MODIS Algorithm Team (MAT)
Meeting Minutes, 23FEB94

ATTENDEES:

Abel, Peter		Hoyt, Doug	
Anuta, Paul		Knight, Edward	
Baden, Joan	*Rapporteur*	Kvaran, Geir	
Bryant, Tom		Maxwell, Marvin	
Che, Nianzeng		McKay, Al	
Farwell, Lester		Montgomery, Harry	*Chair*
Goff, Tom		Wolfe, Robert	
Goodwin, Dave		Zukowski, Tmitri J.	

The next meeting has been scheduled for Wednesday, March 2, 1994, from 9 - 11:00AM, in Building 22, Room G95. Contact Joan Baden for copies of presentations (286-1378). Attached is the current scheduled listing of MAT meetings for 1994 and the MAT member listing. Refer to Attachment 1 when reading/responding to action items.

ACTION ITEMS (ASSIGNED FEB 23, 94) DUE 2MAR94:

18.MAT	Geir Kvaran will talk on Level 1B Software Prototype Overview on Tuesday, March 2. (30MIN).
19.MAT	Ed Knight: Chapter 5 *.
20.MAT	Steve Ungar: Chapter 6*.
21.MAT	Peter Abel: Chapter 9*.
22.MAT	Harry Montgomery/Marvin Maxwell: Chapter 13, section 13.1* (Deliver to Peter Abel).
23.MAT	Peter Abel/Nianzeng Che: Chapter 13, section 13.2*.
24.MAT	Dan Knowles to discuss the MODIS Blackbody at the meeting on 3/2/94.
25.MAT	Tim Zukowski to discuss SRCA spatial response measurements at the meeting on 3/2/94.
26.MAT	Ed Knight: Appendix A; A.2*.
27.MAT	Al McKay: Appendix A; A.3*.

*Deliver hard copy and MS Word or WP file of Chapter of the MODIS Cal Plan as amended 2/22/94 to Harry Montgomery by the Wednesday MAT meeting, March 2.

MODIS ALGORITHM TEAM MEETING

23 FEBRUARY 1994

9:00	MODIS CALIBRATION PLAN (HARRY MONTGOMERY)
9:10	SOLAR DIFFUSER CALIBRATION (PAUL ANUTA)
9:30	SRCA RADIOMETRIC CALIBRATION (N. CHE)
9:50	CROSSTALK (KEN BROWN)
10:30	ADJOURN

Modified contents, after telecon w/Slater, February 22, 1994

Attachment 1

TABLE OF CONTENTS

Appendix A: Pre-launch calibration and characterization

A.1 SBRC first generation algorithms (SBRC/Young

A.2 Validation of SBRC algorithms with T/V data (MAT/Knight)

A.3 Develop second generation algorithms and software (MAT/McKay)

Appendix B: Preflight characterization

B.1 Spatial- IFOV

B.2 Spectral band performance

B.3 Instrument polarization insensitivity

B.4 Modulation transfer function

B.5 Transient response bright target recovery

B.6 Radiometric performance

- B.6.1 Reflective bands: VIS, NIR, SWIR
- B.6.2 Thermal infrared bands: MWIR, LWIR
- B.6.3 system electronic crosstalk and pattern noise

B.7 Geometric performance

- B.7.1 Pointing knowledge
- B.7.2 Alignment changes
- B.7.3 Spectral band registration

B.8 Radiometric amplitude stability and repeatability

- B.8.1 Short term stability
- B.8.2 Long term stability
- B.8.3 Spectral band-to-band stability

B.9 Stray light performance

- B.9.1 Bright/dark target within field- stray light
- B.9.2 Warm target within field- diffracted light

B.10 OBC mechanism characterization/calibration

- B.10.1 Blackbody (BB)
- B.10.2 Solar diffuser (SD)
- B.10.3 Solar diffuser stability monitor (SDSM)
- B.10.4 Spectroradiometric calibration assembly (SRCA)

B.11 MODIS GSE performance measurements and characterization

Appendix C: Instrument model: Radiometric Math Model (SBRC/Pagano)

C.1 Objective

C.2 Methodology

C.3 Error budget

C.4 Validation

C.5 Personnel

C.6 Schedule

C.7 Calibration Sites

C.8 References

Appendix D: Glossary

D.1 Acronyms and abbreviations

OFFICIAL
MODIS ALGORITHM TEAM (MAT) SCHEDULED MEETINGS 1994

Day	Date	Room	Time
Wed	Feb 2	BLDG 22/G95	9-11AM
Wed	Feb 9	BLDG 22/271	9-11AM
Wed	Feb 16	BLDG 22/G95	9-11AM
Wed*	**Feb 23**	**BLDG 22/G95**	**9-10:30AM**
Wed	March 2	BLDG 22/G95	9-11AM
Wed*	**March 9**	**BLDG 16/242**	**9-12PM**
Wed	March 16	BLDG 22/G95	9-11AM
Wed	March 30	BLDG 22/G95	9-11AM
Mon	April 4	BLDG 22/G95	9-11AM
Mon	April 11	BLDG 22/G95	9-11AM
Mon	April 25	BLDG 22/G95	8:30-10AM
Mon	May 2	BLDG 22/G95	9-11AM
Mon	May 9	BLDG 22/G95	9-11AM
Mon	May 16	BLDG 22/G95	9-11AM
Mon	May 23	BLDG 22/G95	9-10AM
Mon	May 30	BLDG 22/G95	9-11AM
Mon	June 6	BLDG 22/G95	9-11AM
Mon	June 13	BLDG 22/G95	9-11AM
Mon	June 20	BLDG 22/G95	9-11AM
Mon	June 27	BLDG 22/G95	9-11AM
Wed	July 6	BLDG 22/G95	9-11AM

*Recently scheduled additions

NOTE: Michael Weinreb/NOAA Calibration Scientist will be the "subject" of the March 9, 1994 MAT meeting from 9-12p.m.

MODIS Algorithm Team (MAT) 2/23/94

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Hughes/STX	7701 Greenbelt Rd., Suite 400, Greenbelt, Md. 20770
Goddard Space Flight Center	Greenbelt, Md. 20771
Ball Aerospace Sys. Div.	7500 Greenway Center Dr., Suite 700, Greenbelt, Md. 20770

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MAT Presentation

MODIS Solar Diffuser Geometry

MODIS Algorithm Team of the
MCST (MODIS Characterization Support Team)

Harry Montgomery, Manager
MODIS Instrument Characterization

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NASA / Goddard Space flight Center, Greenbelt, Maryland 20771
FAX: (301) 286-1757

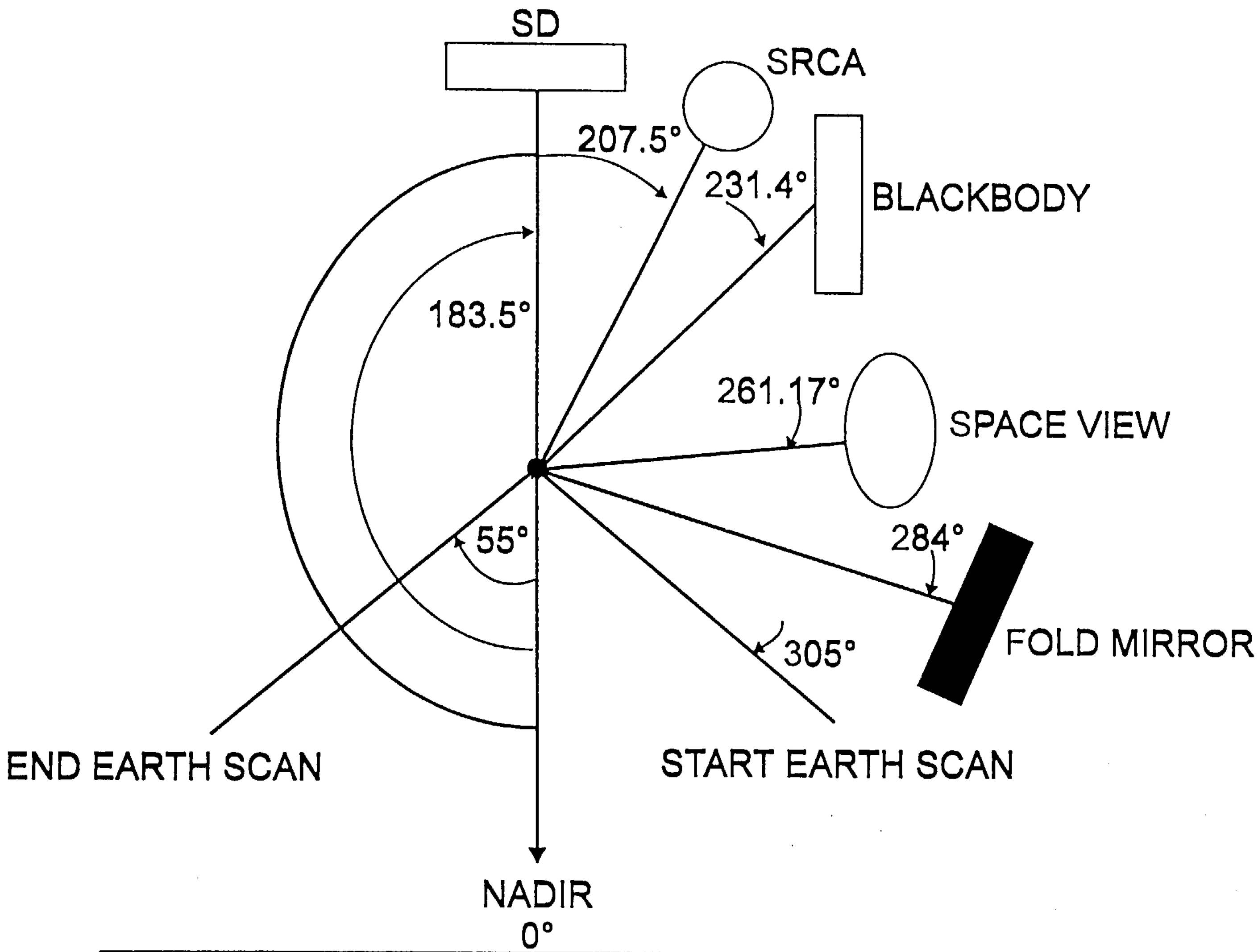
Paul E. Anuta, Edward Knight, Tom Bryant

Research and Data Systems Corporation (RDC)
7855 Walker Drive, Greenbelt, MD, 20770
FAX: (301) 982-3749

