	863.81
137	870.88	870.44	870.88	869.10	869.57	869.10
138	876.20	875.73	876.20	874.43	874.86	874.43
139	881.50	881.05	881.50	879.73	880.18	879.73
140	886.80	886.37	886.80	885.03	885.47	885.03
141	892.12	891.66	892.12	890.32	890.79	890.32
142	897.42	896.98	897.42	895.62	896.08	895.62
143	902.75	902.27	902.75	900.92	901.37	900.92
144	908.04	907.59	908.04	906.21	906.69	906.21
145	913.37	912.88	913.37	911.51	911.98	911.51
146	918.67	918.20	918.67	916.81	917.27	916.81
147	923.96	923.49	923.96	922.10	922.59	922.10
148	929.29	928.81	929.29	927.40	927.88	927.40
149	934.59	934.13	934.59	932.70	933.20	932.70
150	939.92	939.43	939.92	937.99	938.49	937.99
151	945.21	944.75	945.21	943.32	943.79	943.32
152	950.51	950.04	950.51	948.62	949.11	948.62
153	955.84	955.36	955.84	953.92	954.40	953.92
154	961.13	960.65	961.13	959.21	959.72	959.21
155	966.46	965.97	966.46	964.51	965.01	964.51
156	971.76	971.26	971.76	969.81	970.30	969.81
157	977.08	976.58	977.08	975.10	975.62	975.10
158	982.38	981.90	982.38	980.40	980.91	980.40
159	987.68	987.19	987.68	985.70	986.23	985.70
160	993.01	992.51	993.01	990.99	991.52	990.99
161	998.30	997.80	998.30	996.29	996.81	996.29
162	1003.63	1003.12	1003.63	1001.59	1002.13	1001.59
163	1008.93	1008.41	1008.93	1006.88	1007.42	1006.88

164	1014.22	1013.73	1014.22	1012.18	1012.74	1012.18
165	1019.55	1019.05	1019.55	1017.48	1018.03	1017.48
166	1024.85	1024.34	1024.85	1022.78	1023.32	1022.78
167	1030.17	1029.66	1030.17	1028.10	1028.64	1028.10
168	1035.47	1034.95	1035.47	1033.40	1033.93	1033.40
169	1040.77	1040.27	1040.77	1038.70	1039.25	1038.70
170	1046.09	1045.56	1046.09	1043.99	1044.54	1043.99
171	1051.39	1050.88	1051.39	1049.29	1049.83	1049.29
172	1056.72	1056.17	1056.72	1054.59	1055.15	1054.59
173	1062.01	1061.49	1062.01	1059.88	1060.44	1059.88
174	1067.34	1066.82	1067.34	1065.18	1065.76	1065.18
175	1072.64	1072.11	1072.64	1070.48	1071.06	1070.48
176	1077.94	1077.43	1077.94	1075.77	1076.35	1075.77
177	1083.26	1082.72	1083.26	1081.07	1081.67	1081.07
178	1088.56	1088.04	1088.56	1086.37	1086.96	1086.37
179	1093.89	1093.33	1093.89	1091.67	1092.25	1091.67
180	1099.18	1098.65	1099.18	1096.99	1097.57	1096.99
181	1104.48	1103.97	1104.48	1102.29	1102.86	1102.29
182	1109.81	1109.26	1109.81	1107.59	1108.18	1107.59
183	1115.10	1114.58	1115.10	1112.88	1113.47	1112.88
184	1120.40	1119.87	1120.40	1118.18	1118.76	1118.18
185	1125.73	1125.19	1125.73	1123.48	1124.08	1123.48
186	1131.03	1130.48	1131.03	1128.77	1129.37	1128.77
187	1136.35	1135.80	1136.35	1134.07	1134.69	1134.07
188	1141.65	1141.12	1141.65	1139.37	1139.98	1139.37
189	1146.95	1146.41	1146.95	1144.66	1145.27	1144.66
190	1152.27	1151.73	1152.27	1149.96	1150.59	1149.96
191	1157.57	1157.02	1157.57	1155.26	1155.88	1155.26
192	1162.90	1162.34	1162.90	1160.56	1161.20	1160.56
193	1168.19	1167.63	1168.19	1165.85	1166.49	1165.85
194	1173.49	1172.95	1173.49	1171.15	1171.78	1171.15
195	1178.82	1178.24	1178.82	1176.48	1177.10	1176.48
196	1184.11	1183.57	1184.11	1181.77	1182.39	1181.77

197	1189.44	1188.89	1189.44	1187.07	1187.72	1187.07
198	1194.74	1194.18	1194.74	1192.37	1193.01	1192.37
199	1200.04	1199.50	1200.04	1197.66	1198.30	1197.66
200	1205.36	1204.79	1205.36	1202.96	1203.62	1202.96
201	1210.66	1210.11	1210.66	1208.26	1208.91	1208.26
202	1215.99	1215.40	1215.99	1213.56	1214.23	1213.56
203	1221.28	1220.72	1221.28	1218.85	1219.52	1218.85
204	1226.58	1226.01	1226.58	1224.15	1224.81	1224.15
205	1231.91	1231.33	1231.91	1229.45	1230.13	1229.45
206	1237.20	1236.65	1237.20	1234.74	1235.42	1234.74
207	1242.53	1241.94	1242.53	1240.04	1240.74	1240.04
208	1247.83	1247.26	1247.83	1245.34	1246.03	1245.34
209	1253.13	1252.55	1253.13	1250.66	1251.32	1250.66
210	1258.45	1257.87	1258.45	1255.96	1256.64	1255.96
211	1263.75	1263.16	1263.75	1261.26	1261.93	1261.26
212	1269.08	1268.48	1269.08	1266.55	1267.25	1266.55
213	1274.37	1273.77	1274.37	1271.85	1272.54	1271.85
214	1279.67	1279.09	1279.67	1277.15	1277.83	1277.15
215	1285.00	1284.38	1285.00	1282.45	1283.15	1282.45
216	1290.29	1289.70	1290.29	1287.74	1288.44	1287.74
217	1295.62	1295.02	1295.62	1293.04	1293.76	1293.04
218	1300.92	1300.32	1300.92	1298.34	1299.05	1298.34
219	1306.21	1305.64	1306.21	1303.63	1304.34	1303.63
220	1311.54	1310.93	1311.54	1308.93	1309.67	1308.93
221	1316.84	1316.25	1316.84	1314.23	1314.96	1314.23
222	1322.17	1321.54	1322.17	1319.52	1320.25	1319.52
223	1327.46	1326.86	1327.46	1324.82	1325.57	1324.82
224	1332.76	1332.15	1332.76	1330.12	1330.86	1330.12
225	1338.09	1337.47	1338.09	1335.41	1336.18	1335.41
226	1343.38	1342.79	1343.38	1340.71	1341.47	1340.71
227	1348.71	1348.08	1348.71	1346.01	1346.76	1346.01
228	1354.01	1353.40	1354.01	1351.31	1352.08	1351.31
229	1359.30	1358.69	1359.30	1356.63	1357.37	1356.63

230	1364.63	1364.01	1364.63	1361.93	1362.69	1361.93
231	1369.93	1369.30	1369.93	1367.23	1367.98	1367.23
232	1375.25	1374.62	1375.25	1372.52	1373.27	1372.52
233	1380.55	1379.91	1380.55	1377.82	1378.59	1377.82
234	1385.88	1385.23	1385.88	1383.12	1383.88	1383.12
235	1391.18	1390.55	1391.18	1388.41	1389.17	1388.41
236	1396.47	1395.84	1396.47	1393.71	1394.49	1393.71
237	1401.80	1401.16	1401.80	1399.01	1399.78	1399.01
238	1407.10	1406.45	1407.10	1404.31	1405.10	1404.31
239	1412.42	1411.77	1412.42	1409.60	1410.39	1409.60
240	1417.72	1417.06	1417.72	1414.90	1415.68	1414.90
241	1423.05	1422.39	1423.05	1420.20	1421.00	1420.20
242	1428.34	1427.68	1428.34	1425.49	1426.30	1425.49
243	1433.64	1433.00	1433.64	1430.79	1431.62	1430.79
244	1438.97	1438.32	1438.97	1436.09	1436.91	1436.09
245	1444.27	1443.61	1444.27	1441.38	1442.20	1441.38
246	1449.59	1448.93	1449.59	1446.68	1447.52	1446.68
247	1454.89	1454.22	1454.89	1451.98	1452.81	1451.98
248	1460.22	1459.54	1460.22	1457.27	1458.13	1457.27
249	1465.51	1464.83	1465.51	1462.57	1463.42	1462.57
250	1470.81	1470.15	1470.81	1467.87	1468.71	1467.87
251	1476.14	1475.44	1476.14	1473.17	1474.03	1473.17
252	1481.43	1480.76	1481.43	1478.49	1479.32	1478.49
253	1486.76	1486.05	1486.76	1483.79	1484.61	1483.79
254	1492.06	1491.37	1492.06	1489.09	1489.93	1489.09
255	1497.38	1496.69	1497.38	1494.38	1495.22	1494.38
256	1502.68	1501.98	1502.68	1499.68	1500.54	1499.68
257	1508.01	1507.30	1508.01	1504.98	1505.83	1504.98
258	1513.31	1512.59	1513.31	1510.27	1511.12	1510.27
259	1518.63	1517.91	1518.63	1515.57	1516.44	1515.57
260	1523.93	1523.20	1523.93	1520.87	1521.73	1520.87
261	1529.26	1528.52	1529.26	1526.16	1527.05	1526.16
262	1534.55	1533.81	1534.55	1531.46	1532.34	1531.46

