System/Prescription Data

File : C:\tbida\zemax\dct\RC D11\RC_ADC_Guider_768-86_MLM_wide_field_5.zmx
Title: GWAVES Wide Field Camera
Date : TUE APR 27 2010
Configuration 1 of 5

LENS NOTES:

Notes...

GENERAL LENS DATA:

Surfaces : 42
Stop : 2
System Aperture : Entrance Pupil Diameter = 4200
Glass Catalogs : SCHOTT INFRARED OHARA
Ray Aiming : Off
Apodization : Uniform, factor = 0.00000E+000
Temperature (C) : 2.00000E+001
Pressure (ATM) : 1.00000E+000
Adjust Index Data To Environment : Off
Effective Focal Length : -13930.97 (in air at system temperature and pressure)
Effective Focal Length : -13930.97 (in image space)
Back Focal Length : 4.625314
Total Track : 8005.254
Image Space F/# : 3.316898
Paraxial Working F/# : 3.327237
Working F/# : 17.67843
Image Space NA : 0.1481539
Object Space NA : 2.099999e-007
Stop Radius : 2100
Paraxial Image Height : 0
Paraxial Magnification : 0
Entrance Pupil Diameter : 4200
Entrance Pupil Position : 6000
Exit Pupil Diameter : 4.773274
Exit Pupil Position : 18.45777
Field Type : Angle in degrees
Maximum Radial Field : 0
Primary Wavelength : 0.5 µm
Lens Units : Millimeters
Angular Magnification : 0

Fields : 1
Field Type: Angle in degrees

#	X-Value	Y-Value	Weight
1	0.000000	0.000000	5.000000

Vignetting Factors

#	VDX	VDY	VCX	VCY	VAN
1	0.000000	-0.006210	0.000014	0.006210	0.000000

Wavelengths : 5
Units: µm

#	Value	Weight
1	0.370000	1.000000
2	0.400000	1.000000
3	0.500000	1.000000
4	0.650000	1.000000
5	0.800000	1.000000

SURFACE DATA SUMMARY:

Surf	Type	Radius	Thickness	Glass	Diameter	Conic	Comment
OBJ	STANDARD	Infinity	Infinity		0	0	
1	STANDARD	Infinity	6000		1400	0	
STO	STANDARD	Infinity	137.7		0	0	APERTURE STOP
3	STANDARD	-16000	-5619.743	MIRROR	4201	-1.082674	PRIMARY
4	STANDARD	-6926.407	5619.743	MIRROR	1310	-4.500899	SECONDARY
5	STANDARD	Infinity	400		0	0	Primary hole
6	TILTSURF	-	20	F_SILICA	470	-	ADC 1A
7	TILTSURF	-	20	LLF6	470	-	ADC 1B
8	STANDARD	Infinity	10		470	0	
9	STANDARD	64329.84	20	F_SILICA	470	0	ADC 2A
10	TILTSURF	-	20	LLF6	470	-	ADC 2B
11	TILTSURF	-	610		470	-	
12	STANDARD	Infinity	362.4985		150.5409	0	Mounting flange
13	STANDARD	Infinity	130		90.05119	0	Fold Mirror
14	STANDARD	-3658.611	25	F_SILICA	350	0	Element 1
15	STANDARD	-1509.665	204.8154		350	0	
16	STANDARD	-699.8357	15	F_SILICA	310	0	Element 2
17	STANDARD	-2007.457	30.24		310	0	
18	COORDBRK	-	0		-	-	
19	COORDBRK	-	0		-	-	
20	BICONICX	Infinity	0	MIRROR	70	0	Pickoff Mirror
21	COORDBRK	-	-94.76		-	-	
22	STANDARD	Infinity	-40.6312		6.766165	0	
23	COORDBRK	-	0		-	-	probe tilt bias