Presented by Paul E. Anuta

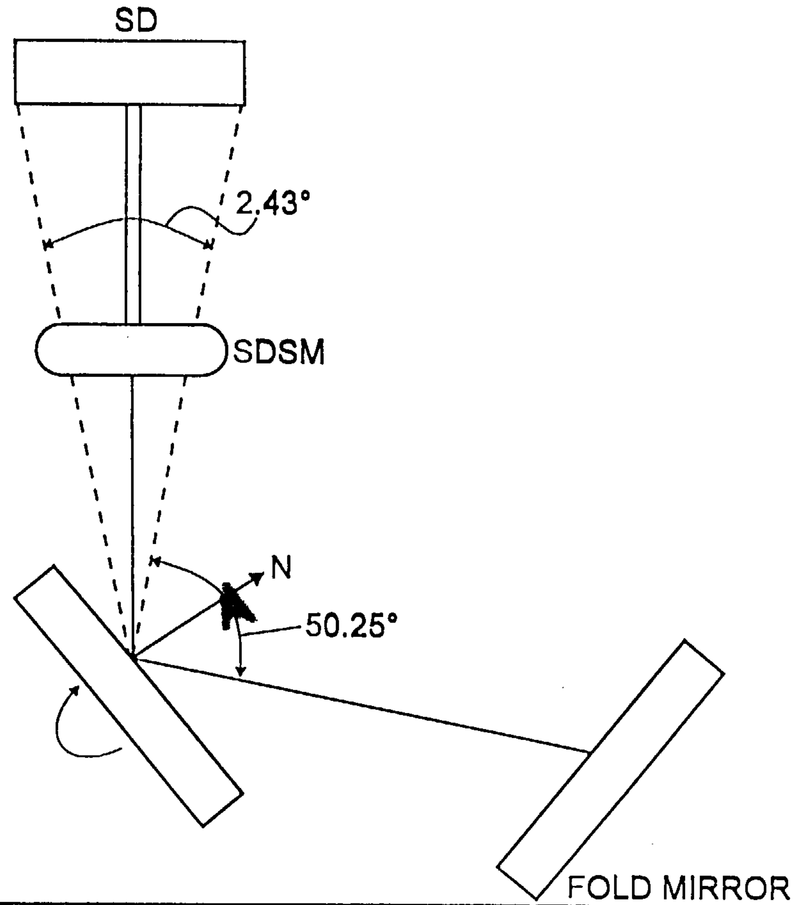
February 23, 1994

MODIS Event Angles



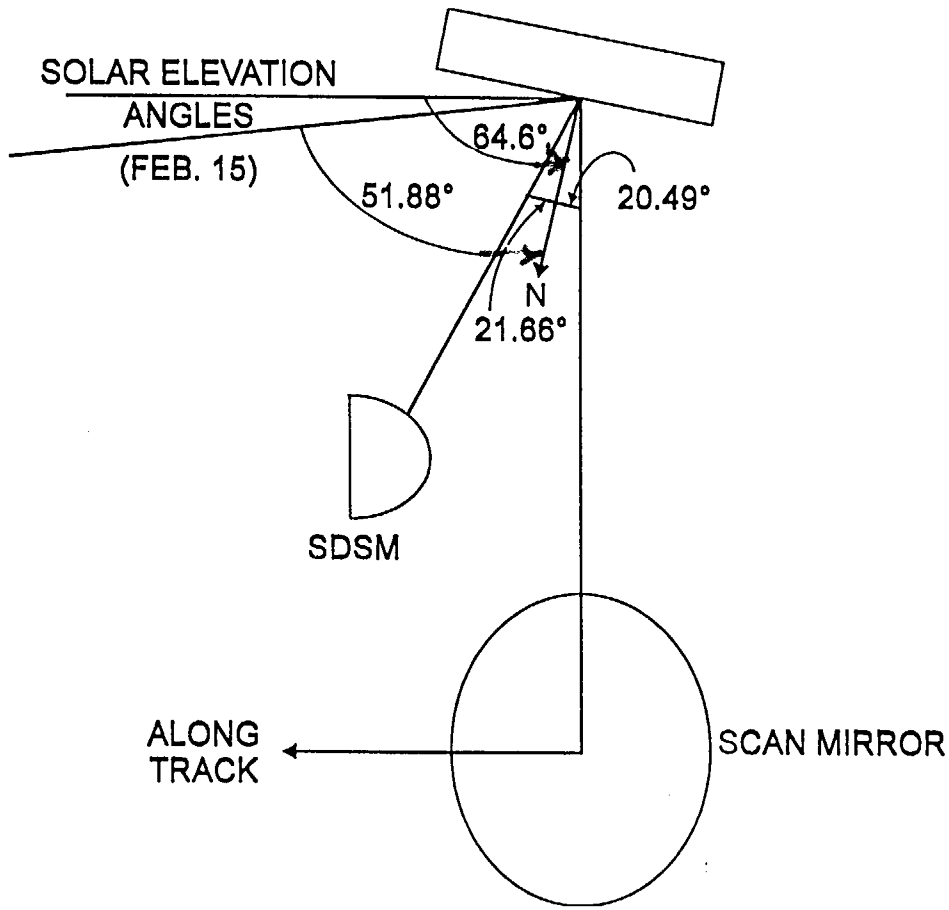
MODIS Solar Diffuser Geometry-I

FORWARD ALONG TRACK VIEW



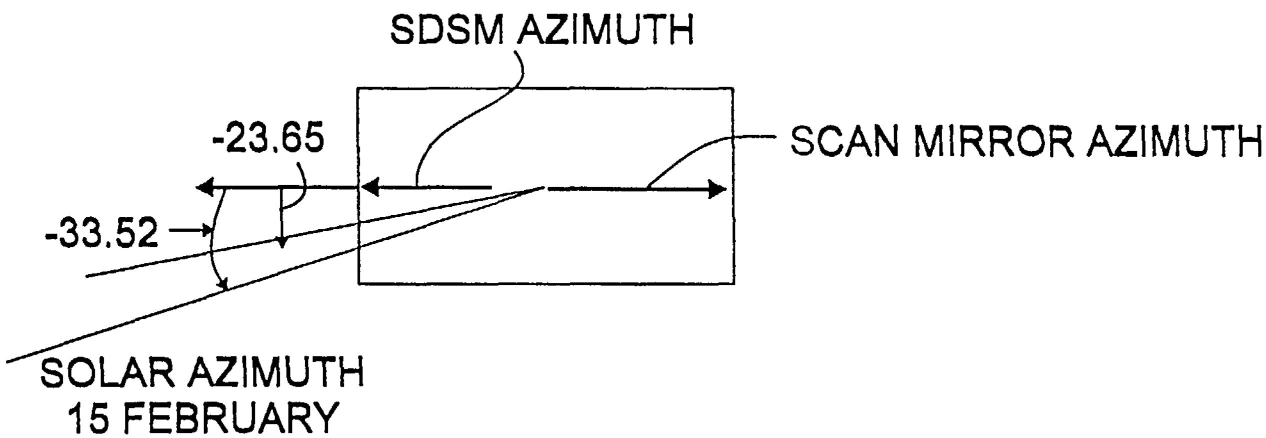
MODIS Solar Diffuser Geometry–II

ACROSS TRACK VIEW

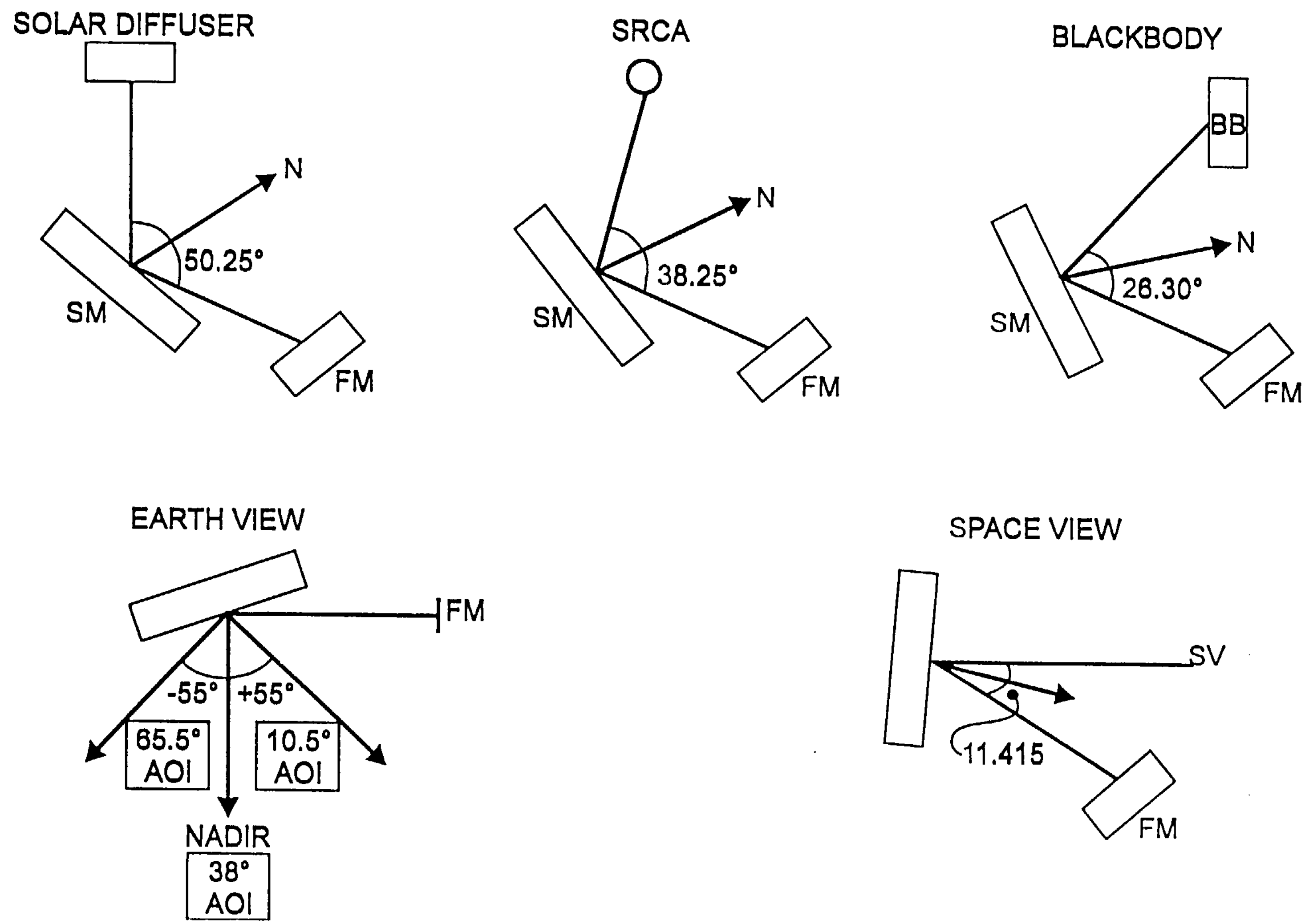


MODIS Solar Diffuser Geometry-III

UPWARD ZENITH VIEW



Scan Mirror Angle of Incidence



MAT MODIS Algorithm Team
MCST Modis Characterization Support Team

Table VII
Solar Diffuser Albedo for 15 February, + Orbit Tolerance
for Solar Diffuser Inclination Angle = 20.2 Degrees

Orbit Angle in Deg	Solar Decl in Deg	Eq. of Time & Tolerance in Deg	Hmin in Km	Solar View Decl in Deg	Solar View Az in Deg	Solar Incidence Angle on SD	Albedo	SD_Fwd_Ray in Km from Terminator
254.06	-12.6	7.32	211.86	21.92	-33.52	51.88	0.611	2359.7
254.56	-12.6	7.32	230.99	21.5	-33.41	52.26	0.606	2313.9
255.06	-12.6	7.32	249.79	21.08	-33.31	52.64	0.601	2267.8
255.56	-12.6	7.32	268.26	20.66	-33.2	53.02	0.596	2221.3
256.06	-12.6	7.32	286.4	20.25	-33.1	53.4	0.59	2175.1
256.56	-12.6	7.32	304.2	19.83	-33	53.79	0.585	2129.3
257.06	-12.6	7.32	321.67	19.41	-32.9	54.18	0.579	2082.4
257.56	-12.6	7.32	338.79	18.99	-32.81	54.57	0.574	2035.8
258.06	-12.6	7.32	355.57	18.57	-32.72	54.95	0.568	1989.5
258.56	-12.6	7.32	372	18.15	-32.63	55.35	0.563	1943.2
259.06	-12.6	7.32	388.08	17.72	-32.54	55.74	0.557	1896.1
259.56	-12.6	7.32	403.81	17.3	-32.46	56.13	0.552	1849.4
260.06	-12.6	7.32	419.19	16.88	-32.37	56.52	0.546	1803.1
260.56	-12.6	7.32	434.22	16.46	-32.29	56.92	0.54	1756.1
261.06	-12.6	7.32	448.88	16.04	-32.21	57.31	0.535	1708.9
261.56	-12.6	7.32	463.19	15.61	-32.14	57.71	0.529	1662.2
262.06	-12.6	7.32	477.13	15.19	-32.07	58.11	0.523	1615.9
262.56	-12.6	7.32	490.71	14.77	-32	58.51	0.517	1568.2
263.06	-12.6	7.32	503.93	14.34	-31.93	58.91	0.511	1521
263.56	-12.6	7.32	516.77	13.92	-31.86	59.31	0.505	1474.2
264.06	-12.6	7.32	529.25	13.49	-31.8	59.71	0.499	1427.6
264.56	-12.6	7.32	541.35	13.07	-31.73	60.12	0.493	1379.7
265.06	-12.6	7.32	553.08	12.64	-31.67	60.52	0.487	1332.4
265.56	-12.6	7.32	564.44	12.22	-31.62	60.92	0.481	1285.7
266.06	-12.6	7.32	575.42	11.79	-31.56	61.33	0.475	1238.6
266.56	-12.6	7.32	586.02	11.36	-31.51	61.74	0.469	1190.6
267.06	-12.6	7.32	596.25	10.94	-31.46	62.14	0.463	1143.3
267.56	-12.6	7.32	606.09	10.51	-31.41	62.55	0.456	1096.7
268.06	-12.6	7.32	615.55	10.08	-31.36	62.96	0.45	1049.1
268.56	-12.6	7.32	624.62	9.66	-31.31	63.37	0.444	1001.1
269.06	-12.6	7.32	633.31	9.23	-31.27	63.78	0.437	953.8
269.56	-12.6	7.32	641.62	8.8	-31.23	64.19	0.431	907.4
270.06	-12.6	7.32	649.54	8.37	-31.19	64.6	0.425	859.3

Solar Diffuser Albedo for 15 February, - Orbit Tolerance
for Solar Diffuser Inclination Angle = 20.2 Degrees

Orbit Angle in Deg	Solar Decl in Deg	Eq. of Time & Tolerance in Deg	Hmin in Km	Solar View Decl in Deg	Solar View Az in Deg	Solar Incidence Angle on SD	Albedo	SD_Fwd_Ray in Km from Terminator
257.26	-12.6	-0.2	255.05	20.97	-25.27	51.14	0.621	2212.8
257.76	-12.6	-0.2	274.89	20.52	-25.19	51.57	0.615	2162.8

OPTICAL BACKSCATTER REDUCTION

VIS/ NIR:

Coating Optimizations
Lens reconfigurations

SWIR:

Coating Optimizations
Cooler Window Tilt
Intermediate Filter

LWIR:

Coating Optimizations
Cooler Window Tilt
Dichroic Fold Mirror/Trap

Transient Response Requirement 0.5% Ltyp @ 2 km From Cloud

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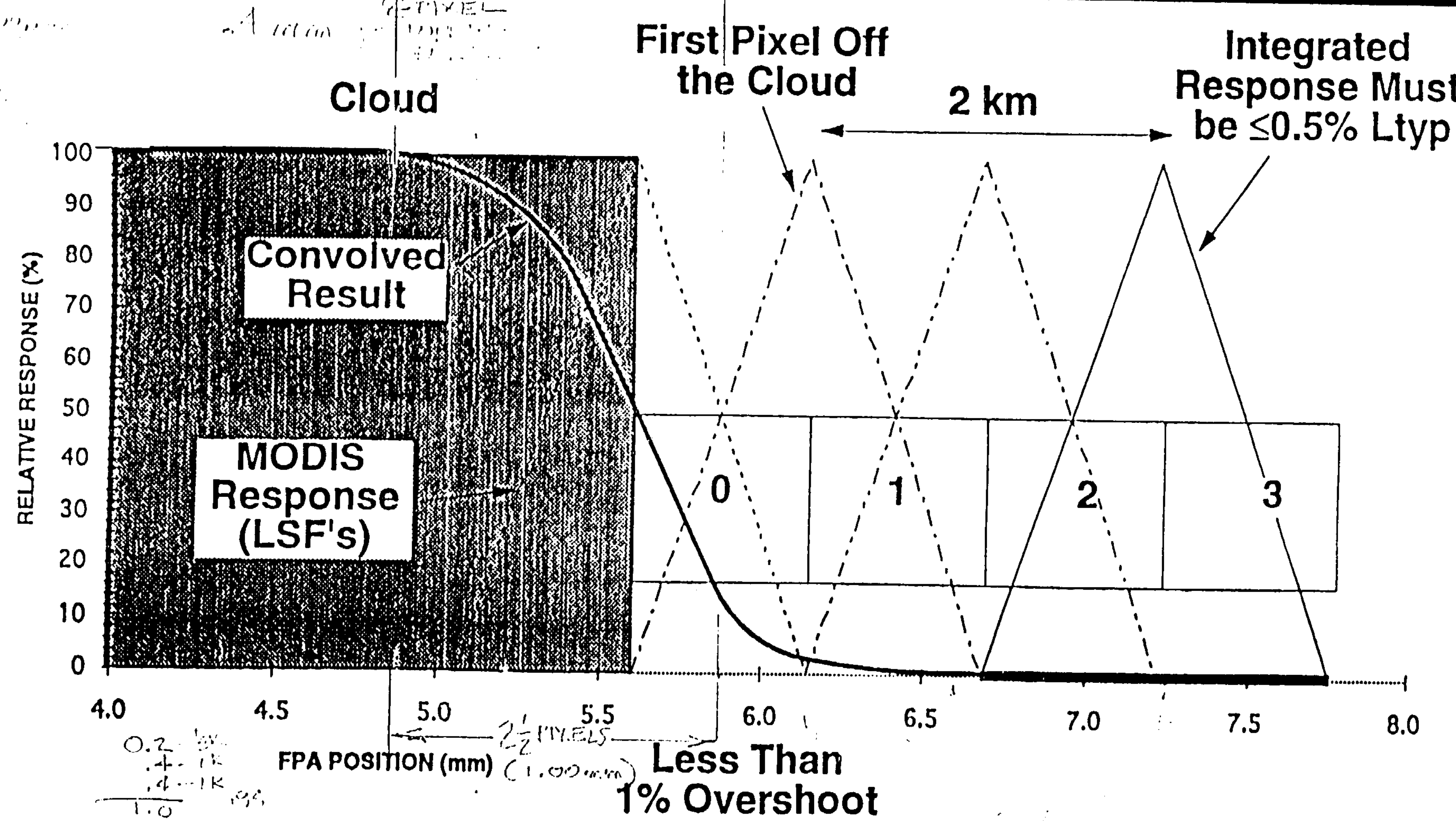
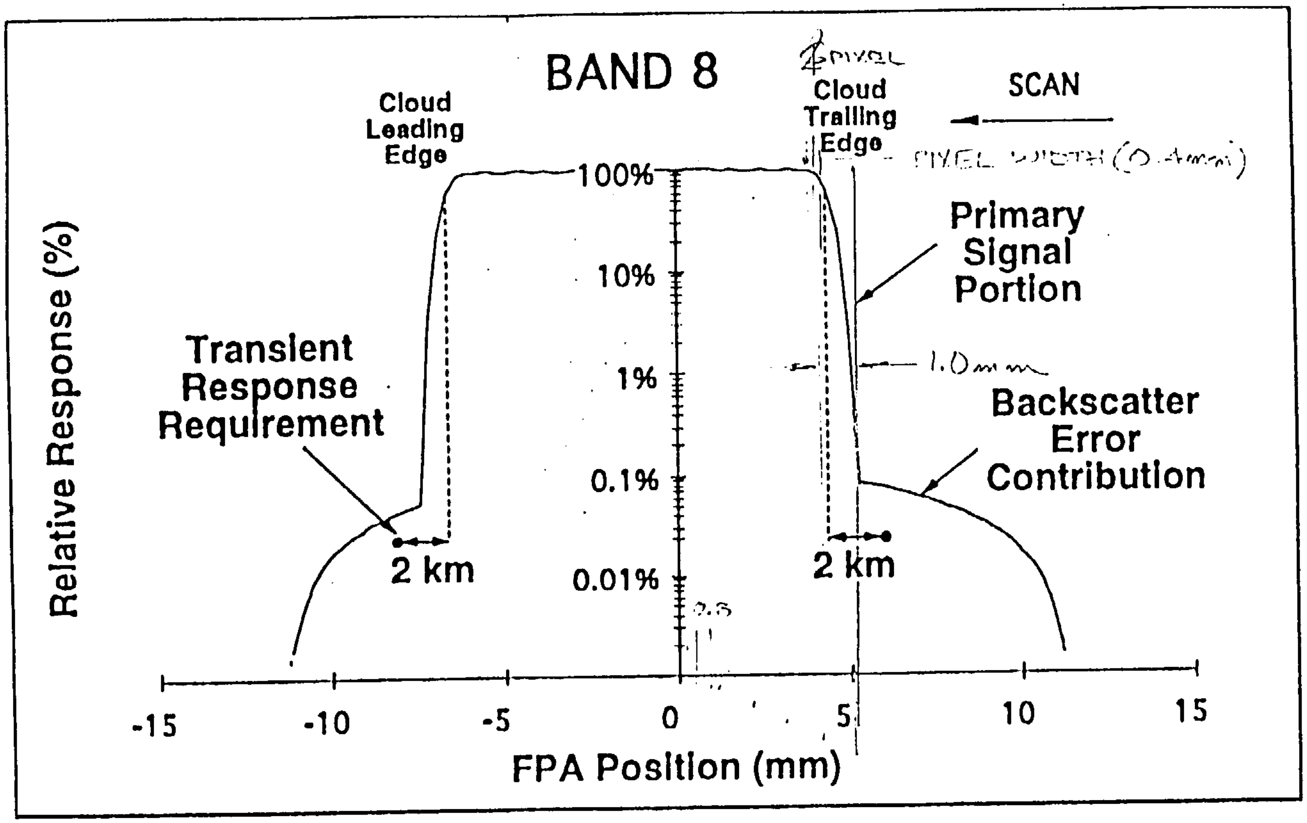
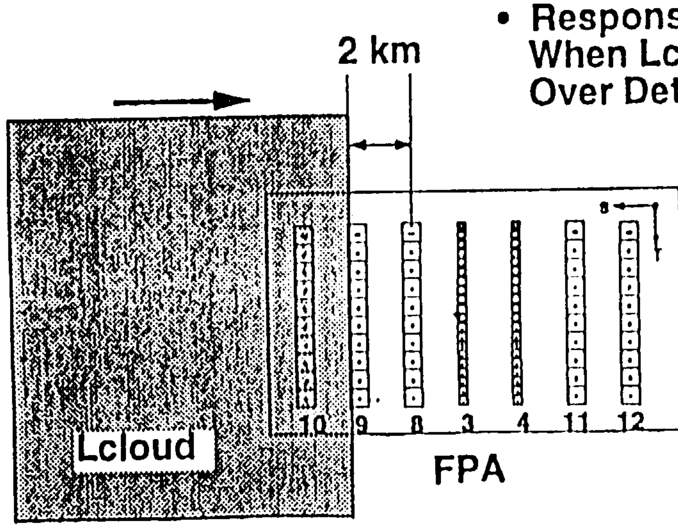


MODIS Bands Off-Axis Have Assymmetric Response



- Response Is Signal Measured When Lcloud Is Passed Over Detector



NIR EM GHOSTING AS MUCH AS 14X TOO HIGH

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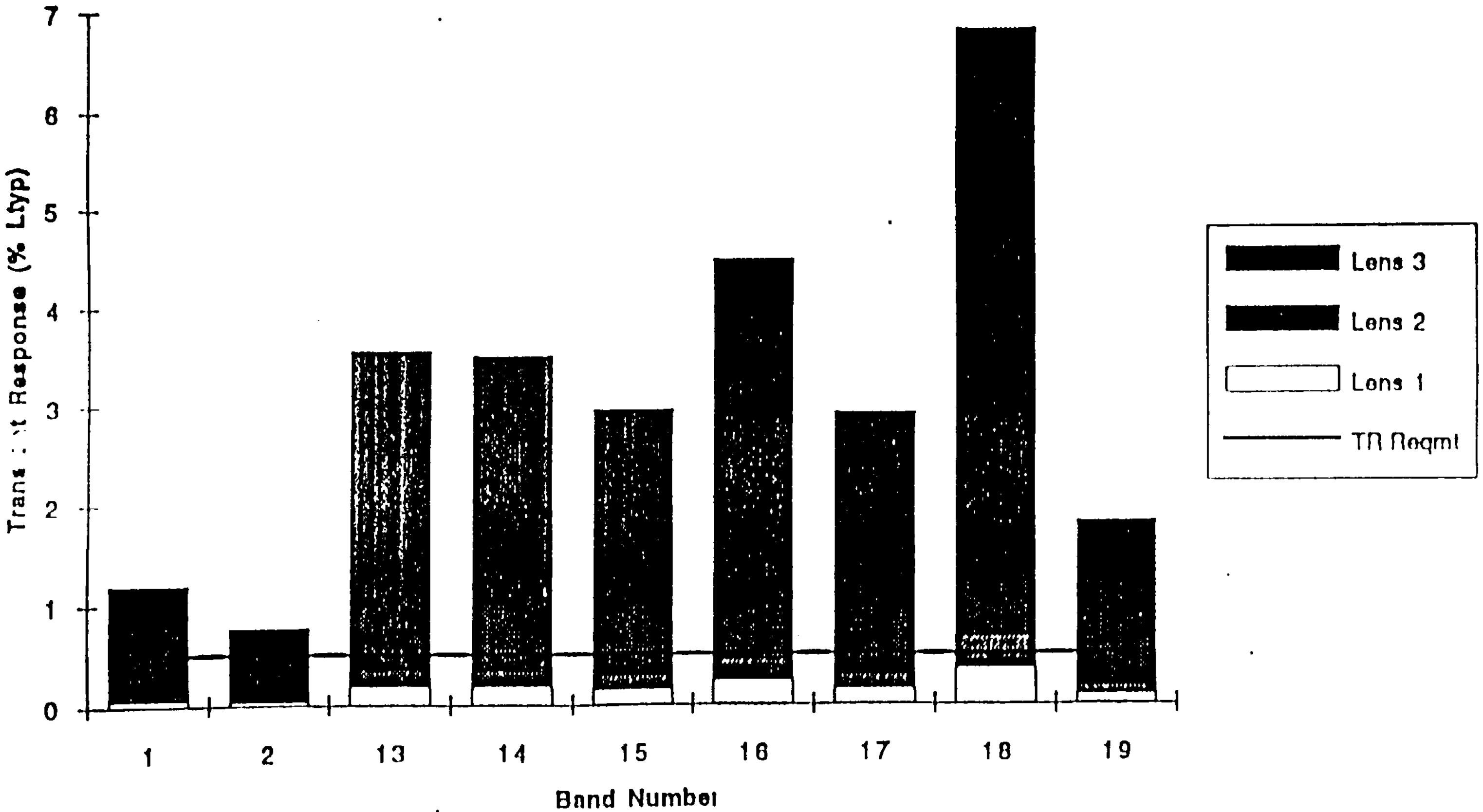
NIR ENGINEERING MODEL



- COATING DATA AS SPECIFIED IN LENS DRAWINGS

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ASAP ANALYSIS OUTPUT

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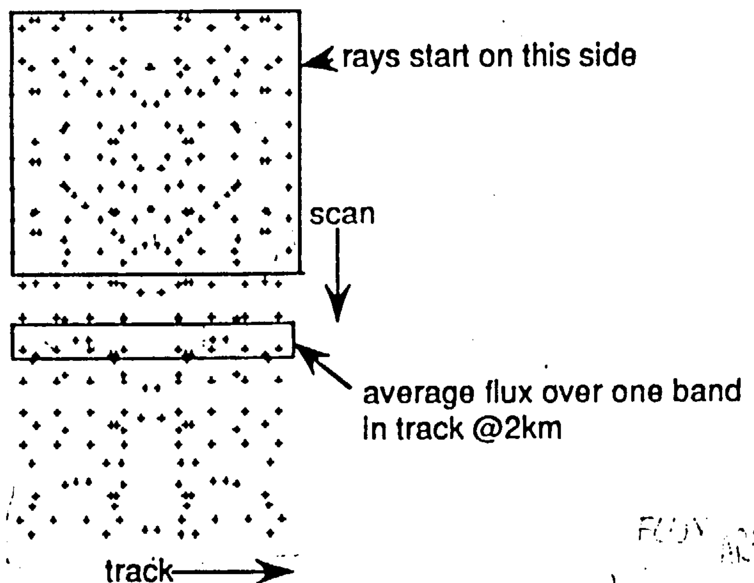
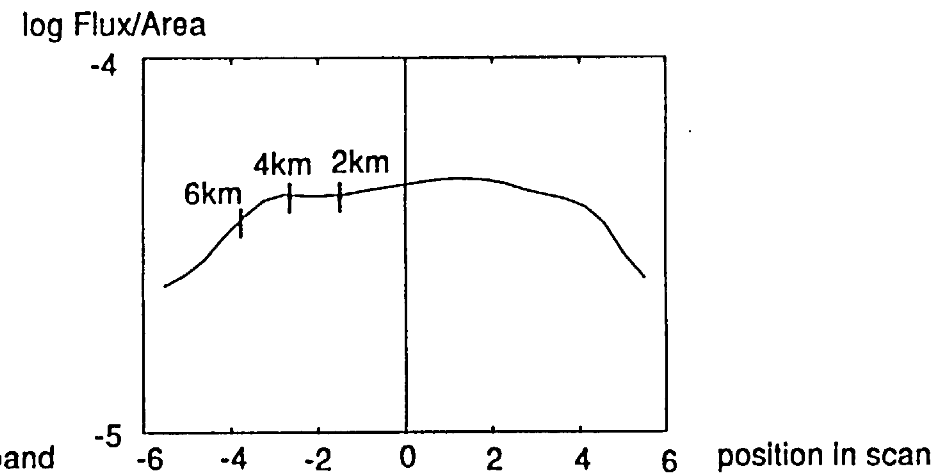
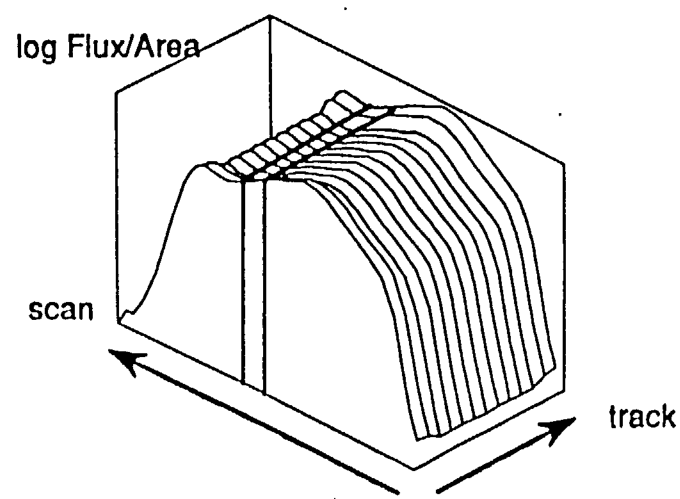