263	1539.88	1539.14	1539.88	1536.76	1537.63	1536.76
264	1545.18	1544.43	1545.18	1542.06	1542.96	1542.06
265	1550.50	1549.75	1550.50	1547.35	1548.25	1547.35
266	1555.80	1555.07	1555.80	1552.65	1553.57	1552.65
267	1561.13	1560.36	1561.13	1557.95	1558.86	1557.95
268	1566.43	1565.68	1566.43	1563.24	1564.15	1563.24
269	1571.75	1570.97	1571.75	1568.54	1569.47	1568.54
270	1577.05	1576.29	1577.05	1573.84	1574.76	1573.84
271	1582.38	1581.58	1582.38	1579.13	1580.08	1579.13
272	1587.67	1586.90	1587.67	1584.43	1585.37	1584.43
273	1593.00	1592.19	1593.00	1589.73	1590.66	1589.73
274	1598.30	1597.51	1598.30	1595.03	1595.98	1595.03
275	1603.62	1602.80	1603.62	1600.32	1601.27	1600.32
276	1608.92	1608.12	1608.92	1605.62	1606.59	1605.62
277	1614.25	1613.41	1614.25	1610.92	1611.88	1610.92
278	1619.54	1618.73	1619.54	1616.21	1617.17	1616.21
279	1624.87	1624.05	1624.87	1621.51	1622.49	1621.51
280	1630.17	1629.34	1630.17	1626.81	1627.78	1626.81
281	1635.50	1634.66	1635.50	1632.10	1633.07	1632.10
282	1640.82	1639.95	1640.82	1637.40	1638.39	1637.40
283	1646.12	1645.27	1646.12	1642.70	1643.68	1642.70
284	1651.45	1650.56	1651.45	1647.99	1649.00	1647.99
285	1656.74	1655.89	1656.74	1653.29	1654.29	1653.29
286	1662.07	1661.18	1662.07	1658.59	1659.58	1658.59
287	1667.40	1666.50	1667.40	1663.89	1664.91	1663.89
288	1672.69	1671.79	1672.69	1669.15	1670.20	1669.15
289	1678.02	1677.11	1678.02	1674.45	1675.52	1674.45
290	1683.32	1682.40	1683.32	1679.75	1680.81	1679.75
291	1688.64	1687.72	1688.64	1685.04	1686.10	1685.04
292	1693.97	1693.04	1693.97	1690.34	1691.42	1690.34
293	1699.27	1698.33	1699.27	1695.64	1696.71	1695.64
294	1704.60	1703.65	1704.60	1700.93	1702.03	1700.93
295	1709.92	1708.94	1709.92	1706.23	1707.32	1706.23

296	1715.22	1714.26	1715.22	1711.53	1712.61	1711.53

Table A13. Spectrometer Line Shape. Full-width Half-maximum. Double Scan.

	Det. 1	Det. 2	Det. 3	Det. 4	Det. 5	Det. 6
1	6.33	6.24	6.33	6.30	6.24	6.30
2	6.33	6.24	6.33	6.30	6.21	6.30
3	6.33	6.24	6.33	6.33	6.24	6.33
4	6.33	6.27	6.33	6.33	6.24	6.33
5	6.36	6.24	6.36	6.33	6.21	6.33
6	6.33	6.27	6.33	6.33	6.24	6.33
7	6.36	6.27	6.36	6.33	6.24	6.33
8	6.36	6.27	6.36	6.33	6.24	6.33
9	6.36	6.27	6.36	6.33	6.24	6.33
10	6.39	6.27	6.39	6.33	6.27	6.33
11	6.36	6.27	6.36	6.33	6.24	6.33
12	6.39	6.27	6.39	6.36	6.27	6.36
13	6.36	6.27	6.36	6.36	6.27	6.36
14	6.39	6.27	6.39	6.36	6.27	6.36
15	6.36	6.30	6.36	6.36	6.27	6.36
16	6.39	6.27	6.39	6.36	6.27	6.36
17	6.39	6.30	6.39	6.39	6.27	6.39
18	6.39	6.30	6.39	6.39	6.27	6.39
19	6.39	6.30	6.39	6.39	6.27	6.39
20	6.39	6.30	6.39	6.39	6.27	6.39
21	6.39	6.30	6.39	6.36	6.30	6.36
22	6.39	6.30	6.39	6.36	6.27	6.36
23	6.39	6.33	6.39	6.39	6.30	6.39
24	6.42	6.30	6.42	6.39	6.30	6.39
25	6.42	6.33	6.42	6.39	6.27	6.39
26	6.42	6.33	6.42	6.39	6.30	6.39
27	6.42	6.33	6.42	6.39	6.30	6.39
28	6.42	6.33	6.42	6.39	6.30	6.39
29	6.45	6.33	6.45	6.39	6.30	6.39
30	6.42	6.33	6.42	6.42	6.30	6.42
31	6.45	6.33	6.45	6.42	6.30	6.42

32	6.45	6.33	6.45	6.42	6.30	6.42
33	6.45	6.33	6.45	6.42	6.30	6.42
34	6.45	6.36	6.45	6.42	6.30	6.42
35	6.48	6.33	6.48	6.42	6.33	6.42
36	6.45	6.36	6.45	6.42	6.30	6.42
37	6.48	6.33	6.48	6.45	6.33	6.45
38	6.48	6.36	6.48	6.45	6.33	6.45
39	6.48	6.36	6.48	6.45	6.30	6.45
40	6.48	6.36	6.48	6.45	6.33	6.45
41	6.51	6.36	6.51	6.42	6.30	6.42
42	6.48	6.36	6.48	6.42	6.33	6.42
43	6.51	6.36	6.51	6.42	6.33	6.42
44	6.51	6.36	6.51	6.42	6.33	6.42
45	6.51	6.36	6.51	6.45	6.33	6.45
46	6.51	6.36	6.51	6.45	6.33	6.45
47	6.54	6.39	6.54	6.45	6.33	6.45
48	6.51	6.36	6.51	6.45	6.33	6.45
49	6.54	6.39	6.54	6.45	6.33	6.45
50	6.57	6.36	6.57	6.45	6.33	6.45
51	6.54	6.39	6.54	6.45	6.33	6.45
52	6.57	6.39	6.57	6.48	6.33	6.48
53	6.57	6.39	6.57	6.48	6.33	6.48
54	6.60	6.39	6.60	6.48	6.36	6.48
55	6.57	6.39	6.57	6.48	6.33	6.48
56	6.60	6.39	6.60	6.51	6.36	6.51
57	6.63	6.42	6.63	6.51	6.33	6.51
58	6.60	6.39	6.60	6.51	6.33	6.51
59	6.63	6.39	6.63	6.54	6.36	6.54
60	6.63	6.42	6.63	6.54	6.33	6.54
61	6.66	6.39	6.66	6.54	6.36	6.54
62	6.66	6.42	6.66	6.54	6.36	6.54
63	6.66	6.39	6.66	6.54	6.33	6.54
64	6.69	6.42	6.69	6.54	6.36	6.54