24	STANDARD	Infinity	-7		0.05216523	0	TEL FOCUS
25	STANDARD	Infinity	-20	N-BK7	20	0	Beamsplitter
26	STANDARD	Infinity	-3.4	N-BK7	20	0	FL 011-1365
27	STANDARD	36.33	-54.35517		20	0	
28	STANDARD	-32.13957	-2	N-KZFS11	20	0	Coll 1
29	STANDARD	-12	-8	N-FK51A	20	0	Coll 2
30	STANDARD	92.28585	-4.401554		20	0	
31	STANDARD	Infinity	0		9.924651	0	Pupil
32	USERSURF	-39.6	-2	N-BK7	9.924646	0	0768-86 S MLM
33	STANDARD	-46.71	-12.517		20	0	OS 015-0147
34	STANDARD	-19.04589	-6.1	N-FK51A	19	0	Cam 1
35	STANDARD	25.91594	-5.419989		19	0	
36	STANDARD	13.95997	-2	N-KZFS11	19	0	Cam 2
37	STANDARD	19.93321	-14.67273		19	0	
38	STANDARD	10.38	-2	N-BK7	12.7	0	FF 015-0066
39	STANDARD	Infinity	-2.5	N-BK7	12.7	0	Window
40	STANDARD	Infinity	-2		30	0	
41	COORDBRK	-	0		-	-	
IMA	STANDARD	Infinity			4.866346	0	CCD67

SURFACE DATA DETAIL:

```
Surface OBJ     : STANDARD
Surface   1     : STANDARD
 Aperture       : Circular Obscuration
 Minimum Radius :            0
 Maximum Radius :          700
Surface STO     : STANDARD APERTURE STOP
 Aperture       : Circular Aperture
 Minimum Radius :          500
 Maximum Radius :         2100
Surface   3     : STANDARD PRIMARY
 Mirror Substrate : Curved, Thickness = 8.40200E+001
 Aperture       : Circular Aperture
 Minimum Radius :          500
 Maximum Radius :       2100.5
Surface   4     : STANDARD SECONDARY
 Mirror Substrate : Curved, Thickness = 2.62000E+001
 Aperture       : Circular Aperture
 Minimum Radius :            0
 Maximum Radius :          655
Surface   5     : STANDARD Primary hole
Surface   6     : TILTSURF ADC 1A
 X Tangent      :    0.0019296299
 Y Tangent      :               0
 Aperture       : Floating Aperture
 Maximum Radius :          235
Surface   7     : TILTSURF ADC 1B
 X Tangent      :   -0.016552752
 Y Tangent      :               0
 Aperture       : Floating Aperture
 Maximum Radius :          235
Surface   8     : STANDARD
 Aperture       : Floating Aperture
 Maximum Radius :          235
Surface   9     : STANDARD ADC 2A
 Aperture       : Floating Aperture
 Maximum Radius :          235
Surface  10     : TILTSURF ADC 2B
 X Tangent      :     0.018515571
 Y Tangent      :               0
 Aperture       : Floating Aperture
 Maximum Radius :          235
Surface  11     : TILTSURF
 X Tangent      :    0.0019230692
 Y Tangent      :               0
 Aperture       : Floating Aperture
 Maximum Radius :          235
Surface  12     : STANDARD Mounting flange
Surface  13     : STANDARD Fold Mirror
Surface  14     : STANDARD Element 1
 Aperture       : Floating Aperture
 Maximum Radius :          175
Surface  15     : STANDARD
 Aperture       : Floating Aperture
 Maximum Radius :          175
Surface  16     : STANDARD Element 2
 Aperture       : Floating Aperture
 Maximum Radius :          155
Surface  17     : STANDARD
 Aperture       : Floating Aperture
 Maximum Radius :          155
Surface  18     : COORDBRK
 Decenter X     :               0
 Decenter Y     :               0
 Tilt About X   :               0
 Tilt About Y   :               0
 Tilt About Z   :               0
 Order          : Decenter then tilt
Surface  19     : COORDBRK
```

```
 Decenter X     :                0
 Decenter Y     :                0
 Tilt About X   :               45
 Tilt About Y   :                0
 Tilt About Z   :                0
 Order          : Decenter then tilt
Surface  20     : BICONICX Pickoff Mirror
 Mirror Substrate : Curved, Thickness = 1.40000E+000
 X Radius       :                0
 X Conic        :                0
 Aperture       : Floating Aperture
 Maximum Radius :               35
Surface  21     : COORDBRK
 Decenter X     :                0
 Decenter Y     :                0
 Tilt About X   :               45
 Tilt About Y   :                0
 Tilt About Z   :                0
 Order          : Decenter then tilt
Surface  22     : STANDARD
Surface  23     : COORDBRK probe tilt bias
 Decenter X     :                0
 Decenter Y     :                0
 Tilt About X   :                0
 Tilt About Y   :                0
 Tilt About Z   :                0
 Order          : Decenter then tilt
Surface  24     : STANDARD TEL FOCUS
 Aperture       : Circular Aperture
 Minimum Radius :                0
 Maximum Radius :              0.5
Surface  25     : STANDARD Beamsplitter
 Aperture       : Rectangular Aperture
 X Half Width   :               10
 Y Half Width   :               10
Surface  26     : STANDARD FL 011-1365
Surface  27     : STANDARD
 Aperture       : Floating Aperture
 Maximum Radius :               10
Surface  28     : STANDARD Coll 1
 Aperture       : Floating Aperture
 Maximum Radius :               10
Surface  29     : STANDARD Coll 2
 Aperture       : Floating Aperture
 Maximum Radius :               10
Surface  30     : STANDARD
 Aperture       : Floating Aperture
 Maximum Radius :               10
Surface  31     : STANDARD Pupil
Surface  32     : USERSURF (US_ARRAY.DLL) 0768-86 S MLM
        Number X:                  32
        Number Y:                  32
         Width X:               0.768
        Height Y:               0.768
Surface  33     : STANDARD OS 015-0147
 Aperture       : Floating Aperture
 Maximum Radius :               10
Surface  34     : STANDARD Cam 1
 Aperture       : Floating Aperture
 Maximum Radius :              9.5
Surface  35     : STANDARD
 Aperture       : Floating Aperture
 Maximum Radius :              9.5
Surface  36     : STANDARD Cam 2
 Aperture       : Floating Aperture
 Maximum Radius :              9.5
Surface  37     : STANDARD
 Aperture       : Floating Aperture
 Maximum Radius :              9.5
Surface  38     : STANDARD FF 015-0066
 Aperture       : Floating Aperture
 Maximum Radius :             6.35
Surface  39     : STANDARD Window
 Aperture       : Floating Aperture
 Maximum Radius :             6.35
Surface  40     : STANDARD
 Aperture       : Floating Aperture
 Maximum Radius :               15
Surface  41     : COORDBRK
 Decenter X     :                0
 Decenter Y     :                0
 Tilt About X   :                0
 Tilt About Y   :                0
 Tilt About Z   :                0
 Order          : Decenter then tilt
Surface IMA     : STANDARD CCD67
 Aperture       : Rectangular Aperture
 X Half Width   :            3.328
 Y Half Width   :            3.328
```