SPOT DIAGRAM



FLUX DISTRIBUTION



ISOMETRIC FLUX DISTRIBUTION

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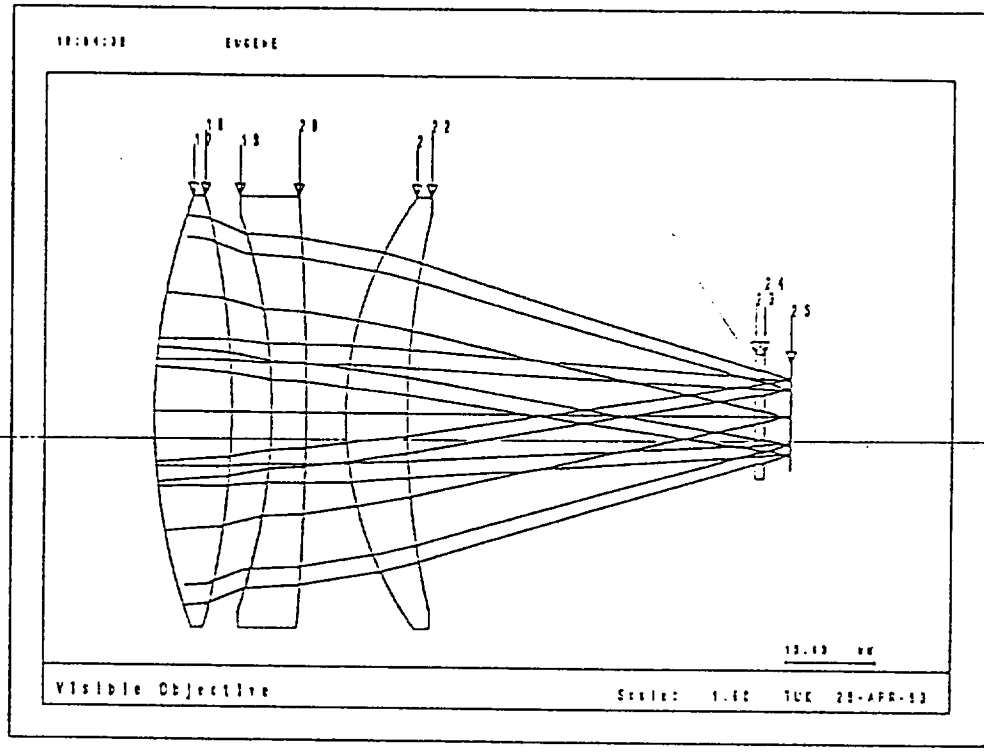
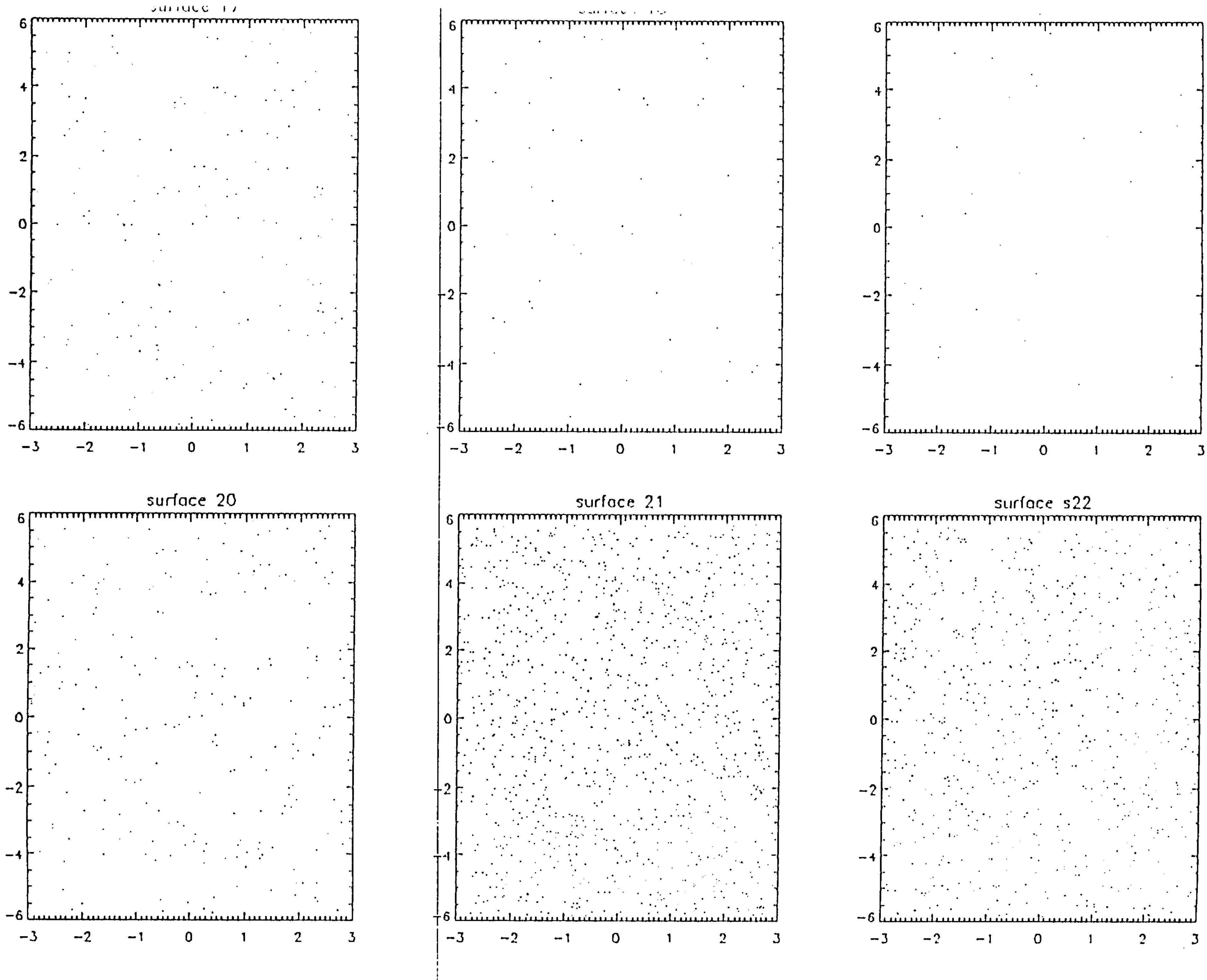
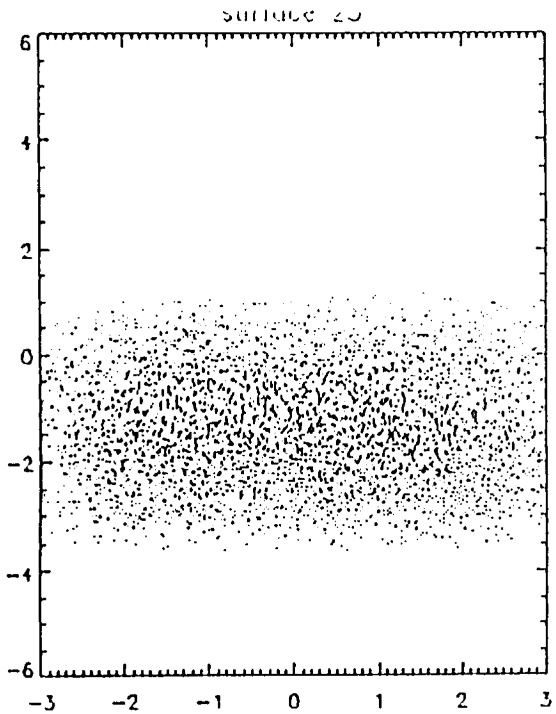
Appendix A

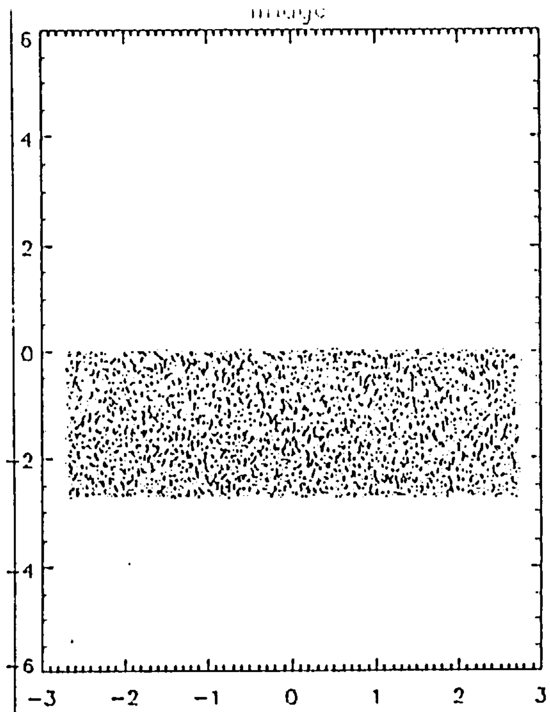
Visible Objective



The following spot diagrams represent the ghost light distribution in the visible focal plane. The greater the density of spots the greater the ghost image problem from a particular surface. For example spot diagram labeled "surface 19" indicates that ghost image light from surface 19 is less intense than the light reflected from surface 22. An "absolute" reference is provided by the density of spots in the diagram labeled "image". Although one should keep in mind the fact that the "weights" of rays in the image spot diagram are one while the "weights" of the "surface" spots is less and in the preparation of the table was assumed to be .02.


surface 20
surface 21
surface s22





Several Options Exist to Correct for Ghosting

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1) Coating Optimization	Standard for All Lenses
2) Surface Curvature Optimization	VIS, NIR Primarily, Possibly IR
3) Intermediate Filters: SW/MW	3 to 7 Zones
4) Intermediate Mask: SW/MW	50% Improvement
5) Dichroic Reflector: LWIR	2 to 3 Zones
6) Radiative Cooler Modifications	Windows Are Big Contributor in LWIR
7) Tilted Focal Plane Assy's	Registration, MTF, Vignetting Problems
8) Tilted Filter Assy's	Registration, MTF, Vignetting Problems
9) Sandwich Filters	VIS, NIR Only, Packaging Concerns
10) Wedge Glass	Registration Errors

NIR OBJECTIVE MODIFICATIONS

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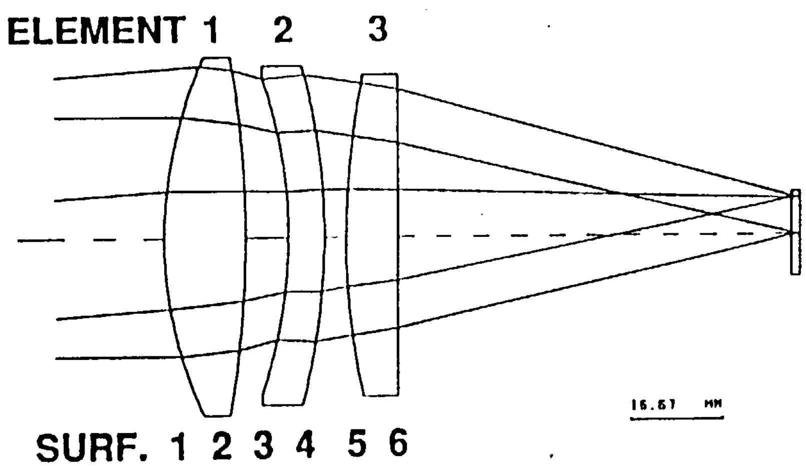
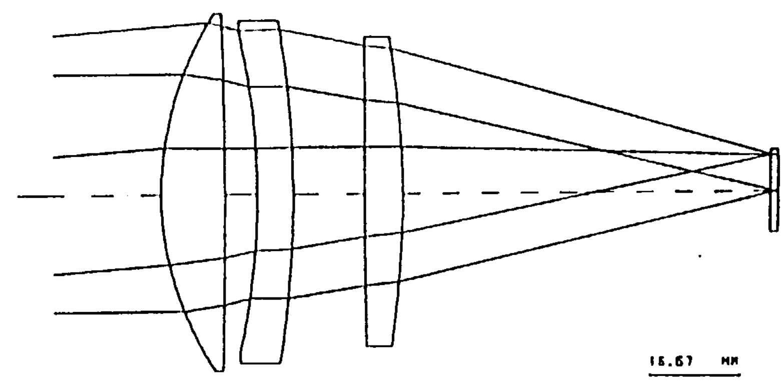


CURRENT ENG
MODEL NIR
OBJECTIVE



LOW GHOSTING
NIR OBJECTIVE
WITH CONIC

- BENT SURFACES ON ELEMENTS TO DIFFUSE GHOST RETURN. ELEMENT 3 WAS WORST OFFENDER.
- CONIC REQUIRED ON SURFACE 6 TO CONTROL DISTORTION
- AIRGAPS BETWEEN LENSES WERE ALLOWED TO VARY DURING OPTIMIZATION

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ALL NIR BANDS (BUT ONE) MEET REQUIREMENT