65	6.66	6.42	6.66	6.57	6.33	6.57
66	6.69	6.42	6.69	6.57	6.36	6.57
67	6.72	6.42	6.72	6.57	6.36	6.57
68	6.72	6.42	6.72	6.57	6.36	6.57
69	6.72	6.42	6.72	6.57	6.36	6.57
70	6.72	6.45	6.72	6.60	6.33	6.60
71	6.75	6.42	6.75	6.60	6.36	6.60
72	6.75	6.45	6.75	6.60	6.36	6.60
73	6.75	6.42	6.75	6.60	6.36	6.60
74	6.78	6.42	6.78	6.60	6.36	6.60
75	6.81	6.45	6.81	6.63	6.36	6.63
76	6.78	6.42	6.78	6.63	6.36	6.63
77	6.81	6.45	6.81	6.63	6.36	6.63
78	6.84	6.45	6.84	6.63	6.36	6.63
79	6.84	6.45	6.84	6.63	6.36	6.63
80	6.84	6.45	6.84	6.66	6.39	6.66
81	6.84	6.45	6.84	6.66	6.36	6.66
82	6.87	6.45	6.87	6.69	6.36	6.69
83	6.90	6.48	6.90	6.69	6.39	6.69
84	6.87	6.45	6.87	6.69	6.36	6.69
85	6.90	6.48	6.90	6.72	6.39	6.72
86	6.93	6.48	6.93	6.72	6.36	6.72
87	6.90	6.48	6.90	6.72	6.36	6.72
88	6.93	6.48	6.93	6.72	6.39	6.72
89	6.96	6.45	6.96	6.75	6.36	6.75
90	6.96	6.48	6.96	6.75	6.39	6.75
91	6.96	6.48	6.96	6.75	6.39	6.75
92	6.99	6.48	6.99	6.75	6.39	6.75
93	6.99	6.48	6.99	6.78	6.39	6.78
94	7.02	6.48	7.02	6.78	6.36	6.78
95	6.99	6.48	6.99	6.78	6.39	6.78
96	7.02	6.51	7.02	6.78	6.39	6.78
97	7.05	6.48	7.05	6.78	6.39	6.78

98	7.05	6.51	7.05	6.81	6.39	6.81
99	7.08	6.51	7.08	6.81	6.39	6.81
100	7.08	6.51	7.08	6.84	6.39	6.84
101	7.08	6.51	7.08	6.84	6.39	6.84
102	7.11	6.51	7.11	6.87	6.39	6.87
103	7.14	6.51	7.14	6.87	6.39	6.87
104	7.11	6.54	7.11	6.87	6.39	6.87
105	7.14	6.51	7.14	6.87	6.39	6.87
106	7.17	6.54	7.17	6.90	6.39	6.90
107	7.17	6.54	7.17	6.90	6.42	6.90
108	7.20	6.54	7.20	6.90	6.39	6.90
109	7.20	6.54	7.20	6.93	6.42	6.93
110	7.20	6.54	7.20	6.93	6.39	6.93
111	7.23	6.54	7.23	6.93	6.39	6.93
112	7.26	6.54	7.26	6.93	6.42	6.93
113	7.26	6.54	7.26	6.96	6.39	6.96
114	7.29	6.54	7.29	6.99	6.42	6.99
115	7.29	6.54	7.29	6.99	6.42	6.99
116	7.32	6.54	7.32	6.99	6.39	6.99
117	7.32	6.57	7.32	7.02	6.42	7.02
118	7.35	6.54	7.35	7.02	6.39	7.02
119	7.38	6.57	7.38	7.02	6.42	7.02
120	7.38	6.57	7.38	7.02	6.42	7.02
121	7.38	6.57	7.38	7.05	6.42	7.05
122	7.41	6.57	7.41	7.05	6.42	7.05
123	7.41	6.57	7.41	7.05	6.42	7.05
124	7.44	6.57	7.44	7.08	6.42	7.08
125	7.47	6.60	7.47	7.11	6.42	7.11
126	7.50	6.57	7.50	7.11	6.42	7.11
127	7.50	6.60	7.50	7.11	6.42	7.11
128	7.53	6.60	7.53	7.14	6.42	7.14
129	7.53	6.60	7.53	7.14	6.42	7.14
130	7.56	6.60	7.56	7.14	6.42	7.14

131	7.56	6.63	7.56	7.14	6.45	7.14
132	7.59	6.60	7.59	7.17	6.42	7.17
133	7.62	6.63	7.62	7.20	6.45	7.20
134	7.65	6.60	7.65	7.20	6.42	7.20
135	7.65	6.63	7.65	7.23	6.42	7.23
136	7.68	6.63	7.68	7.23	6.45	7.23
137	7.71	6.63	7.71	7.23	6.42	7.23
138	7.74	6.63	7.74	7.23	6.45	7.23
139	7.74	6.66	7.74	7.26	6.45	7.26
140	7.77	6.63	7.77	7.29	6.42	7.29
141	7.77	6.66	7.77	7.29	6.45	7.29
142	7.80	6.63	7.80	7.32	6.42	7.32
143	7.83	6.66	7.83	7.32	6.45	7.32
144	7.83	6.66	7.83	7.32	6.45	7.32
145	7.86	6.66	7.86	7.35	6.45	7.35
146	7.89	6.66	7.89	7.38	6.45	7.38
147	7.92	6.69	7.92	7.38	6.45	7.38
148	7.95	6.66	7.95	7.41	6.45	7.41
149	7.98	6.69	7.98	7.41	6.45	7.41
150	7.98	6.69	7.98	7.41	6.45	7.41
151	8.01	6.69	8.01	7.44	6.45	7.44
152	8.04	6.69	8.04	7.47	6.45	7.47
153	8.07	6.69	8.07	7.47	6.45	7.47
154	8.10	6.69	8.10	7.50	6.45	7.50
155	8.13	6.72	8.13	7.50	6.48	7.50
156	8.13	6.69	8.13	7.50	6.45	7.50
157	8.16	6.72	8.16	7.56	6.48	7.56
158	8.19	6.72	8.19	7.56	6.45	7.56
159	8.22	6.72	8.22	7.56	6.45	7.56
160	8.25	6.72	8.25	7.59	6.48	7.59
161	8.28	6.75	8.28	7.62	6.45	7.62
162	8.31	6.72	8.31	7.65	6.48	7.65
163	8.31	6.75	8.31	7.65	6.48	7.65

164	8.34	6.72	8.34	7.65	6.48	7.65
165	8.37	6.75	8.37	7.68	6.48	7.68
166	8.40	6.75	8.40	7.71	6.48	7.71
167	8.43	6.75	8.43	7.74	6.48	7.74
168	8.46	6.75	8.46	7.74	6.48	7.74
169	8.49	6.78	8.49	7.74	6.48	7.74
170	8.52	6.78	8.52	7.80	6.48	7.80
171	8.55	6.78	8.55	7.80	6.48	7.80
172	8.55	6.81	8.55	7.83	6.48	7.83
173	8.58	6.78	8.58	7.86	6.48	7.86
174	8.61	6.81	8.61	7.86	6.51	7.86
175	8.67	6.81	8.67	7.89	6.48	7.89
176	8.70	6.81	8.70	7.89	6.51	7.89
177	8.73	6.81	8.73	7.95	6.48	7.95
178	8.76	6.81	8.76	7.95	6.48	7.95
179	8.79	6.81	8.79	7.98	6.51	7.98
180	8.82	6.84	8.82	8.01	6.48	8.01
181	8.85	6.81	8.85	8.01	6.51	8.01
182	8.88	6.84	8.88	8.04	6.51	8.04
183	8.91	6.84	8.91	8.04	6.48	8.04
184	8.94	6.84	8.94	8.10	6.51	8.10
185	9.00	6.84	9.00	8.10	6.51	8.10
186	9.03	6.87	9.03	8.13	6.51	8.13
187	9.06	6.84	9.06	8.16	6.51	8.16
188	9.09	6.87	9.09	8.19	6.51	8.19
189	9.12	6.90	9.12	8.19	6.51	8.19
190	9.15	6.87	9.15	8.25	6.51	8.25
191	9.18	6.90	9.18	8.25	6.51	8.25
192	9.21	6.90	9.21	8.28	6.51	8.28
193	9.27	6.90	9.27	8.31	6.54	8.31
194	9.30	6.90	9.30	8.34	6.51	8.34
195	9.33	6.93	9.33	8.34	6.54	8.34
196	9.36	6.90	9.36	8.40	6.54	8.40