COATING DEFINITIONS:

EDGE THICKNESS DATA:

Surf	X-Edge	Y-Edge
1	6000.000000	6000.000000
STO	-0.129054	-0.129054
3	-5512.645616	-5512.645616
4	5650.474670	5650.474670
5	400.453463	400.000000
6	15.656640	20.000000
7	23.889897	20.000000
8	10.429235	10.429235
9	23.921925	19.570765
10	16.100762	20.000000
11	609.548079	610.000000
12	362.498460	362.498460
13	125.812272	125.812272
14	19.010441	19.010441
15	197.612150	197.612150
16	26.387686	26.387686
17	36.232884	36.232884
18	0.000000	0.000000
19	0.000000	0.000000
20	0.000000	0.000000
21	-94.760000	-94.760000
22	-40.631200	-40.631200
23	0.000000	0.000000
24	-7.000000	-7.000000
25	-20.000000	-20.000000
26	-1.996622	-1.996622
27	-57.353853	-57.353853
28	-5.771443	-5.771443
29	-2.089855	-2.089855
30	-4.944949	-4.944949
31	-0.001585	-0.001585
32	-3.081404	-3.081404
33	-13.972451	-13.972451
34	-1.757566	-1.757566
35	-3.492929	-3.492929
36	-3.321624	-3.321624
37	-14.913240	-14.913240
38	-4.168916	-4.168916
39	-2.500000	-2.500000
40	-2.000000	-2.000000
41	0.000000	0.000000
IMA	0.000000	0.000000

MULTI-CONFIGURATION DATA:

Configuration 1:

1	Thickness	22 :	-40.6312
2	Param 2	18 :	0
3	Param 3	41 :	0
4	Y-field	1 :	0

Configuration 2:

1	Thickness	22 :	-40.6224
2	Param 2	18 :	37.2
3	Param 3	41 :	0
4	Y-field	1 :	0.0835

Configuration 3:

1	Thickness	22 :	-40.6099
2	Param 2	18 :	74.3
3	Param 3	41 :	0
4	Y-field	1 :	0.1665

Configuration 4:

1	Thickness	22 :	-40.6408
2	Param 2	18 :	111.7
3	Param 3	41 :	0
4	Y-field	1 :	0.25

Configuration 5:

1	Thickness	22 :	-40.714
2	Param 2	18 :	134.3
3	Param 3	41 :	0
4	Y-field	1 :	0.3

SOLVE AND VARIABLE DATA:

Semi Diameter	1	: Fixed
Semi Diameter	2	: Fixed

```
 Semi Diameter   3      : Fixed
 Thickness of   4       : Solve, Pickup from surface 3 scaled by -1, offset by 0
 Semi Diameter   4      : Fixed
 Semi Diameter   5      : Fixed
 Semi Diameter   6      : Fixed
 Semi Diameter   7      : Solve, pickup from surface 6 scaled by 1
 Semi Diameter   8      : Solve, pickup from surface 6 scaled by 1
 Semi Diameter   9      : Solve, pickup from surface 6 scaled by 1
 Semi Diameter  10      : Solve, pickup from surface 6 scaled by 1
 Semi Diameter  11      : Solve, pickup from surface 6 scaled by 1
 Semi Diameter  14      : Fixed
 Semi Diameter  15      : Solve, pickup from surface 14 scaled by 1
 Semi Diameter  16      : Fixed
 Semi Diameter  17      : Solve, pickup from surface 16 scaled by 1
 Semi Diameter  20      : Fixed
 Parameter  3 Surf  21  : Solve, Pickup from surface 19 scaled by 1, offset by 0
 Semi Diameter  25      : Fixed
 Semi Diameter  26      : Fixed
 Semi Diameter  27      : Fixed
 Semi Diameter  28      : Fixed
 Semi Diameter  29      : Fixed
 Semi Diameter  30      : Fixed
 Semi Diameter  33      : Fixed
 Semi Diameter  34      : Fixed
 Semi Diameter  35      : Fixed
 Semi Diameter  36      : Fixed
 Semi Diameter  37      : Fixed
 Semi Diameter  38      : Fixed
 Semi Diameter  39      : Fixed
 Semi Diameter  40      : Fixed

INDEX OF REFRACTION DATA:

System Temperature:   20.0000 Celsius
System Pressure   :    1.0000 Atmospheres
Absolute air index:    1.000274 at wavelength 0.500000 µm
Index data is relative to air at the system temperature and pressure.
Wavelengths are measured in air at the system temperature and pressure.

Surf                  Glass    Temp    Pres      0.370000    0.400000    0.500000    0.650000    0.800000
   0                           20.00    1.00    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
   1                           20.00    1.00    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
   2                           20.00    1.00    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
   3                  MIRROR   20.00    1.00    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
   4                  MIRROR   20.00    1.00    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
   5                           20.00    1.00    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
   6                F_SILICA   20.00    1.00    1.47382578  1.47011612  1.46232649  1.45653497  1.45331725 source:  The Infrare
   7                    LLF6   20.00    1.00    1.55838493  1.55154395  1.53801292  1.52870639  1.52396349
   8                           20.00    1.00    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
   9                F_SILICA   20.00    1.00    1.47382578  1.47011612  1.46232649  1.45653497  1.45331725 source:  The Infrare
  10                    LLF6   20.00    1.00    1.55838493  1.55154395  1.53801292  1.52870639  1.52396349
  11                           20.00    1.00    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
  12                           20.00    1.00    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
  13                           20.00    1.00    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
  14                F SILICA   20.00    1.00    1.47382578  1.47011612  1.46232649  1.45653497  1.45331725 source:  The Infrare
  15                           20.00    1.00    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
  16                F_SILICA   20.00    1.00    1.47382578  1.47011612  1.46232649  1.45653497  1.45331725 source:  The Infrare
  17                           20.00    1.00    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
  18               <CRD BRK>                    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
  19               <CRD BRK>                    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
  20                  MIRROR   20.00    1.00    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
  21               <CRD BRK>                    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
  22                           20.00    1.00    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
  23               <CRD BRK>                    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
  24                           20.00    1.00    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
  25                   N-BK7   20.00    1.00    1.53539019  1.53084854  1.52141448  1.51452031  1.51077623
  26                   N-BK7   20.00    1.00    1.53539019  1.53084854  1.52141448  1.51452031  1.51077623
  27                           20.00    1.00    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
  28                N-KZFS11   20.00    1.00    1.67450387  1.66508647  1.64642778  1.63359372  1.62703322
  29                 N-FK51A   20.00    1.00    1.49984209  1.49661694  1.48986747  1.48493748  1.48231487
  30                           20.00    1.00    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
  31                           20.00    1.00    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
  32                   N-BK7   20.00    1.00    1.53539019  1.53084854  1.52141448  1.51452031  1.51077623
  33                           20.00    1.00    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
  34                 N-FK51A   20.00    1.00    1.49984209  1.49661694  1.48986747  1.48493748  1.48231487
  35                           20.00    1.00    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
  36                N-KZFS11   20.00    1.00    1.67450387  1.66508647  1.64642778  1.63359372  1.62703322
  37                           20.00    1.00    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
  38                   N-BK7   20.00    1.00    1.53539019  1.53084854  1.52141448  1.51452031  1.51077623
  39                   N-BK7   20.00    1.00    1.53539019  1.53084854  1.52141448  1.51452031  1.51077623
  40                           20.00    1.00    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
  41               <CRD BRK>                    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000
  42                           20.00    1.00    1.00000000  1.00000000  1.00000000  1.00000000  1.00000000

THERMAL COEFFICIENT OF EXPANSION DATA:

Surf                  Glass     TCE *10E-6
   0                           0.00000000
   1                           0.00000000
   2                           0.00000000
```