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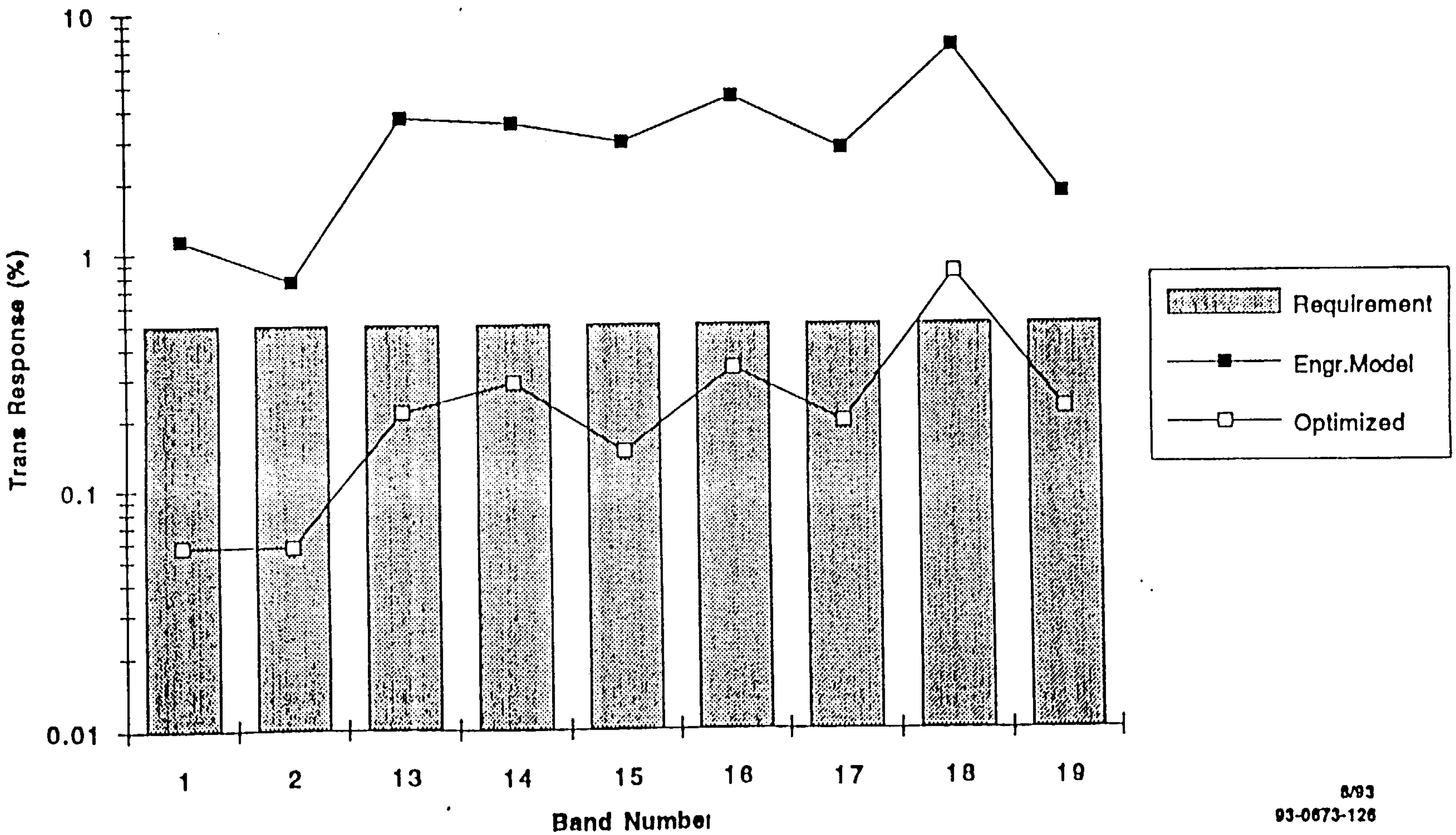

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Ghosting Reduction Summary NIR

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		Bands	
Optimization		In-Spec	Out-of-Spec
1)	Engineering Model	None	All
2)	Coating Optimizations	1, 2, 13, 15, 17, 19	14, 16, 18
3)	Geometric Modifications	1, 2, 13 to 17, 19	18

COMMENTS

- Band 18 Has Low Radiance and High Noise
- Optimized Coatings Alone May Meet Specs For All Bands
- Geometric Modifications Provide Added Margin

DICHROIC REFLECTOR ASSEMBLY IN LWIR OBJECTIVE

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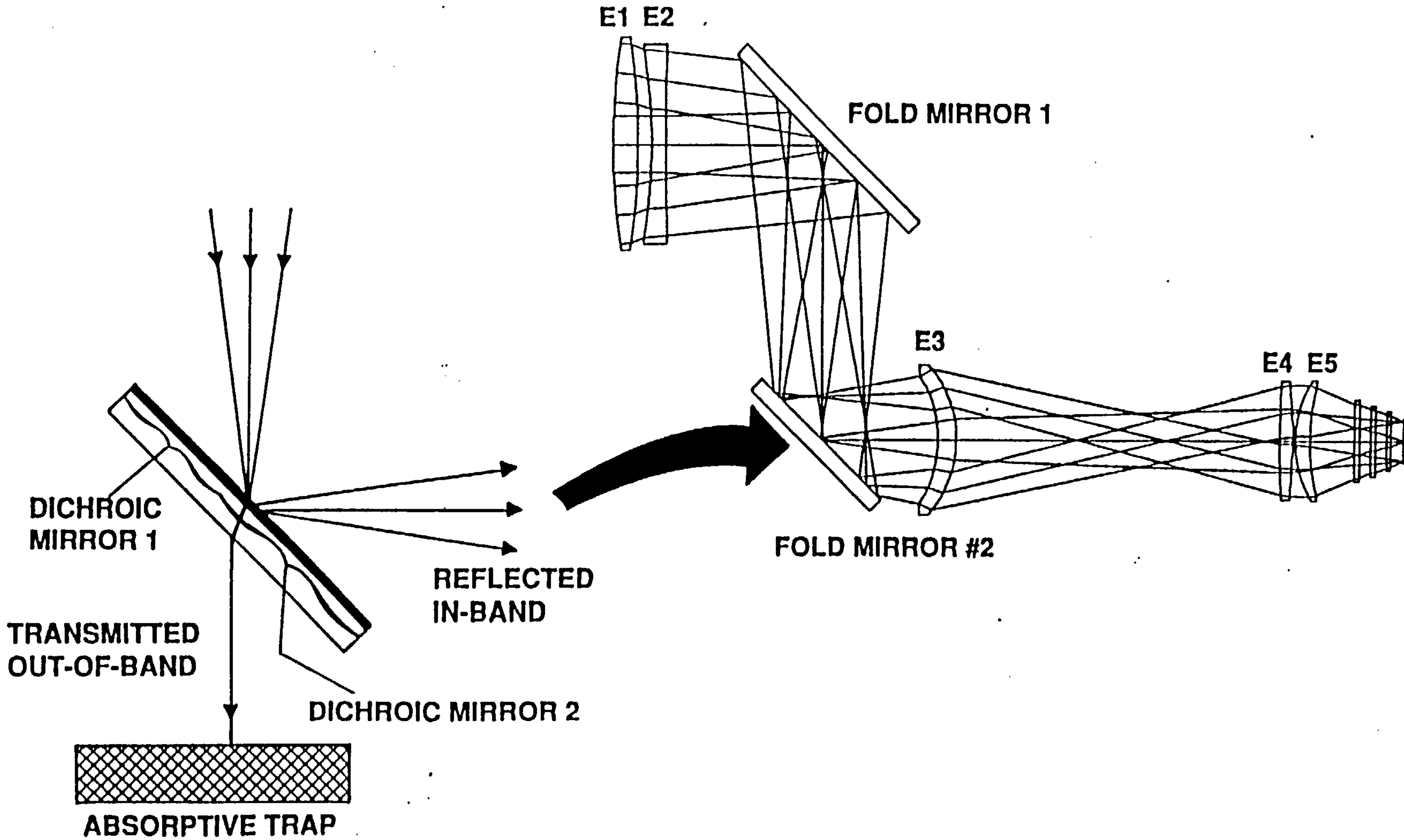

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OOB BLOCKING IS DISTRIBUTED AMONG COMPONENTS TO REDUCE MANUFACTURING RISK

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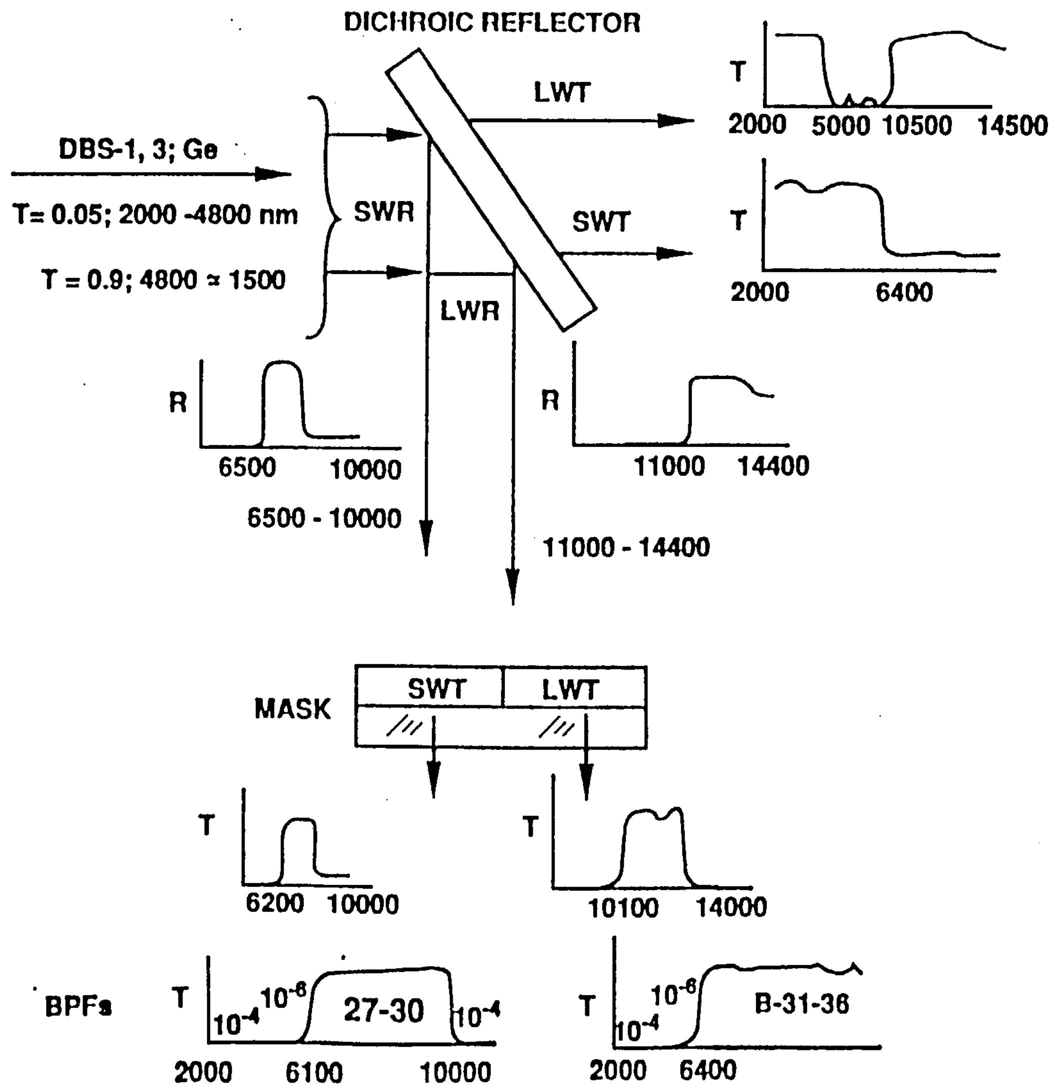

REF: PL 3095 - Q 02565
18 MAY '93

PL 3095 - Q 02687
17 JUNE '93

8/93
93-0673-529A

ELIMINATION OF GHOST RETURN FROM LWIR INTERMEDIATE WINDOW (CONT'D)

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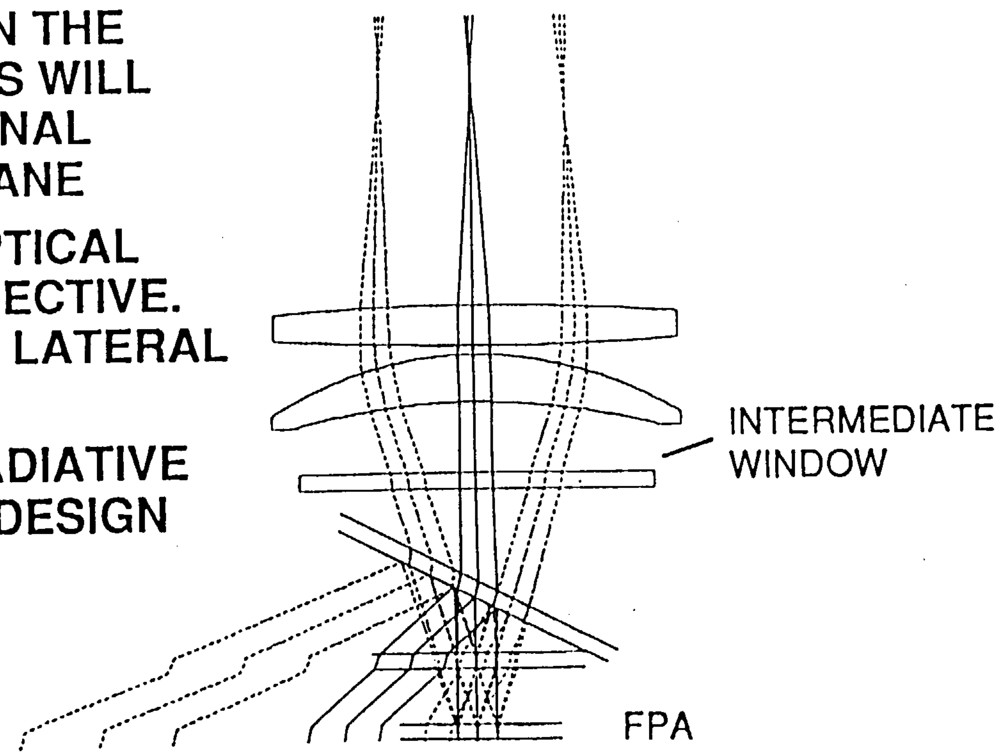
THE SOLUTION