197	9.39	6.93	9.39	8.40	6.51	8.40
198	9.42	6.93	9.42	8.46	6.54	8.46
199	9.48	6.93	9.48	8.46	6.51	8.46
200	9.51	6.93	9.51	8.49	6.54	8.49
201	9.54	6.96	9.54	8.52	6.54	8.52
202	9.57	6.96	9.57	8.55	6.51	8.55
203	9.60	6.96	9.60	8.61	6.54	8.61
204	9.66	6.99	9.66	8.61	6.54	8.61
205	9.69	6.96	9.69	8.64	6.54	8.64
206	9.72	6.99	9.72	8.67	6.54	8.67
207	9.75	6.99	9.75	8.70	6.57	8.70
208	9.78	6.99	9.78	8.73	6.54	8.73
209	9.84	6.99	9.84	8.76	6.54	8.76
210	9.87	7.02	9.87	8.82	6.54	8.82
211	9.93	6.99	9.93	8.82	6.54	8.82
212	9.96	7.02	9.96	8.85	6.57	8.85
213	10.00	7.05	10.00	8.88	6.54	8.88
214	10.06	7.02	10.06	8.91	6.57	8.91
215	10.09	7.05	10.09	8.97	6.57	8.97
216	10.12	7.05	10.12	8.97	6.54	8.97
217	10.15	7.05	10.15	9.03	6.57	9.03
218	10.21	7.05	10.21	9.06	6.57	9.06
219	10.24	7.08	10.24	9.09	6.57	9.09
220	10.30	7.08	10.30	9.12	6.57	9.12
221	10.33	7.08	10.33	9.18	6.57	9.18
222	10.39	7.11	10.39	9.18	6.57	9.18
223	10.42	7.08	10.42	9.24	6.57	9.24
224	10.45	7.11	10.45	9.27	6.57	9.27
225	10.48	7.11	10.48	9.30	6.57	9.30
226	10.54	7.11	10.54	9.33	6.60	9.33
227	10.60	7.11	10.60	9.39	6.57	9.39
228	10.63	7.14	10.63	9.42	6.60	9.42
229	10.69	7.14	10.69	9.45	6.60	9.45

230	10.72	7.14	10.72	9.51	6.57	9.51
231	10.75	7.17	10.75	9.54	6.60	9.54
232	10.78	7.14	10.78	9.57	6.60	9.57
233	10.84	7.17	10.84	9.60	6.60	9.60
234	10.90	7.20	10.90	9.66	6.60	9.66
235	10.93	7.20	10.93	9.72	6.57	9.72
236	10.96	7.20	10.96	9.72	6.60	9.72
237	11.02	7.20	11.02	9.78	6.60	9.78
238	11.05	7.23	11.05	9.84	6.60	9.84
239	11.11	7.20	11.11	9.87	6.60	9.87
240	11.17	7.23	11.17	9.93	6.63	9.93
241	11.20	7.26	11.20	9.93	6.60	9.93
242	11.23	7.23	11.23	10.00	6.60	10.00
243	11.29	7.26	11.29	10.06	6.63	10.06
244	11.32	7.26	11.32	10.09	6.60	10.09
245	11.38	7.26	11.38	10.15	6.63	10.15
246	11.41	7.29	11.41	10.18	6.63	10.18
247	11.47	7.29	11.47	10.21	6.63	10.21
248	11.50	7.32	11.50	10.27	6.63	10.27
249	11.53	7.29	11.53	10.33	6.60	10.33
250	11.62	7.32	11.62	10.39	6.63	10.39
251	11.65	7.35	11.65	10.42	6.63	10.42
252	11.68	7.32	11.68	10.48	6.63	10.48
253	11.74	7.35	11.74	10.54	6.63	10.54
254	11.77	7.35	11.77	10.54	6.66	10.54
255	11.80	7.38	11.80	10.60	6.63	10.60
256	11.89	7.38	11.89	10.66	6.63	10.66
257	11.92	7.38	11.92	10.72	6.66	10.72
258	11.95	7.41	11.95	10.75	6.63	10.75
259	12.01	7.38	12.01	10.81	6.66	10.81
260	12.04	7.41	12.04	10.87	6.66	10.87
261	12.10	7.44	12.10	10.93	6.66	10.93
262	12.13	7.41	12.13	10.99	6.66	10.99

263	12.19	7.44	12.19	11.02	6.66	11.02
264	12.22	7.44	12.22	11.08	6.66	11.08
265	12.25	7.47	12.25	11.14	6.66	11.14
266	12.31	7.47	12.31	11.20	6.69	11.20
267	12.37	7.47	12.37	11.23	6.66	11.23
268	12.40	7.50	12.40	11.29	6.69	11.29
269	12.46	7.53	12.46	11.35	6.66	11.35
270	12.49	7.50	12.49	11.41	6.66	11.41
271	12.52	7.53	12.52	11.47	6.69	11.47
272	12.58	7.53	12.58	11.53	6.66	11.53
273	12.64	7.53	12.64	11.56	6.69	11.56
274	12.67	7.56	12.67	11.62	6.69	11.62
275	12.73	7.56	12.73	11.68	6.69	11.68
276	12.76	7.59	12.76	11.74	6.69	11.74
277	12.79	7.59	12.79	11.80	6.69	11.80
278	12.85	7.59	12.85	11.86	6.69	11.86
279	12.88	7.62	12.88	11.89	6.69	11.89
280	12.94	7.62	12.94	11.95	6.72	11.95
281	13.00	7.62	13.00	12.01	6.69	12.01
282	13.03	7.65	13.03	12.07	6.72	12.07
283	13.06	7.65	13.06	12.13	6.72	12.13
284	13.12	7.68	13.12	12.19	6.72	12.19
285	13.15	7.68	13.15	12.25	6.72	12.25
286	13.18	7.68	13.18	12.28	6.72	12.28
287	13.27	7.71	13.27	12.37	6.72	12.37
288	13.30	7.74	13.30	12.43	6.72	12.43
289	13.33	7.71	13.33	12.49	6.75	12.49
290	13.39	7.74	13.39	12.55	6.72	12.55
291	13.42	7.77	13.42	12.61	6.75	12.61
292	13.45	7.77	13.45	12.67	6.72	12.67
293	13.51	7.77	13.51	12.70	6.72	12.70
294	13.54	7.80	13.54	12.76	6.75	12.76
295	13.57	7.80	13.57	12.82	6.72	12.82

296	13.63	7.83	13.63	12.88	6.75	12.88

Table A14. Thermal Bolometer Relative Spectral Response

Wavenumber	Relative Spectral Response	Normalized Relative Spectral Response
2500	7.373E-05	7.642E-05
2490	2.418E-05	2.506E-05
2480	3.831E-07	3.970E-07
2470	-5.866E-06	-6.079E-06
2460	4.610E-05	4.778E-05
2450	9.032E-05	9.361E-05
2440	1.100E-04	1.140E-04
2430	1.033E-04	1.071E-04
2420	1.286E-04	1.333E-04
2410	1.412E-04	1.464E-04
2400	1.606E-04	1.664E-04
2390	1.964E-04	2.036E-04
2380	2.769E-04	2.870E-04
2370	2.835E-04	2.938E-04
2360	3.056E-04	3.167E-04
2350	2.752E-04	2.852E-04
2340	2.947E-04	3.054E-04
2330	3.338E-04	3.459E-04
2320	3.410E-04	3.534E-04
2310	3.490E-04	3.617E-04
2300	4.057E-04	4.205E-04
2290	4.602E-04	4.769E-04
2280	4.774E-04	4.948E-04
2270	4.926E-04	5.105E-04
2260	5.304E-04	5.497E-04
2250	5.616E-04	5.820E-04
2240	6.299E-04	6.528E-04
2230	6.906E-04	7.157E-04
2220	7.295E-04	7.561E-04
2210	8.106E-04	8.401E-04
2200	8.909E-04	9.234E-04
2190	9.779E-04	1.013E-03

2180	1.079E-03	1.119E-03
2170	1.251E-03	1.297E-03
2160	1.460E-03	1.514E-03
2150	1.629E-03	1.689E-03
2140	1.843E-03	1.910E-03
2130	2.077E-03	2.153E-03
2120	2.309E-03	2.393E-03
2110	2.537E-03	2.630E-03
2100	2.789E-03	2.890E-03
2090	3.056E-03	3.168E-03
2080	3.347E-03	3.468E-03
2070	3.618E-03	3.750E-03
2060	3.925E-03	4.068E-03
2050	4.245E-03	4.400E-03
2040	4.696E-03	4.867E-03
2030	5.248E-03	5.439E-03
2020	6.004E-03	6.223E-03
2010	7.191E-03	7.453E-03
2000	8.868E-03	9.191E-03
1990	1.140E-02	1.181E-02
1980	1.523E-02	1.578E-02
1970	2.114E-02	2.191E-02
1960	3.154E-02	3.268E-02
1950	4.823E-02	4.998E-02
1940	7.476E-02	7.748E-02
1930	1.148E-01	1.189E-01
1920	1.693E-01	1.754E-01
1910	2.366E-01	2.452E-01
1900	3.086E-01	3.198E-01
1890	3.815E-01	3.954E-01
1880	4.539E-01	4.704E-01
1870	5.254E-01	5.445E-01
1860	5.960E-01	6.177E-01
1850	6.649E-01	6.891E-01
1840	7.305E-01	7.571E-01