3	MIRROR	0.00000000	
4	MIRROR	0.00000000	
5		0.00000000	
6	F SILICA	0.51000000	source: The Infrared & Electro-Optical Systems Handbook V. III
7	LLF6	7.50000000	
8		0.00000000	
9	F_SILICA	0.51000000	source: The Infrared & Electro-Optical Systems Handbook V. III
10	LLF6	7.50000000	
11		0.00000000	
12		0.00000000	
13		0.00000000	
14	F SILICA	0.51000000	source: The Infrared & Electro-Optical Systems Handbook V. III
15		0.00000000	
16	F_SILICA	0.51000000	source: The Infrared & Electro-Optical Systems Handbook V. III
17		0.00000000	
18	<CRD BRK>	0.00000000	
19	<CRD BRK>	0.00000000	
20	MIRROR	0.00000000	
21	<CRD BRK>	0.00000000	
22		0.00000000	
23	<CRD BRK>	0.00000000	
24		0.00000000	
25	N-BK7	7.10000000	
26	N-BK7	7.10000000	
27		0.00000000	
28	N-KZFS11	6.56000000	
29	N-FK51A	12.74000000	
30		0.00000000	
31		0.00000000	
32	N-BK7	7.10000000	
33		0.00000000	
34	N-FK51A	12.74000000	
35		0.00000000	
36	N-KZFS11	6.56000000	
37		0.00000000	
38	N-BK7	7.10000000	
39	N-BK7	7.10000000	
40		0.00000000	
41	<CRD BRK>	0.00000000	
42		0.00000000	

GLOBAL VERTEX COORDINATES, ORIENTATIONS, AND ROTATION/OFFSET MATRICES:

Reference Surface: 24

Surf	R11	R12	R13	X	
	R21	R22	R23	Y	
	R31	R32	R33	Z	
1	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	
	0.0000000000	0.0000000000	1.0000000000	-8.005253892E+003	
	0.0000000000	-1.0000000000	0.0000000000	1.353912000E+002	
2	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	APERTURE STOP
	0.0000000000	0.0000000000	1.0000000000	-2.005253892E+003	
	0.0000000000	-1.0000000000	0.0000000000	1.353912000E+002	
3	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	PRIMARY
	0.0000000000	0.0000000000	1.0000000000	-1.867553892E+003	
	0.0000000000	-1.0000000000	0.0000000000	1.353912000E+002	
4	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	SECONDARY
	0.0000000000	0.0000000000	1.0000000000	-7.487296998E+003	
	0.0000000000	-1.0000000000	0.0000000000	1.353912000E+002	
5	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	Primary hole
	0.0000000000	0.0000000000	1.0000000000	-1.867553892E+003	
	0.0000000000	-1.0000000000	0.0000000000	1.353912000E+002	
6	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	ADC 1A
	0.0000000000	0.0000000000	1.0000000000	-1.467553892E+003	
	0.0000000000	-1.0000000000	0.0000000000	1.353912000E+002	
7	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	ADC 1B
	0.0000000000	0.0000000000	1.0000000000	-1.447553892E+003	
	0.0000000000	-1.0000000000	0.0000000000	1.353912000E+002	
8	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	
	0.0000000000	0.0000000000	1.0000000000	-1.427553892E+003	
	0.0000000000	-1.0000000000	0.0000000000	1.353912000E+002	
9	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	ADC 2A
	0.0000000000	0.0000000000	1.0000000000	-1.417553892E+003	
	0.0000000000	-1.0000000000	0.0000000000	1.353912000E+002	
10	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	ADC 2B
	0.0000000000	0.0000000000	1.0000000000	-1.397553892E+003	
	0.0000000000	-1.0000000000	0.0000000000	1.353912000E+002	
11	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	

```
     0.0000000000   0.0000000000   1.0000000000 -1.377553892E+003
     0.0000000000  -1.0000000000   0.0000000000  1.353912000E+002

12   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000 Mounting flange
     0.0000000000   0.0000000000   1.0000000000 -7.675538924E+002
     0.0000000000  -1.0000000000   0.0000000000  1.353912000E+002

13   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000 Fold Mirror
     0.0000000000   0.0000000000   1.0000000000 -4.050554324E+002
     0.0000000000  -1.0000000000   0.0000000000  1.353912000E+002

14   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000 Element 1
     0.0000000000   0.0000000000   1.0000000000 -2.750554324E+002
     0.0000000000  -1.0000000000   0.0000000000  1.353912000E+002

15   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   0.0000000000   1.0000000000 -2.500554324E+002
     0.0000000000  -1.0000000000   0.0000000000  1.353912000E+002

16   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000 Element 2
     0.0000000000   0.0000000000   1.0000000000 -4.524000000E+001
     0.0000000000  -1.0000000000   0.0000000000  1.353912000E+002

17   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   0.0000000000   1.0000000000 -3.024000000E+001
     0.0000000000  -1.0000000000   0.0000000000  1.353912000E+002

18   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   0.0000000000   1.0000000000  0.000000000E+000
     0.0000000000  -1.0000000000   0.0000000000  1.353912000E+002

19   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   0.7071067812   0.7071067812  0.000000000E+000
     0.0000000000  -0.7071067812   0.7071067812  1.353912000E+002

20   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000 Pickoff Mirror
     0.0000000000   0.7071067812   0.7071067812  0.000000000E+000
     0.0000000000  -0.7071067812   0.7071067812  1.353912000E+002

21   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   1.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   0.0000000000   1.0000000000  1.353912000E+002

22   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   1.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   0.0000000000   1.0000000000  4.063120000E+001

23   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000 probe tilt bias
     0.0000000000   1.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   0.0000000000   1.0000000000  0.000000000E+000

24   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000 TEL FOCUS
     0.0000000000   1.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   0.0000000000   1.0000000000  0.000000000E+000

25   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000 Beamsplitter
     0.0000000000   1.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   0.0000000000   1.0000000000 -7.000000000E+000

26   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000 FL 011-1365
     0.0000000000   1.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   0.0000000000   1.0000000000 -2.700000000E+001

27   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   1.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   0.0000000000   1.0000000000 -3.040000000E+001

28   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000 Coll 1
     0.0000000000   1.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   0.0000000000   1.0000000000 -8.475516667E+001

29   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000 Coll 2
     0.0000000000   1.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   0.0000000000   1.0000000000 -8.675516667E+001

30   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   1.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   0.0000000000   1.0000000000 -9.475516667E+001

31   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000 Pupil
     0.0000000000   1.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   0.0000000000   1.0000000000 -9.915672074E+001

32   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000 0768-86 S MLM
     0.0000000000   1.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   0.0000000000   1.0000000000 -9.915672074E+001

33   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000 OS 015-0147
     0.0000000000   1.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   0.0000000000   1.0000000000 -1.011567207E+002
```