- TILT THE INTERMEDIATE WINDOW BY 20 TO 25 DEGREES IN THE TRACK DIRECTION. THIS WILL DIVERT THE GHOST SIGNAL AWAY FROM FOCAL PLANE
- MINIMAL IMPACT ON OPTICAL PERFORMANCE OF OBJECTIVE. (LARGEST FACTOR IS A LATERAL SHIFT OF IMAGE)
- MINIMAL IMPACT ON RADIATIVE COOLER MECHANICAL DESIGN



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93-0673-71

Options Exist for Spec Compliance in SWIR/MWIR & LWIR

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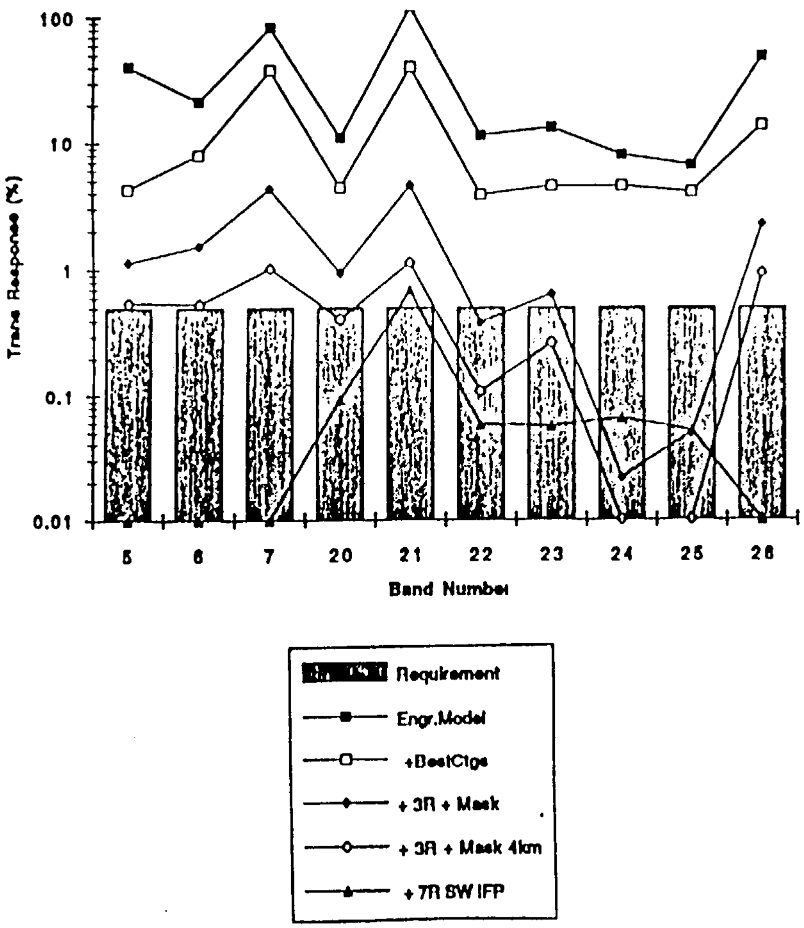
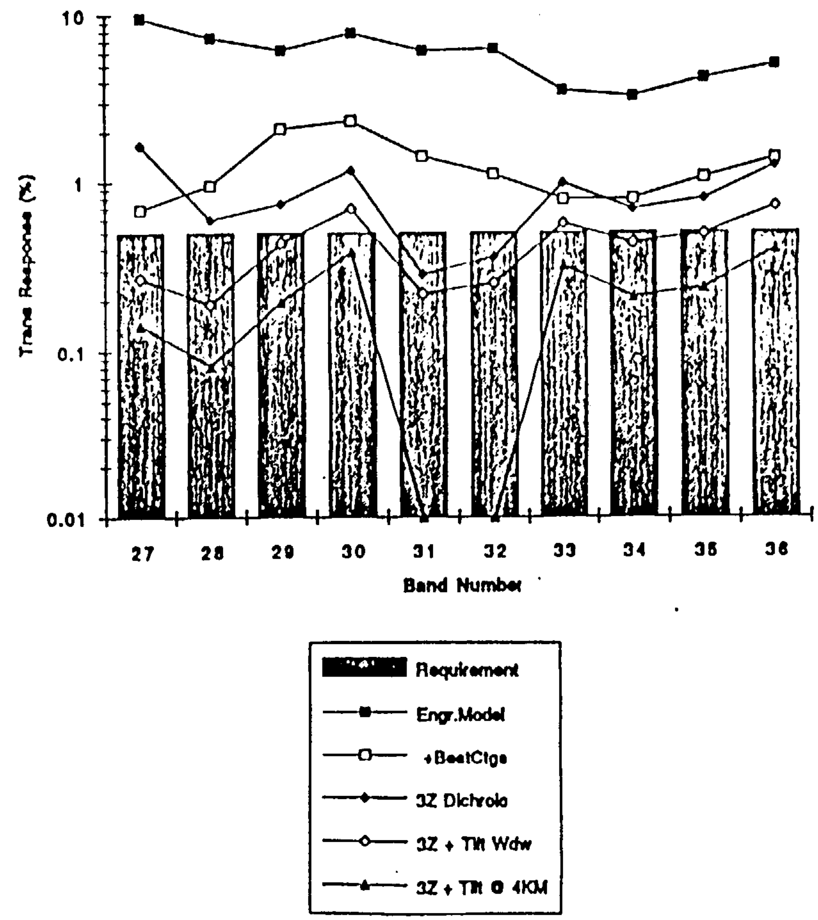
SWIR/MWIR



LWIR



Includes ~ 0.25% PC Crosstalk

Ghosting Reduction Summary
LWIR

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Optimization	Bands In-Spec	Bands Out-of-Spec
1) Engineering Model	None	All
2) Coating Optimizations	None	All
3) Intermediate Dichroic 2 Z	None	All
4) Intermediate Dichroic 3 Z	31, 32, 34, 35	27 - 29, 33, 30, 36
5) 2 Z Dichroic + Window Tilt	27 - 29, 31 - 36	30
5b) Option 5 at 4 km	All	None
6) 3 Z Dichroic + Window Tilt	27 - 29, 31 - 36	30
6b) Option 6 at 4 km	All	None

COMMENTS

- Above Estimates Do Not Include PC Crosstalk (31 - 36)
- 3 Zone Dichroic Offers More Margin for PC Crosstalk

CONCLUSIONS

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	TECHNICAL RISK	COST DELTA	PF SCHEDULE DELTA
VISIBLE AND NIR			
1. COATINGS AND CURVATURE CHANGES	LOW	LOW	+2 MO.
S/MWIR			
1. COATINGS + 3 ZONE IFP FILTER/MASK	LOW	LOW	+1 MO.
2. COATINGS + 7 ZONE IFP FILTER/MASK	MED-HIGH	HIGH	+4 MO.
LWIR			
1. COATINGS + 2 ZONE DICHROIC	LOW	MED	+2 MO.
2. COATINGS + 3 ZONE DICHROIC	LOW	MED	+2 MO.
3. COATINGS/3 ZONE DICHROIC/ WINDOW TILT	MED	MED	+3 MO.

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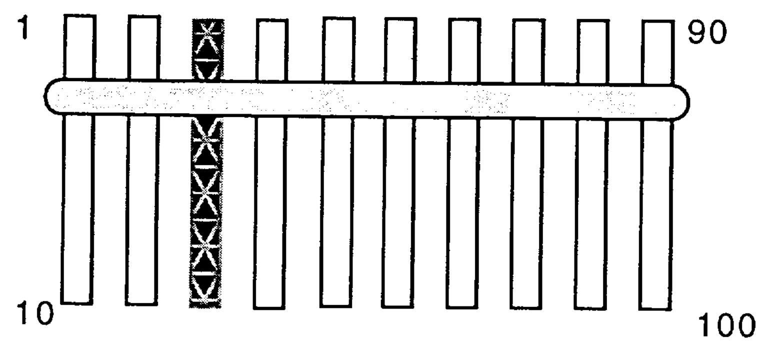
PROPOSED FPA SYSTEM TEST



For single detector test:

$S^{cor}_d = 2S^{msd}_d - \Sigma\, a_{id}\, S^{msd}_d$

S^{cor}_d = corrected signal at detector d

S^{msd}_d = measured signal

a_{id} = normalized test ratio of masked element d_{ij} to a_{ij} element lighted

With multiple elements lighted:

a_{id} is averaged from two tests except where the lighted elements are off the intersection

S^{cor}_d, S^{msd}_d are 100 column

a_{id} is 100x100 (1's diagonal)

Note: the light would have to replicate the scene spectral radiance. If not, this may be a significant problem.

Radiometric Calibration with

spectroradiometric Calibration Assembly (SRCA)

Presented by Nianzeng Che

swales & Associates, Inc.

SRCA STRUCTURAL LAYOUT

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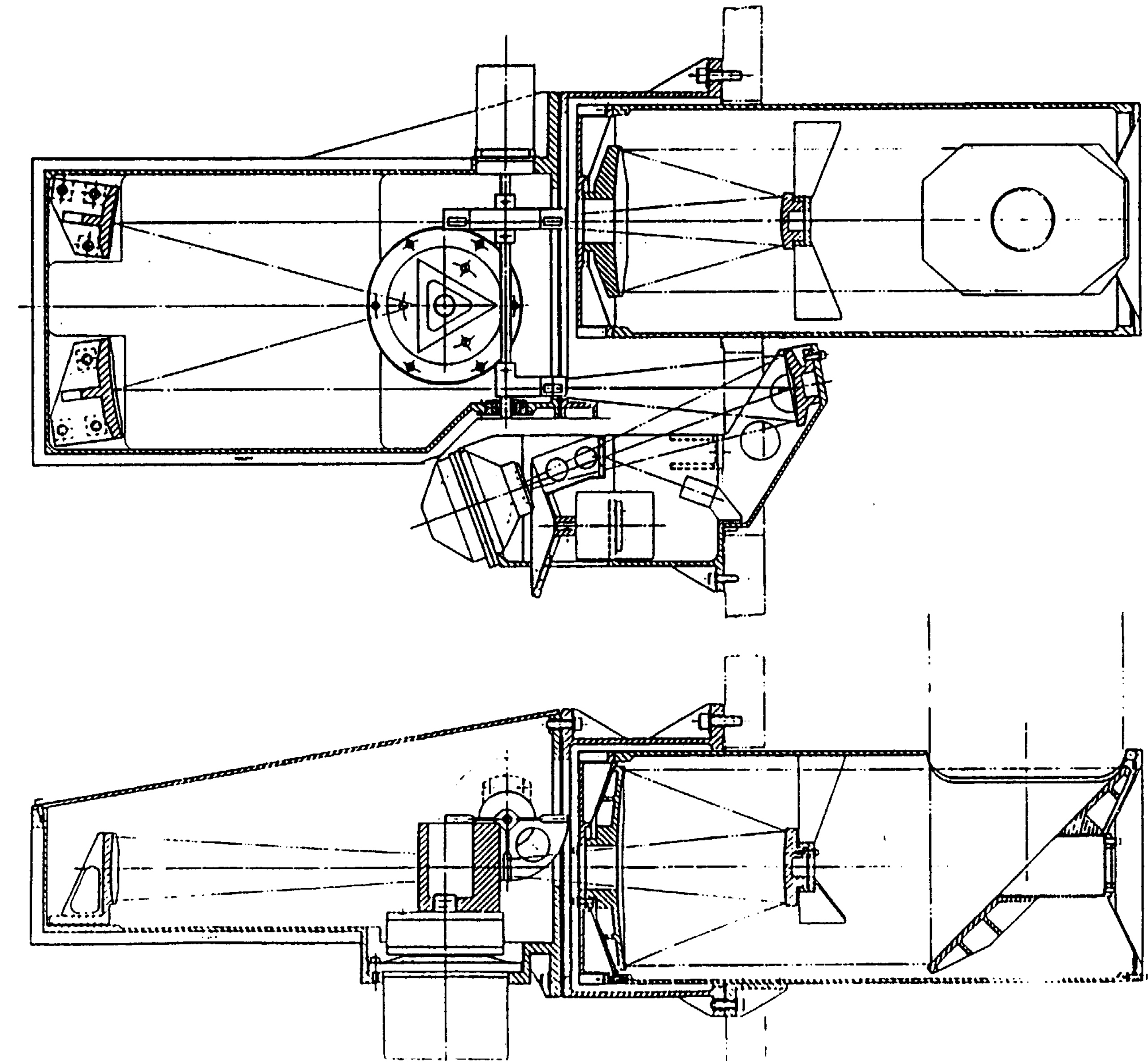

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92-0652-070B

TABLE 6.1. SRCA SOURCE CONFIGURATIONS

Lamp Configuration						Attenuation Filter	Electronic Controller	Control Mode
10 Watt				1 Watt				
#3	#2	#1	S	#1	S			
X	X	X				CLEAR	PRI	RAD
	X	X				CLEAR	PRI	RAD
		X				CLEAR	PRI	RAD
		X				ND	PRI	RAD
				X		CLEAR	PRI	RAD
				X		ND	PRI	RAD
X	X		X			CLEAR	RDT	RAD
	X		X			CLEAR	RDT	RAD
			X			CLEAR	RDT	RAD
			X			ND	RDT	RAD
					X	CLEAR	RDT	RAD
					X	ND	RDT	RAD
X	X	X				CLEAR	PRI	CUR
	X	X				CLEAR	PRI	CUR
		X				CLEAR	PRI	CUR
				X		CLEAR	PRI	CUR
X	X		X			CLEAR	RDT	CUR
	X		X			CLEAR	RDT	CUR
			X			CLEAR	RDT	CUR
					X	CLEAR	RDT	CUR

Functions

SRCA is the only radiometric calibration source to correlate pre-launch to on-orbit in VS/NIR of MODIS. Thus the history of radiometric performance of MODIS is tracked.