1830	7.892E-01	8.179E-01
1820	8.369E-01	8.673E-01
1810	8.712E-01	9.029E-01
1800	8.933E-01	9.258E-01
1790	9.088E-01	9.418E-01
1780	9.216E-01	9.551E-01
1770	9.322E-01	9.662E-01
1760	9.404E-01	9.747E-01
1750	9.460E-01	9.804E-01
1740	9.467E-01	9.811E-01
1730	9.440E-01	9.784E-01
1720	9.382E-01	9.724E-01
1710	9.303E-01	9.641E-01
1700	9.216E-01	9.551E-01
1690	9.116E-01	9.448E-01
1680	9.031E-01	9.360E-01
1670	8.970E-01	9.296E-01
1660	8.943E-01	9.269E-01
1650	8.954E-01	9.280E-01
1640	9.002E-01	9.330E-01
1630	9.082E-01	9.413E-01
1620	9.178E-01	9.512E-01
1610	9.283E-01	9.621E-01
1600	9.388E-01	9.730E-01
1590	9.477E-01	9.822E-01
1580	9.550E-01	9.897E-01
1570	9.615E-01	9.965E-01
1560	9.649E-01	1.000E+00
1550	9.644E-01	9.994E-01
1540	9.605E-01	9.954E-01
1530	9.529E-01	9.876E-01
1520	9.436E-01	9.779E-01
1510	9.320E-01	9.659E-01
1500	9.195E-01	9.530E-01
1490	9.069E-01	9.399E-01

1480	8.950E-01	9.275E-01
1470	8.850E-01	9.172E-01
1460	8.761E-01	9.079E-01
1450	8.692E-01	9.009E-01
1440	8.653E-01	8.968E-01
1430	8.625E-01	8.939E-01
1420	8.620E-01	8.933E-01
1410	8.632E-01	8.946E-01
1400	8.661E-01	8.976E-01
1390	8.703E-01	9.019E-01
1380	8.747E-01	9.065E-01
1370	8.797E-01	9.117E-01
1360	8.837E-01	9.158E-01
1350	8.848E-01	9.170E-01
1340	8.862E-01	9.184E-01
1330	8.877E-01	9.200E-01
1320	8.895E-01	9.219E-01
1310	8.900E-01	9.223E-01
1300	8.882E-01	9.205E-01
1290	8.843E-01	9.165E-01
1280	8.792E-01	9.112E-01
1270	8.738E-01	9.056E-01
1260	8.682E-01	8.998E-01
1250	8.652E-01	8.967E-01
1240	8.660E-01	8.975E-01
1230	8.643E-01	8.957E-01
1220	8.603E-01	8.916E-01
1210	8.557E-01	8.868E-01
1200	8.505E-01	8.815E-01
1190	8.448E-01	8.755E-01
1180	8.369E-01	8.674E-01
1170	8.272E-01	8.573E-01
1160	8.173E-01	8.470E-01
1150	8.094E-01	8.388E-01
1140	8.029E-01	8.321E-01

1130	7.975E-01	8.266E-01
1120	7.948E-01	8.238E-01
1110	7.925E-01	8.214E-01
1100	7.880E-01	8.167E-01
1090	7.850E-01	8.136E-01
1080	7.823E-01	8.108E-01
1070	7.808E-01	8.092E-01
1060	7.803E-01	8.087E-01
1050	7.811E-01	8.095E-01
1040	7.805E-01	8.089E-01
1030	7.761E-01	8.043E-01
1020	7.682E-01	7.962E-01
1010	7.593E-01	7.869E-01
1000	7.514E-01	7.787E-01
990	7.465E-01	7.737E-01
980	7.407E-01	7.677E-01
970	7.361E-01	7.628E-01
960	7.326E-01	7.593E-01
950	7.300E-01	7.566E-01
940	7.268E-01	7.532E-01
930	7.231E-01	7.494E-01
920	7.200E-01	7.462E-01
910	7.185E-01	7.446E-01
900	7.181E-01	7.442E-01
890	7.183E-01	7.445E-01
880	7.189E-01	7.451E-01
870	7.208E-01	7.471E-01
860	7.239E-01	7.503E-01
850	7.291E-01	7.556E-01
840	7.350E-01	7.617E-01
830	7.409E-01	7.679E-01
820	7.477E-01	7.750E-01
810	7.540E-01	7.814E-01
800	7.597E-01	7.873E-01
790	7.644E-01	7.922E-01

780	7.698E-01	7.978E-01
770	7.770E-01	8.052E-01
760	7.849E-01	8.135E-01
750	7.913E-01	8.201E-01
740	7.959E-01	8.249E-01
730	7.996E-01	8.287E-01
720	8.035E-01	8.327E-01
710	8.092E-01	8.387E-01
700	8.164E-01	8.461E-01
690	8.240E-01	8.539E-01
680	8.297E-01	8.599E-01
670	8.219E-01	8.518E-01
660	8.072E-01	8.366E-01
650	7.966E-01	8.256E-01
640	7.901E-01	8.189E-01
630	7.846E-01	8.132E-01
620	7.786E-01	8.069E-01
610	7.705E-01	7.985E-01
600	7.604E-01	7.881E-01
590	7.486E-01	7.759E-01
580	7.347E-01	7.614E-01
570	7.220E-01	7.483E-01
560	7.197E-01	7.459E-01
550	7.220E-01	7.483E-01
540	7.204E-01	7.467E-01
530	7.146E-01	7.406E-01
520	7.119E-01	7.378E-01
510	7.115E-01	7.374E-01
500	7.118E-01	7.377E-01
498	8.043E-01	8.336E-01
496	7.848E-01	8.133E-01
494	7.586E-01	7.862E-01
492	7.424E-01	7.695E-01
490	7.258E-01	7.522E-01
488	7.104E-01	7.362E-01

486	7.021E-01	7.277E-01
484	6.915E-01	7.166E-01
482	6.914E-01	7.166E-01
480	6.994E-01	7.248E-01
478	7.037E-01	7.293E-01
476	7.051E-01	7.307E-01
474	7.173E-01	7.434E-01
472	7.219E-01	7.482E-01
470	7.438E-01	7.709E-01
468	7.388E-01	7.657E-01
466	7.333E-01	7.599E-01
464	7.272E-01	7.537E-01
462	7.241E-01	7.504E-01
460	7.222E-01	7.485E-01
458	7.209E-01	7.471E-01
456	7.230E-01	7.493E-01
454	7.262E-01	7.527E-01
452	7.304E-01	7.570E-01
450	7.357E-01	7.625E-01
448	7.407E-01	7.677E-01
446	7.474E-01	7.746E-01
444	7.562E-01	7.837E-01
442	7.661E-01	7.940E-01
440	7.755E-01	8.037E-01
438	7.834E-01	8.119E-01
436	7.923E-01	8.212E-01
434	8.012E-01	8.303E-01
432	8.095E-01	8.389E-01
430	8.182E-01	8.480E-01
428	8.243E-01	8.543E-01
426	8.294E-01	8.596E-01
424	8.337E-01	8.641E-01
422	8.371E-01	8.676E-01
420	8.383E-01	8.688E-01
418	8.371E-01	8.676E-01

416	8.340E-01	8.643E-01
414	8.293E-01	8.595E-01
412	8.246E-01	8.546E-01
410	8.203E-01	8.501E-01
408	8.168E-01	8.465E-01
406	8.146E-01	8.442E-01
404	8.142E-01	8.438E-01
402	8.155E-01	8.452E-01
400	8.170E-01	8.467E-01
398	8.186E-01	8.484E-01
396	8.201E-01	8.500E-01
394	8.216E-01	8.515E-01
392	8.226E-01	8.526E-01
390	8.240E-01	8.540E-01
388	8.232E-01	8.531E-01
386	8.241E-01	8.541E-01
384	8.219E-01	8.518E-01
382	8.190E-01	8.488E-01
380	8.163E-01	8.460E-01
378	8.133E-01	8.429E-01
376	8.101E-01	8.396E-01
374	8.073E-01	8.366E-01
372	8.037E-01	8.330E-01
370	7.998E-01	8.289E-01
368	7.975E-01	8.266E-01
366	7.952E-01	8.241E-01
364	7.950E-01	8.239E-01
362	7.958E-01	8.247E-01
360	7.962E-01	8.251E-01
358	7.959E-01	8.249E-01
356	7.985E-01	8.276E-01
354	8.009E-01	8.300E-01
352	8.064E-01	8.358E-01
350	8.134E-01	8.430E-01
348	8.210E-01	8.509E-01