34	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	Cam 1
	0.0000000000	1.0000000000	0.0000000000	0.000000000E+000	
	0.0000000000	0.0000000000	1.0000000000	-1.136737207E+002	
35	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	
	0.0000000000	1.0000000000	0.0000000000	0.000000000E+000	
	0.0000000000	0.0000000000	1.0000000000	-1.197737207E+002	
36	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	Cam 2
	0.0000000000	1.0000000000	0.0000000000	0.000000000E+000	
	0.0000000000	0.0000000000	1.0000000000	-1.251937101E+002	
37	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	
	0.0000000000	1.0000000000	0.0000000000	0.000000000E+000	
	0.0000000000	0.0000000000	1.0000000000	-1.271937101E+002	
38	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	FF 015-0066
	0.0000000000	1.0000000000	0.0000000000	0.000000000E+000	
	0.0000000000	0.0000000000	1.0000000000	-1.418664364E+002	
39	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	Window
	0.0000000000	1.0000000000	0.0000000000	0.000000000E+000	
	0.0000000000	0.0000000000	1.0000000000	-1.438664364E+002	
40	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	
	0.0000000000	1.0000000000	0.0000000000	0.000000000E+000	
	0.0000000000	0.0000000000	1.0000000000	-1.463664364E+002	
41	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	
	0.0000000000	1.0000000000	0.0000000000	0.000000000E+000	
	0.0000000000	0.0000000000	1.0000000000	-1.483664364E+002	
42	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	CCD67
	0.0000000000	1.0000000000	0.0000000000	0.000000000E+000	
	0.0000000000	0.0000000000	1.0000000000	-1.483664364E+002	

GLOBAL SURFACE CENTER OF CURVATURE POINTS:

Reference Surface: 24

Surf	X	Y	Z	
1	-	-	-	
2	-	-	-	APERTURE STOP
3	0.0000000000	-17867.5538923960	135.3912000000	PRIMARY
4	0.0000000000	-14413.7039735618	135.3912000000	SECONDARY
5	-	-	-	Primary hole
6	-	-	-	ADC 1A
7	-	-	-	ADC 1B
8	-	-	-	
9	0.0000000000	62912.2826835877	135.3912000000	ADC 2A
10	-	-	-	ADC 2B
11	-	-	-	
12	-	-	-	Mounting flange
13	-	-	-	Fold Mirror
14	0.0000000000	-3933.6666851662	135.3912000000	Element 1
15	0.0000000000	-1759.7199558024	135.3912000000	
16	0.0000000000	-745.0756611012	135.3912000000	Element 2
17	0.0000000000	-2037.6972085590	135.3912000000	
18	-	-	-	
19	-	-	-	
20	-	-	-	Pickoff Mirror
21	-	-	-	
22	-	-	-	
23	-	-	-	probe tilt bias
24	-	-	-	TEL FOCUS
25	-	-	-	Beamsplitter
26	-	-	-	FL 011-1365
27	0.0000000000	0.0000000000	5.9300000000	
28	0.0000000000	0.0000000000	-116.8947345661	Coll 1
29	0.0000000000	0.0000000000	-98.7551666710	Coll 2
30	0.0000000000	0.0000000000	-2.4693135534	
31	-	-	-	Pupil
32	0.0000000000	0.0000000000	-138.7567207375	0768-86 S MLM
33	0.0000000000	0.0000000000	-147.8667207375	OS 015-0147
34	0.0000000000	0.0000000000	-132.7196072918	Cam 1
35	0.0000000000	0.0000000000	-93.8577772324	
36	0.0000000000	0.0000000000	-111.2337447970	Cam 2
37	0.0000000000	0.0000000000	-107.2604957578	
38	0.0000000000	0.0000000000	-131.4864364448	FF 015-0066
39	-	-	-	Window
40	-	-	-	
41	-	-	-	
42	-	-	-	CCD67

ELEMENT VOLUME DATA:

For centered elements with plane or spherical circular faces, exact
volumes are computed by assuming edges are squared up to the larger

of the front and back radial aperture.

For all other elements, approximate volumes are numerically integrated
to 0.1% accuracy. Zero volume means the volume cannot be accurately computed.

Single elements that are duplicated in the Lens Data Editor
for ray tracing purposes may be listed more than once yielding
incorrect total mass estimates.