. Provide radiometric calibration for MODIS by repeatedly stability-monitoring and radiometric correcting by solar diffuser.

. One of the calibration source members on the EOS platform. Improving the calibration accuracy by reference to other calibration sources and to the ground truth.

. The output of SRCA integration sphere provides a uniform illumination to eliminate "striped image".

. Combination with the functions of spectral calibration and alignment check.

SRCA CALIBRATION MODELS VALIDATED BY MEASUREMENTS

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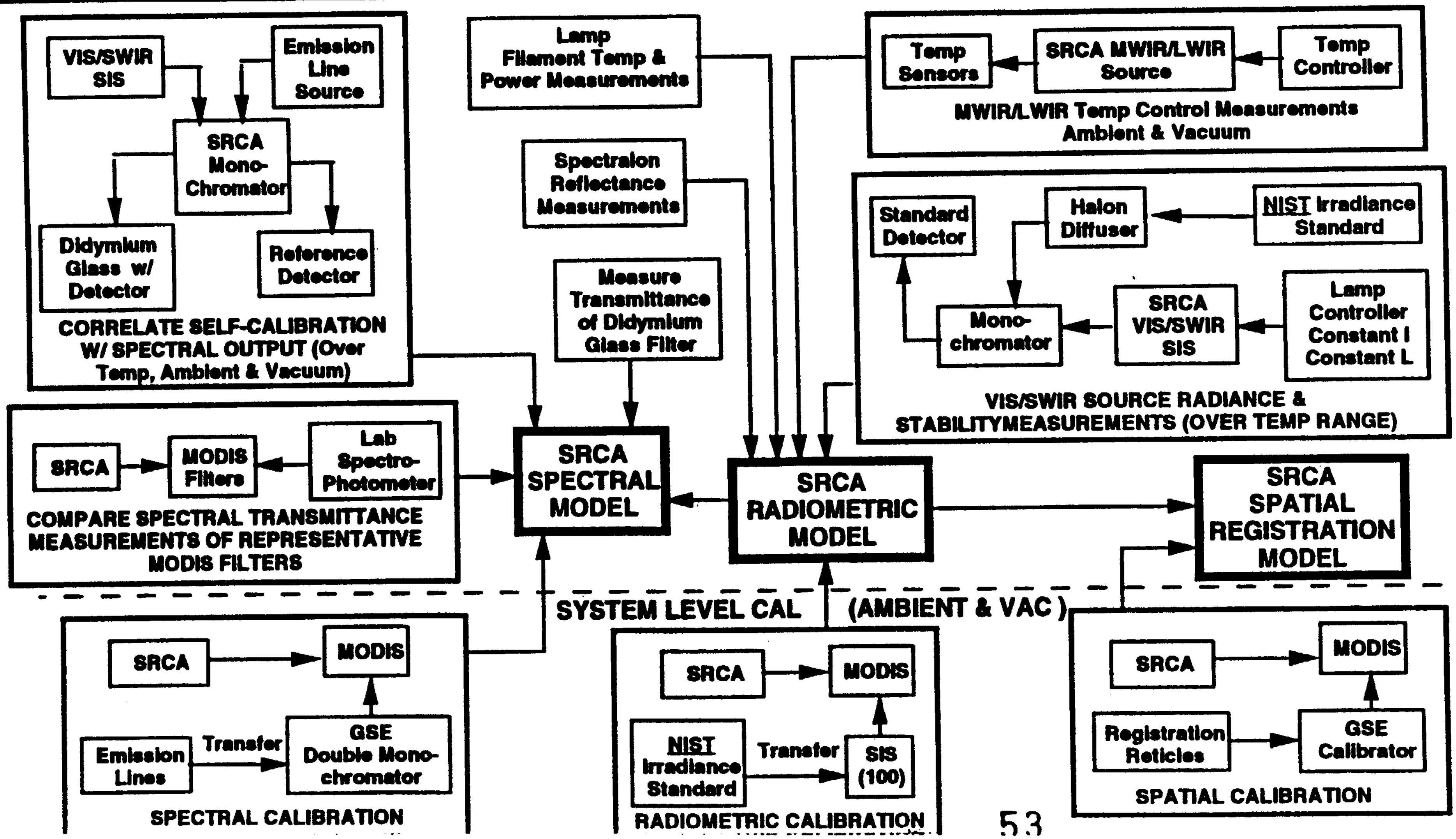


Factors unstablizing the radiometric calibration by SRCA

. Radiance of the light source is suffering from environmental shifting.

Ambient ----> Vacuum chamber ----> Space

. Degradation in filament emissivity (in testing).

. Reflectance change in integrating sphere coating.

The output radiance is very sensitive to the change of coating reflectance. If reflectance = 0.99, reflectance change of 0.5% leads to a radiance change of 8%.

. Filament current/voltage uncertainty.

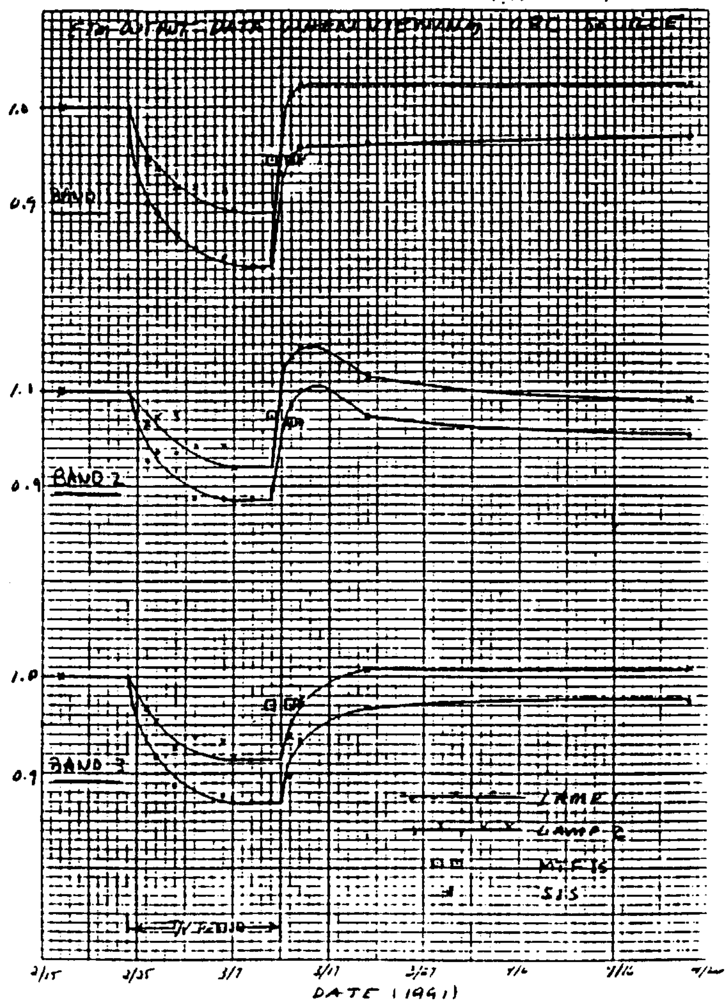
Current change 0.1% ----> radiance change of 0.5-1.0%

. Micro-performance change along the optical path due to partial aperture filling.

- **OBSERVED ETM AMBIENT TO VACUUM SHIFTS FOR BANDS 1, 2, AND 3 (0.475, 0.56, AND 0.66 μm)**

ATTACHMENT 1 OF 3

Normalized output & Enhanced TM



10-15% ambient to vac shift.

Don't know what is going on here.

Trying to understand better for MODIS.

external full-ap calibrator was a 3RD curve

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AMBIENT TO VACUUM CALIBRATION SHIFTS DRIVE MODIS CALIBRATION PHILOSOPHY

9/92
92-0652-009

AMBIENT TO VACUUM CALIBRATION SHIFTS DRIVE MODIS CALIBRATION PHILOSOPHY

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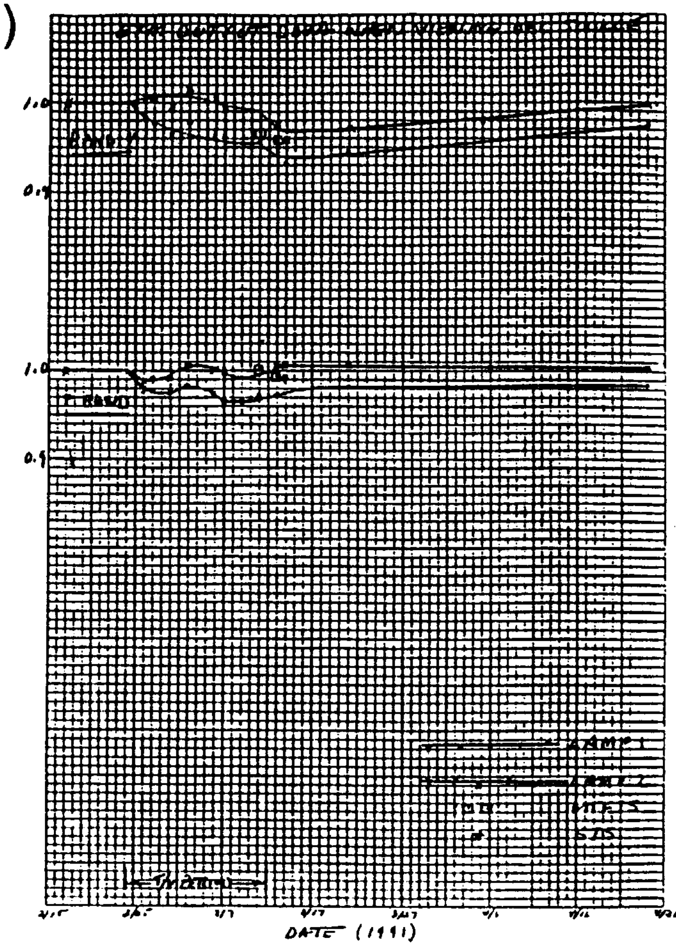
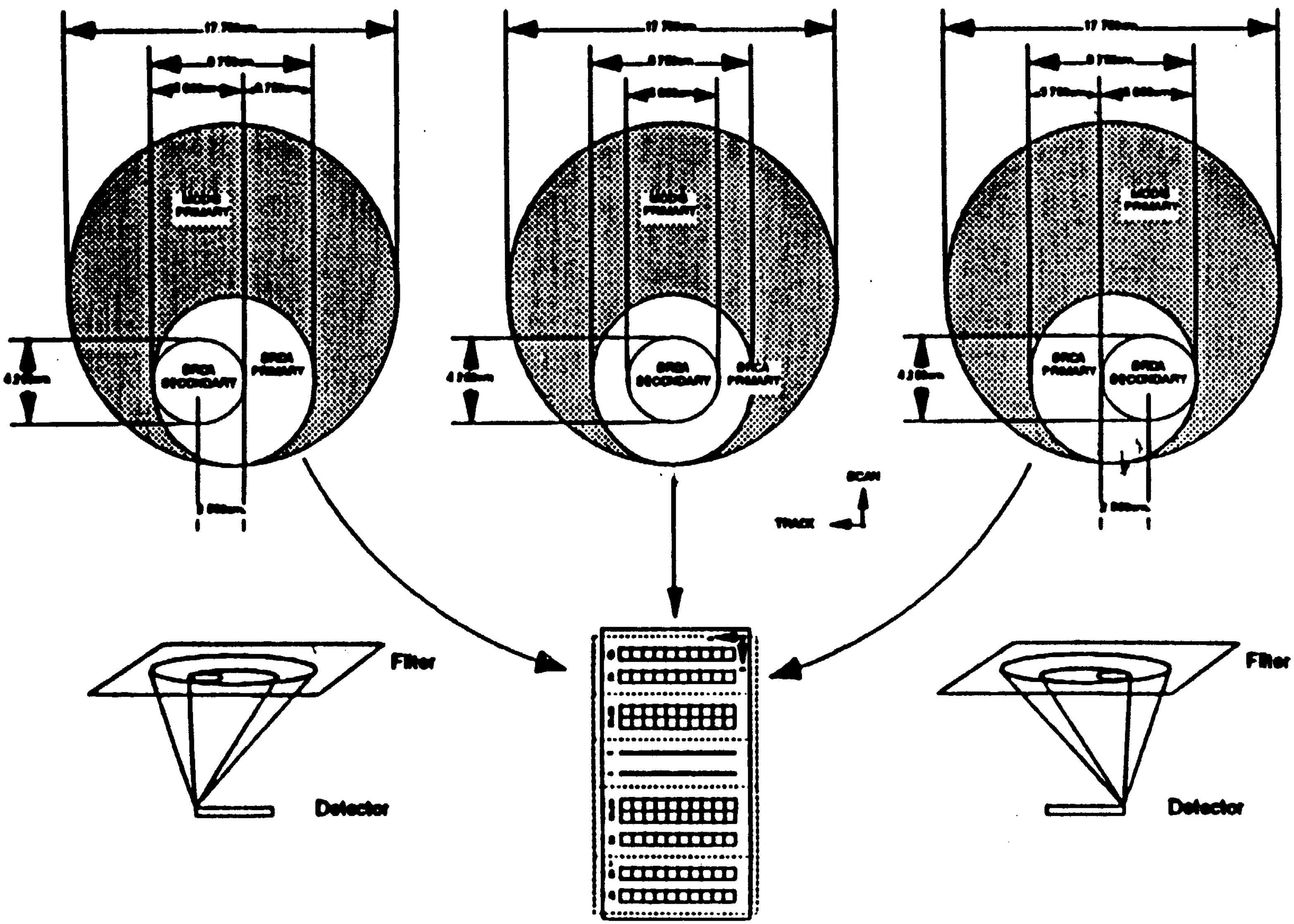
- OBSERVED ETM AMBIENT TO VACUUM SHIFTS FOR BANDS 4 AND PAN (0.83 AND 0.5 TO 0.87 μm)




Filter
Detector
SCAN
TRACK
Filter
Detector

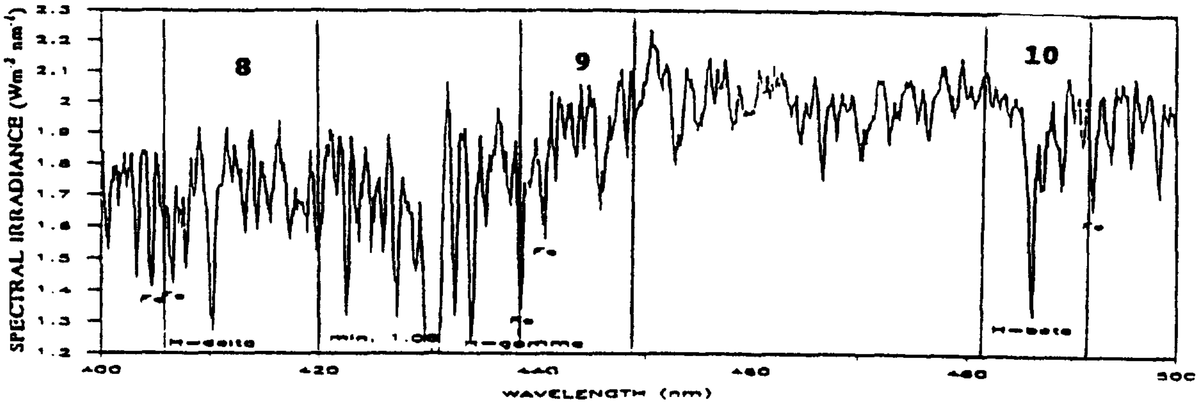
To what extent the solar diffuser can provide absolute radiometric calibration to SRCA?