346	8.280E-01	8.581E-01
344	8.326E-01	8.629E-01
342	8.363E-01	8.668E-01
340	8.375E-01	8.679E-01
338	8.371E-01	8.676E-01
336	8.358E-01	8.662E-01
334	8.311E-01	8.613E-01
332	8.256E-01	8.556E-01
330	8.211E-01	8.510E-01
328	8.151E-01	8.447E-01
326	8.115E-01	8.410E-01
324	8.066E-01	8.359E-01
322	8.018E-01	8.309E-01
320	7.958E-01	8.247E-01
318	7.896E-01	8.184E-01
316	7.837E-01	8.122E-01
314	7.774E-01	8.057E-01
312	7.685E-01	7.964E-01
310	7.604E-01	7.881E-01
308	7.516E-01	7.790E-01
306	7.447E-01	7.718E-01
304	7.395E-01	7.664E-01
302	7.338E-01	7.605E-01
300	7.280E-01	7.545E-01
298	7.224E-01	7.487E-01
296	7.187E-01	7.448E-01
294	7.151E-01	7.411E-01
292	7.139E-01	7.399E-01
290	7.113E-01	7.372E-01
288	7.095E-01	7.353E-01
286	7.070E-01	7.328E-01
284	7.023E-01	7.278E-01
282	7.022E-01	7.278E-01
280	7.015E-01	7.271E-01
278	6.998E-01	7.252E-01

276	6.992E-01	7.246E-01
274	6.998E-01	7.253E-01
272	7.041E-01	7.297E-01
270	7.088E-01	7.345E-01
268	7.121E-01	7.380E-01
266	7.168E-01	7.429E-01
264	7.194E-01	7.456E-01
262	7.222E-01	7.485E-01
260	7.265E-01	7.529E-01
258	7.287E-01	7.552E-01
256	7.324E-01	7.591E-01
254	7.361E-01	7.628E-01
252	7.393E-01	7.662E-01
250	7.478E-01	7.750E-01
248	7.571E-01	7.846E-01
246	7.670E-01	7.949E-01
244	7.728E-01	8.009E-01
242	7.788E-01	8.072E-01
240	7.866E-01	8.152E-01
238	7.914E-01	8.202E-01
236	7.990E-01	8.281E-01
234	8.080E-01	8.374E-01
232	8.120E-01	8.415E-01
230	8.192E-01	8.490E-01
228	8.256E-01	8.557E-01
226	8.314E-01	8.617E-01
224	8.367E-01	8.672E-01
222	8.460E-01	8.768E-01
220	8.537E-01	8.848E-01
218	8.597E-01	8.910E-01
216	8.697E-01	9.013E-01
214	8.778E-01	9.097E-01
212	8.852E-01	9.174E-01
210	8.900E-01	9.224E-01
208	8.939E-01	9.264E-01

206	8.977E-01	9.304E-01
204	9.003E-01	9.330E-01
202	9.044E-01	9.373E-01
200	9.072E-01	9.402E-01
198	9.115E-01	9.447E-01
196	9.186E-01	9.521E-01
194	9.246E-01	9.582E-01
192	9.303E-01	9.642E-01
190	9.360E-01	9.700E-01
188	9.360E-01	9.701E-01
186	9.355E-01	9.695E-01
184	9.361E-01	9.702E-01
182	9.364E-01	9.704E-01
180	9.308E-01	9.647E-01
178	9.285E-01	9.623E-01
176	9.288E-01	9.626E-01
174	9.260E-01	9.597E-01
172	9.210E-01	9.545E-01
170	9.163E-01	9.496E-01
168	9.105E-01	9.436E-01
166	9.080E-01	9.410E-01
164	9.045E-01	9.374E-01
162	8.978E-01	9.304E-01
160	8.921E-01	9.245E-01
158	8.848E-01	9.170E-01
156	8.757E-01	9.075E-01
154	8.674E-01	8.989E-01
152	8.566E-01	8.878E-01
150	8.461E-01	8.769E-01
148	8.370E-01	8.674E-01
146	8.299E-01	8.601E-01
144	8.233E-01	8.533E-01
142	8.166E-01	8.463E-01
140	8.072E-01	8.365E-01
138	7.995E-01	8.286E-01

136	7.862E-01	8.148E-01
134	7.729E-01	8.010E-01
132	7.589E-01	7.865E-01
130	7.417E-01	7.686E-01
128	7.260E-01	7.524E-01
126	7.137E-01	7.396E-01
124	6.974E-01	7.227E-01
122	6.801E-01	7.049E-01
120	6.656E-01	6.898E-01
118	6.529E-01	6.766E-01
116	6.345E-01	6.576E-01
114	6.186E-01	6.411E-01
112	6.003E-01	6.221E-01
110	5.847E-01	6.060E-01
108	5.682E-01	5.889E-01
106	5.506E-01	5.706E-01
104	5.293E-01	5.485E-01
102	5.065E-01	5.249E-01
100	4.873E-01	5.051E-01
98	4.685E-01	4.856E-01
96	4.488E-01	4.651E-01
94	4.316E-01	4.474E-01
92	4.103E-01	4.252E-01
90	3.955E-01	4.099E-01
88	3.797E-01	3.935E-01
86	3.630E-01	3.762E-01
84	3.441E-01	3.566E-01
82	3.317E-01	3.438E-01
80	3.178E-01	3.294E-01
78	3.067E-01	3.179E-01
76	2.945E-01	3.052E-01
74	2.850E-01	2.954E-01
72	2.753E-01	2.853E-01
70	2.645E-01	2.742E-01
68	2.563E-01	2.656E-01

66	2.461E-01	2.550E-01
64	2.346E-01	2.432E-01
62	2.269E-01	2.351E-01
60	2.187E-01	2.267E-01
58	2.092E-01	2.169E-01
56	2.039E-01	2.113E-01
54	1.989E-01	2.062E-01
52	1.890E-01	1.959E-01
50	1.839E-01	1.906E-01

APPENDIX B

Table B1

Steve Silverman/ASU

TES 2 Albedo Relative Spectral Responce and Expected Mars Radiance Level

Rev 1 9/14/97

Note:

1. Wavelength = the center of the spectral band
2. UV-22 Detector Transmission = Absolute trans of the UV22 filter, should be replaced with the detector RSR
   UV22 should be replaced by detector RSR when available
3. Denton Ag Reflectance squared = the product of the reflectance terms for each polarization of the denton silver pointing mirror
4. Denton Ag Reflectance normal = the square root of the product of the reflectance terms for each polarization of the denton silver pointing mirror
5. Aluminum Reflectance squared = the product of the reflectance terms for each polarization of 1 aluminum mirror
6. Aluminum Reflectance normal = the square root of the product of the reflectance terms for each polarization of 1 aluminum mirror
7. RSR = the relative spectral resp of the visible bolometer channel including 3 aluminum mirrors, and one silver pointing mirror
8. He = Earth Solar Radiance (1 AU)
9. RSR*He = Radiance on the detector at 1 AU (Earth) at an albedo of 1
10. Rhalon = the absolute spectral reflectance of the Halon reflector
11. Hsl = Standard lamp radiance at 50 cm from the halon reflector
12. RSR*Rhalon*Hsl = Radiance on the detector from the radiance standard
13. Calculate expected maximum radiance at Mars by scaling radiance from earth
14. Calculate radiance from standard source - 0.3 - 3.5 μm
15. Ratio of Mars to standard source assuming a linear detector, and no margins
16. Integral of Earth radiance times the RSR of the TES over the Solar Spectrum - 0.3 to 3.5 μm
17. Solar Radiance from H. Kieffer 3/3/98; changed column J to use new Solar rad.
18. External lamp radiance normalized by detector response: included by PRC 4/5/98 - 0.3 to 3.5 μm
19. Solar Radiance (HHK) normalized by detector resposne - 0.3 to 3.5 μm

Albmars*(Re/Rmars)^2*(∫RSR*He*dWVL)/π = Albmars*(Re/Rmars)^2*(SUM[(RSR(i)*He(i)*ΔWVL])/π = 1.364E-02 (W/(cm2 sr μm)) [note 13]

Standard Lamp

Integrated, detector spectral response weighted, external lamp radiance

∫RSR*Rhalon*Hsl*dWVL/π = SUM[RSR*Rh(i)*Hsl(i)*ΔWVL]/π = **7.069E-03 (W cm-2 sr-1) [note 14]**

Integrated external lamp radiance, normalized by integrated detector response

(∫RSR*Rhalon*Hsl*dWVL)/(∫RSR*dWVL)/π = SUM[RSR*Rh(i)*Hsl(i)*ΔWVL]/SUM[RSR*ΔWVL]/π = **3.7170E-03 (W cm-2 sr-1) [note 18]**

Sun

Integrated, detector spectral response weighted, Sun radiance at Earth distance (1 A.U.)