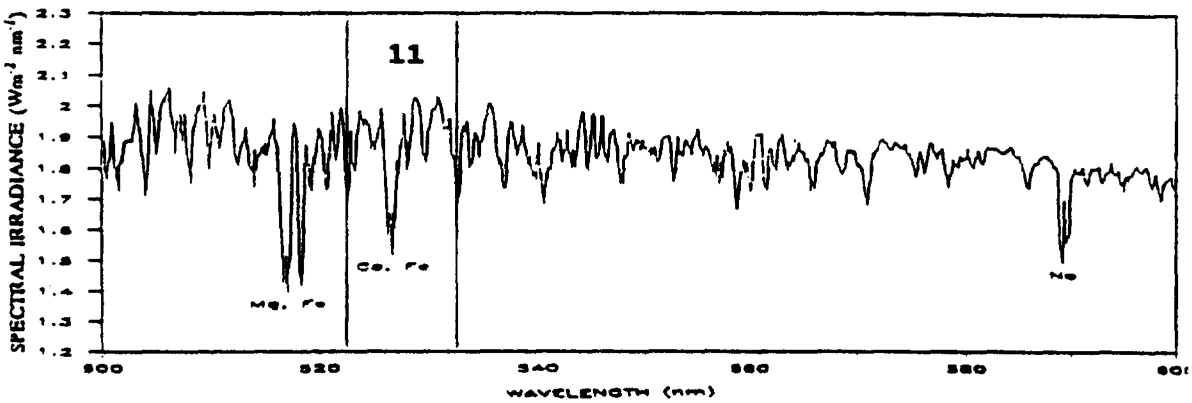
. Solar diffuser provides a stable source to monitor the degradation of SRCA.

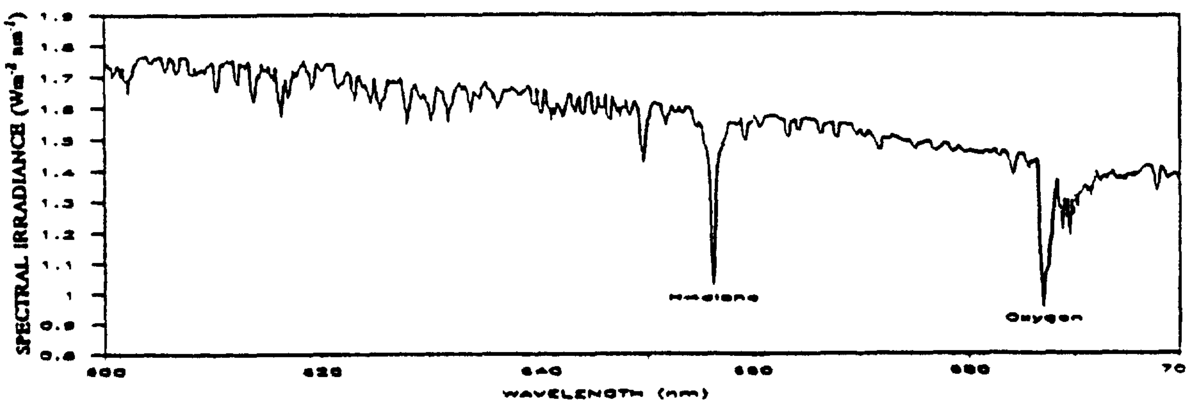
Challenge: What is the accuracy of the solar spectral irradiance by Nickel and Labs data (1984)?

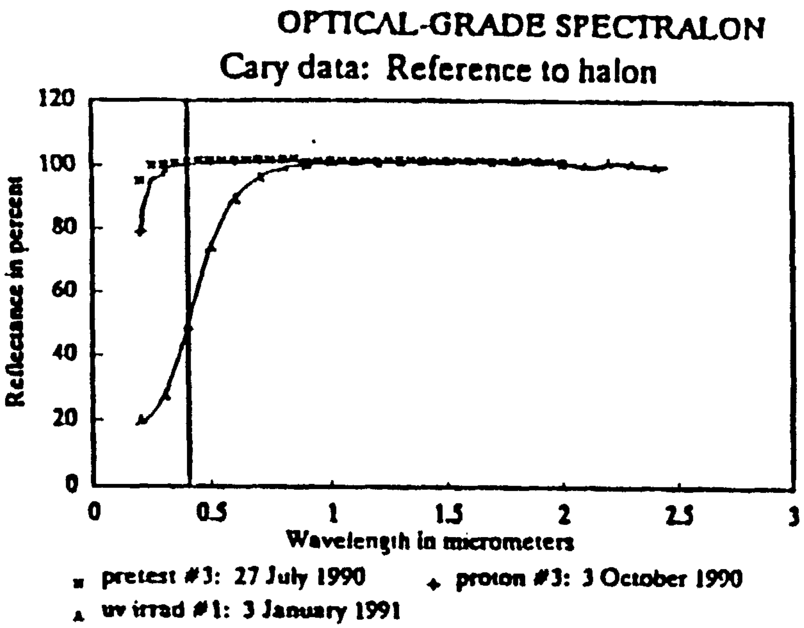
Frauhofer lines introduces uncertainty due to the wavelength shift of the interference filters.

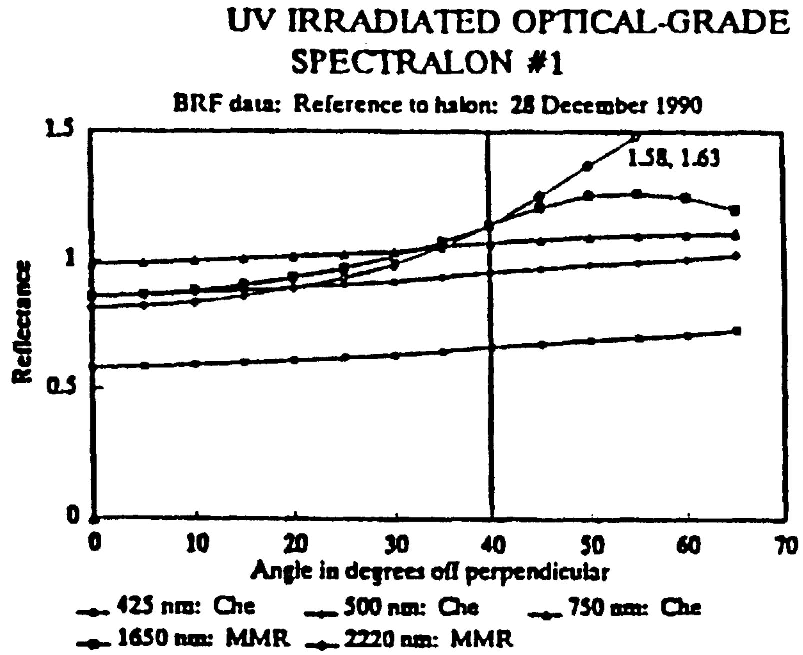
BRDF uncertainty related error.

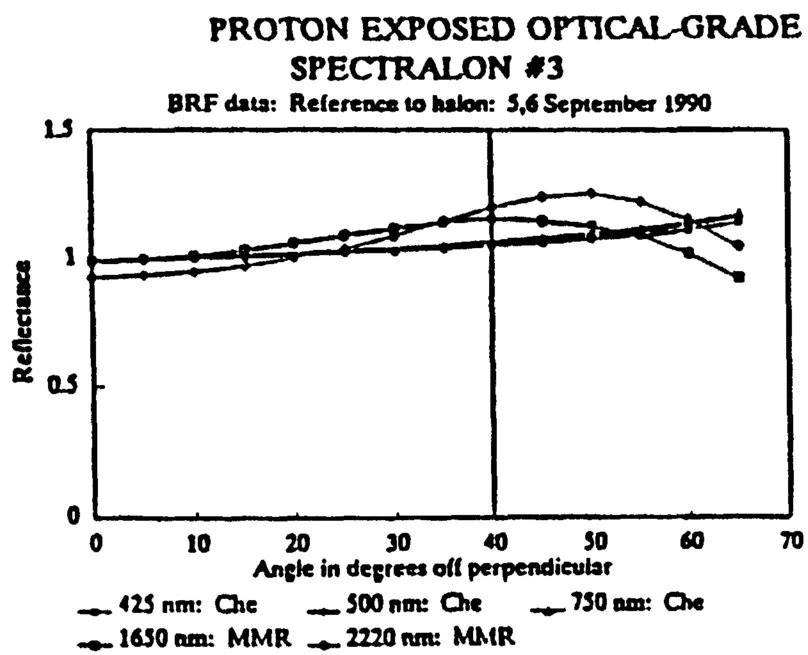

SPECTRAL IRRADIANCE (Wm-2 nm-1)
WAVELENGTH (nm)
8
9
10
min. 1.06
Fe


SPECTRAL IRRADIANCE (Wm-2 nm-1)
WAVELENGTH (nm)
11
Mg, Fe
Ca, Fe
Na


SPECTRAL IRRADIANCE (Wm-2 nm-1)
WAVELENGTH (nm)
Oxygen


OPTICAL-GRADE SPECTRALON
Cary data: Reference to halon
Reflectance in percent
120
100
80
60
40
20
0
0
0.5
1
1.5
2
2.5
3
Wavelength in micrometers
pretest #3: 27 July 1990
proton #3: 3 October 1990
uv irrad #1: 3 January 1991


UV IRRADIATED OPTICAL-GRADE
SPECTRALON #1
BRF data: Reference to halon: 28 December 1990
1.58, 1.63
Reflectance
1.5
1
0.5
0
0
10
20
30
40
50
60
70
Angle in degrees off perpendicular
425 nm: Che
500 nm: Che
750 nm: Che
1650 nm: MMR
2220 nm: MMR


PROTON EXPOSED OPTICAL-GRADE
SPECTRALON #3
BRF data: Reference to halon: 5,6 September 1990
Reflectance
1.5
1
0.5
0
0
10
20
30
40
50
60
70
Angle in degrees off perpendicular
425 nm: Che
500 nm: Che
750 nm: Che
1650 nm: MMR
2220 nm: MMR

SBRC Detailed Activity Milestones--Engineering Model
as of 5 Feb 94

BLACKBODY

Optical Measurements and Analysis of BB	13Jul94
Performance Verification	08Aug94

EM INTEGRATION

Receive BCS/SVS	25Mar94
GSE SW integration and Test	30Jun94
Vibrational Tests Complete	15Sep94
MGBC Done	28Oct94
Flight SW Acceptance Test	11Nov94
IFOV and A-T MTF Measurements	08Dec94
Measure 1-G release effect	14Dec94
Reflective Bands Radiometric Performance	31Jan95
Thermal Bands Radiometric Performance	09Mar95
Warm-Target etc. test	14Mar95
Ambient B/L Tests,Ghost Test	11May95

SOLAR DIFFUSER

Optical Measurements and Analysis of SD	28Apr94
Performance Evaluation	11Jul94

SDSM

Performance Verification	21Sep94

FLIGHT SW

Test-	25Oct94

SRCA

Verification/Qual Testing	21Sep94

SOME SBRC DOCUMENT DELIVERY DATES

Detailed Test Procedures (CDRL 409) due 75 days prior to sys. level tests	Fall 94
Detailed Ground Calibration Procedures (CDRL 410) due 75 days prior to sys. level tests	Fall 94
GSE Test Procedures (CDRL 411) due 10 days prior to test of STE	Fall 94
Performance Verification Procedures (CDRL 412) due 30 days prior to each activity	Fall 94
Specification Compliance and Calibration Data Books (CDRL222) Due as part of EM delivery	Sum. 95
In-Flight Calibration Procedures, Final (CDRL 404) Due at completion of EM tests	Sum 95
EM Test Review Data Package (CDRL 027)	Sum. 95
Performance Verification Reports (CDRL 208) Due 30 days after test completion.	Sum. 95
MODIS Technical Description Document (CDRL 519) Due at end of EM tests	Sum. 95
General Operating Command Procedures (CDRL 405) Due at completion of EM tests	Sum 95