∫RSR*He*dWVL/π = SUM[RSR(i)*He(i)ΔWVL]/π = **3.168E-02 (W cm-2 sr-1)) [note 16]**

% of Full Scale = 51.83% [note 15]

Integrated Sun radiance at Earth distance (1 A.U.), normalized by integrated detector response

(∫RSR*He*dWVL)/(∫RSR*dWVL)/π = SUM[RSR*He(i)*ΔWVL]/SUM(RSR*ΔWVL)/π = **1.666E-02 (W cm-2 sr-1)) [note 19]**

	note 1	note 2	note 3	note 4	note 5	note 6	note 7	note 8	note 17	note 9	note 10	note 11	note 12
		UV-22					B*D^3*F			G*I*1E-2		SS-30 S.L.	G*K*L
		Detector	Denton Ag	Denton Ag	Al (pointing)	Al (pointing)						(at d=50cm)	
	Wavelength (μ)	Trans. (normal)	Refl. squared	Refl. (normal)	Refl. squared	Refl. (normal)	RSR	He*1E2	He*1E2	RSR*He	Rhalon	Hsl	RSR*Rh*Hsl
								(W/(cm2 μm)	(W/(cm2 μm)	(W/(cm2 μm)		(W/(cm2 μm)	(W/(cm2 μm)
56	0.30	0.910	0.000	0.000	0.640	0.800	0.000	0	4.299	0.000E+00	0.984	0.000E+00	0.000E+00
57	0.35	0.910	0.640	0.800	0.730	0.854	0.398	11.21	9.902	3.942E-02	0.99	0.000E+00	0.000E+00
58	0.40	0.910	0.860	0.927	0.770	0.877	0.637	16.51	16.409	1.045E-01	0.993	2.053E-03	1.298E-03
59	0.45	0.910	0.960	0.980	0.787	0.887	0.759	21.49	20.956	1.591E-01	0.993	4.206E-03	3.171E-03
60	0.50	0.905	0.970	0.985	0.795	0.892	0.771	18.62	19.36	1.492E-01	0.994	7.058E-03	5.408E-03
61	0.55	0.905	0.970	0.985	0.800	0.894	0.773	18.67	18.808	1.454E-01	0.994	1.024E-02	7.871E-03
62	0.60	0.905	0.965	0.982	0.797	0.893	0.766	17.5	17.628	1.350E-01	0.994	1.355E-02	1.032E-02
63	0.65	0.905	0.960	0.980	0.790	0.889	0.757	16.1	15.804	1.196E-01	0.994	1.653E-02	1.243E-02
64	0.70	0.905	0.958	0.979	0.777	0.881	0.748	13.9	14.095	1.054E-01	0.994	1.909E-02	1.419E-02
65	0.75	0.905	0.956	0.978	0.755	0.869	0.735	12.65	12.657	9.303E-02	0.994	2.112E-02	1.543E-02
66	0.80	0.905	0.952	0.976	0.723	0.850	0.715	11.45	11.381	8.135E-02	0.994	2.243E-02	1.594E-02
67	0.85	0.905	0.950	0.975	0.722	0.850	0.712	10.04	9.811	6.986E-02	0.994	2.296E-02	1.625E-02
68	0.90	0.903	0.950	0.975	0.790	0.889	0.743	9.19	9.051	6.726E-02	0.994	2.349E-02	1.735E-02
69	0.95	0.903	0.955	0.977	0.850	0.922	0.777	8.26	7.765	6.033E-02	0.994	2.326E-02	1.796E-02
70	1.00	0.903	0.960	0.980	0.885	0.941	0.799	7.41	7.45	5.953E-02	0.994	2.304E-02	1.830E-02
71	1.05	0.903	0.962	0.981	0.908	0.953	0.812	6.59	6.744	5.475E-02	0.994	2.257E-02	1.821E-02
72	1.10	0.903	0.965	0.982	0.922	0.960	0.822	5.98	6.031	4.957E-02	0.994	2.209E-02	1.805E-02
73	1.15	0.902	0.970	0.985	0.930	0.964	0.831	5.47	5.489	4.561E-02	0.994	2.106E-02	1.740E-02
74	1.20	0.902	0.970	0.985	0.938	0.969	0.835	5.02	4.981	4.157E-02	0.993	2.003E-02	1.660E-02
75	1.25	0.902	0.972	0.986	0.942	0.971	0.839	4.47	4.689	3.934E-02	0.993	1.906E-02	1.588E-02
76	1.30	0.902	0.975	0.987	0.947	0.973	0.845	4.105	4.384	3.705E-02	0.992	1.810E-02	1.517E-02
77	1.35	0.902	0.977	0.988	0.949	0.974	0.849	3.74	3.91	3.318E-02	0.991	1.704E-02	1.433E-02
78	1.40	0.900	0.980	0.990	0.950	0.975	0.851	3.465	3.553	3.024E-02	0.991	1.598E-02	1.348E-02
79	1.45	0.898	0.980	0.990	0.953	0.976	0.850	3.19	3.219	2.738E-02	0.992	1.500E-02	1.266E-02
80	1.50	0.898	0.982	0.991	0.957	0.978	0.855	2.96	2.974	2.542E-02	0.992	1.403E-02	1.190E-02
81	1.55	0.898	0.983	0.991	0.957	0.978	0.856	2.73	2.733	2.340E-02	0.992	1.314E-02	1.116E-02
82	1.60	0.895	0.984	0.992	0.959	0.979	0.856	2.505	2.476	2.118E-02	0.992	1.225E-02	1.040E-02
83	1.65	0.890	0.985	0.992	0.960	0.980	0.852	2.28	2.342	1.996E-02	0.991	1.168E-02	9.867E-03
84	1.70	0.888	0.986	0.993	0.960	0.980	0.852	2.07	2.15	1.831E-02	0.99	1.111E-02	9.369E-03
85	1.75	0.883	0.987	0.993	0.961	0.980	0.849	1.86	1.854	1.574E-02	0.99	1.035E-02	8.697E-03
86	1.80	0.876	0.988	0.994	0.961	0.980	0.843	1.695	1.71	1.442E-02	0.99	9.597E-03	8.013E-03
87	1.85	0.873	0.988	0.994	0.961	0.980	0.840	1.53	1.495	1.256E-02	0.986	8.995E-03	7.454E-03
88	1.90	0.865	0.988	0.994	0.962	0.981	0.833	1.4	1.357	1.131E-02	0.985	8.394E-03	6.889E-03
89	1.95	0.862	0.988	0.994	0.962	0.981	0.830	1.27	1.274	1.058E-02	0.984	7.846E-03	6.410E-03
90	2.00	0.855	0.988	0.994	0.962	0.981	0.824	1.165	1.201	9.891E-03	0.981	7.299E-03	5.897E-03
91	2.05	0.850	0.988	0.994	0.962	0.981	0.819	1.06	0.016	1.310E-04	0.973	6.859E-03	5.464E-03
92	2.10	0.843	0.988	0.994	0.963	0.981	0.812	0.9775	0.912	7.409E-03	0.968	6.419E-03	5.048E-03
93	2.15	0.834	0.989	0.994	0.963	0.981	0.805	0.895	0.812	6.536E-03	0.965	5.932E-03	4.608E-03
94	2.20	0.810	0.989	0.994	0.963	0.981	0.782	0.827	0.785	6.137E-03	0.977	5.445E-03	4.159E-03
95	2.25	0.793	0.990	0.995	0.964	0.982	0.767	0.759	0.745	5.714E-03	0.977	5.261E-03	3.942E-03

	A	B	C	D	E	F	G	H	I	J	K	L	M
96	2.30	0.787	0.990	0.995	0.964	0.982	0.761	0.7035	0.653	4.970E-03	0.972	5.077E-03	3.756E-03
97	2.35	0.786	0.990	0.995	0.965	0.982	0.761	0.648	0.603	4.586E-03	0.965	4.804E-03	3.526E-03
98	2.40	0.782	0.990	0.995	0.965	0.982	0.757	0.603	0.558	4.222E-03	0.962	4.532E-03	3.299E-03
99	2.45	0.775	0.990	0.995	0.965	0.982	0.750	0.558	0.491	3.682E-03	0.961	4.314E-03	3.109E-03
100	2.50	0.752	0.990	0.995	0.965	0.982	0.728	0.5205	0.462	3.362E-03	0.96	4.096E-03	2.861E-03
101	2.55	0.720	0.990	0.995	0.965	0.982	0.697	0.483	0.45	3.135E-03	0.949	3.878E-03	2.564E-03
102	2.60	0.690	0.990	0.995	0.965	0.982	0.668	0.451	0.42	2.804E-03	0.938	3.660E-03	2.292E-03
103	2.65	0.663	0.990	0.995	0.965	0.982	0.642	0.419	0.391	2.508E-03	0.927	3.442E-03	2.047E-03
104	2.70	0.628	0.990	0.995	0.965	0.982	0.608	0.392	0.365	2.218E-03	0.916	3.224E-03	1.795E-03
105	2.75	0.500	0.990	0.995	0.965	0.982	0.484	0.365	0.341	1.650E-03	0.905	3.006E-03	1.316E-03
106	2.80	0.160	0.990	0.995	0.965	0.982	0.155	0.3425	0.319	4.939E-04	0.894	2.788E-03	3.859E-04
107	2.85	0.050	0.990	0.995	0.965	0.982	0.048	0.32	0.299	1.447E-04	0.883	2.570E-03	1.098E-04
108	2.90	0.025	0.990	0.995	0.965	0.982	0.024	0.3005	0.28	6.774E-05	0.872	2.352E-03	4.961E-05
109	2.95	0.015	0.990	0.995	0.965	0.982	0.015	0.281	0.263	3.817E-05	0.861	2.134E-03	2.667E-05
110	3.00	0.010	0.990	0.995	0.965	0.982	0.010		0.248	2.400E-05	0.861	2.134E-03	1.778E-05
111	3.05	0.007	0.990	0.995	0.965	0.982	0.007		0.233	1.578E-05	0.861	2.134E-03	1.245E-05
112	3.10	0.006	0.990	0.995	0.965	0.982	0.006		0.22	1.277E-05	0.861	2.134E-03	1.067E-05
113	3.15	0.004	0.990	0.995	0.965	0.982	0.004		0.208	8.051E-06	0.861	2.134E-03	7.112E-06
114	3.20	0.003	0.990	0.995	0.965	0.982	0.003		0.196	5.690E-06	0.861	2.134E-03	5.334E-06
115	3.25	0.003	0.990	0.995	0.965	0.982	0.003		0.185	5.370E-06	0.861	2.134E-03	5.334E-06
116	3.30	0.003	0.990	0.995	0.965	0.982	0.003		0.175	5.080E-06	0.861	2.134E-03	5.334E-06
117	3.35	0.003	0.990	0.995	0.965	0.982	0.003		0.166	4.819E-06	0.861	2.134E-03	5.334E-06
118	3.40	0.003	0.990	0.995	0.965	0.982	0.003		0.157	4.558E-06	0.861	2.134E-03	5.334E-06
119	3.45	0.003	0.990	0.995	0.965	0.982	0.003		0.149	4.325E-06	0.861	2.134E-03	5.334E-06
120	3.50	0.003	0.990	0.995	0.965	0.982	0.003		0.141	4.093E-06	0.861	2.134E-03	5.334E-06
121	3.55	0.004	0.990	0.995	0.965	0.982	0.004						
122	3.60	0.005	0.990	0.995	0.965	0.982	0.005						
123	3.65	0.006	0.990	0.995	0.965	0.982	0.006						
124	3.70	0.006	0.990	0.995	0.965	0.982	0.006						
125	3.75	0.007	0.990	0.995	0.965	0.982	0.007						
126	3.80	0.006	0.990	0.995	0.965	0.982	0.006						
127	3.85	0.005	0.990	0.995	0.965	0.982	0.005						
128	3.90	0.004	0.990	0.995	0.965	0.982	0.004						
129	3.95	0.003	0.990	0.995	0.965	0.982	0.003						
130	4.00	0.002	0.990	0.995	0.965	0.982	0.002						
131	4.05	0.001	0.990	0.995	0.965	0.982	0.001						
132	4.10	0.001	0.990	0.995	0.965	0.982	0.001						
133	4.15	0.001	0.990	0.995	0.965	0.982	0.001						
134	4.20	0.001	0.990	0.995	0.965	0.982	0.001						
135	4.25	0.001	0.990	0.995	0.965	0.982	0.001						
136	4.30	0.001	0.990	0.995	0.965	0.982	0.001						
137	4.35	0.002	0.990	0.995	0.965	0.982	0.002						
138	4.40	0.002	0.990	0.995	0.965	0.982	0.002						
139	4.45	0.003	0.990	0.995	0.965	0.982	0.003						
140	4.50	0.003	0.990	0.995	0.965	0.982	0.003						
141	4.55	0.004	0.990	0.995	0.965	0.982	0.004						
142	4.60	0.005	0.990	0.995	0.965	0.982	0.005						
143	4.65	0.006	0.990	0.995	0.965	0.982	0.006						
144	4.70	0.007	0.990	0.995	0.965	0.982	0.007						
145	4.75	0.008	0.990	0.995	0.965	0.982	0.008						
146	4.80	0.009	0.990	0.995	0.965	0.982	0.009						
147	4.85	0.010	0.990	0.995	0.965	0.982	0.010						
148	4.90	0.011	0.990	0.995	0.965	0.982	0.011						
149	4.95	0.010	0.990	0.995	0.965	0.982	0.010						
150	5.00	0.009	0.990	0.995	0.965	0.982	0.009						
151	5.05	0.008	0.990	0.995	0.965	0.982	0.008						
152	5.10	0.006	0.990	0.995	0.965	0.982	0.006						
153	5.15	0.003	0.990	0.995	0.965	0.982	0.003						
154	5.20	0.001	0.990	0.995	0.965	0.982	0.001						
155	5.25	0.001	0.990	0.995	0.965	0.982	0.001						
156	5.30	0.000	0.990	0.995	0.965	0.982	0.000						
157	5.35	0.000	0.990	0.995	0.965	0.982	0.000						
158	5.40	0.000	0.990	0.995	0.965	0.982	0.000						
159	5.45	0.000	0.990	0.995	0.965	0.982	0.000						
160	5.50	0.000	0.990	0.995	0.965	0.982	0.000						
161	5.55	0.000	0.990	0.995	0.965	0.982	0.000						
162	5.60	0.000	0.990	0.995	0.965	0.982	0.000						
163	5.65	0.000	0.990	0.995	0.965	0.982	0.000						
164	5.70	0.000	0.990	0.995	0.965	0.982	0.000						
165	5.75	0.000	0.990	0.995	0.965	0.982	0.000						
166	5.80	0.000	0.990	0.995	0.965	0.982	0.000						
167	5.85	0.000	0.990	0.995	0.965	0.982	0.000						
168	5.90	0.000	0.990	0.995	0.965	0.982	0.000						
169	5.95	0.000	0.990	0.995	0.965	0.982	0.000						
170	6.00	0.000	0.990	0.995	0.965	0.982	0.000						
171	6.05	0.000	0.990	0.995	0.965	0.982	0.000						
172	6.10	0.000	0.990	0.995	0.965	0.982	0.000						
173	6.15	0.000	0.990	0.995	0.965	0.982	0.000						
174	6.20	0.000	0.990	0.995	0.965	0.982	0.000						
175	6.25	0.000	0.990	0.995	0.965	0.982	0.000						
176	6.30	0.000	0.990	0.995	0.965	0.982	0.000						
177	6.35	0.000	0.990	0.995	0.965	0.982	0.000						
178	6.40	0.000	0.990	0.995	0.965	0.982	0.000						
179	6.45	0.000	0.990	0.995	0.965	0.982	0.000						
180	6.50	0.000	0.990	0.995	0.965	0.982	0.000						
181	6.55	0.000	0.990	0.995	0.965	0.982	0.000						
182	6.60	0.000	0.990	0.995	0.965	0.982	0.000						
183	6.65	0.000	0.990	0.995	0.965	0.982	0.000						
184	6.70	0.000	0.990	0.995	0.965	0.982	0.000						
185	6.75	0.000	0.990	0.995	0.965	0.982	0.000						
186	6.80	0.000	0.990	0.995	0.965	0.982	0.000						
187	6.85	0.000	0.990	0.995	0.965	0.982	0.000						
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