	Volume cc	Density g/cc	Mass g
Element surf 6 to 7	3470.841375	2.200000	7635.851026
Element surf 7 to 8	3470.841375	2.810000	9753.064265
Element surf 9 to 10	3433.586117	2.200000	7553.889458
Element surf 10 to 11	3470.841375	2.810000	9753.064265
Element surf 14 to 15	2117.663826	2.200000	4658.860416
Element surf 16 to 17	1559.267873	2.200000	3430.389320
Element surf 25 to 26	0.000000	2.510000	0.000000
Element surf 26 to 27	0.849147	2.510000	2.131358
Element surf 28 to 29	1.141927	3.196000	3.649598
Element surf 29 to 30	1.665929	3.675000	6.122289
Element surf 32 to 33	0.446320	2.510000	1.120264
Element surf 34 to 35	1.125561	3.675000	4.136438
Element surf 36 to 37	0.734545	3.196000	2.347607
Element surf 38 to 39	0.385387	2.510000	0.967322
Element surf 39 to 40	1.767146	2.510000	4.435536
Total Mass:			42810.029162

F/# DATA:

F/# calculations consider vignetting factors and ignore surface apertures.

	Wavelength:	0.370000		0.400000		0.500000	
#	Field	Tan	Sag	Tan	Sag	Tan	Sag
1	0.0000, 0.0000 deg:	21.3312	20.8216	19.9032	19.4493	17.8708	17.4921

	Wavelength:	0.650000		0.800000	
#	Field	Tan	Sag	Tan	Sag
1	0.0000, 0.0000 deg:	16.8971	16.5534	16.4934	16.1647

CARDINAL POINTS:

Object space positions are measured with respect to surface 1.
Image space positions are measured with respect to the image surface.
The index in both the object space and image space is considered.

	Object Space	Image Space
W = 0.370000		
Focal Length :	13887.934022	13887.934022
Focal Planes :	-12174317.526172	2.645217
Principal Planes :	-12188205.460194	-13885.288805
Anti-Principal Planes :	-12160429.592150	13890.579239
Nodal Planes :	-12160429.592150	13890.579239
Anti-Nodal Planes :	-12188205.460194	-13885.288805
W = 0.400000		
Focal Length :	13886.490841	13886.490841
Focal Planes :	-12187448.150351	2.658358
Principal Planes :	-12201334.641192	-13883.832483
Anti-Principal Planes :	-12173561.659510	13889.149199
Nodal Planes :	-12173561.659510	13889.149199
Anti-Nodal Planes :	-12201334.641192	-13883.832483
W = 0.500000 (Primary)		
Focal Length :	13930.970820	13930.970820
Focal Planes :	-12251860.438065	2.625314
Principal Planes :	-12265791.408885	-13928.345506
Anti-Principal Planes :	-12237929.467245	13933.596134
Nodal Planes :	-12237929.467245	13933.596134
Anti-Nodal Planes :	-12265791.408885	-13928.345506
W = 0.650000		
Focal Length :	13999.656630	13999.656630
Focal Planes :	-12325820.385445	2.553206
Principal Planes :	-12339820.042075	-13997.103425
Anti-Principal Planes :	-12311820.728814	14002.209836
Nodal Planes :	-12311820.728814	14002.209836
Anti-Nodal Planes :	-12339820.042075	-13997.103425
W = 0.800000		
Focal Length :	14048.989633	14048.989633
Focal Planes :	-12374031.621879	2.496724
Principal Planes :	-12388080.611512	-14046.492910
Anti-Principal Planes :	-12359982.632246	14051.486357
Nodal Planes :	-12359982.632246	14051.486357
Anti-Nodal Planes :	-12388080.611512	-14046.492910

PHYSICAL OPTICS PROPAGATION SETTINGS SUMMARY:

OBJ STANDARD
Use Rays To Propagate To Next Surface : Off

```
   Recompute Pilot Beam                   : Off
   Do Not Rescale Beam Size Using Ray Data: Off
   Use Angular Spectrum Propagator        : Off
   Output Pilot Radius                    : Best Fit
  1 STANDARD
   Use Rays To Propagate To Next Surface  : Off
   Recompute Pilot Beam                   : Off
   Do Not Rescale Beam Size Using Ray Data: Off
   Use Angular Spectrum Propagator        : Off
   Output Pilot Radius                    : Best Fit
STO STANDARD        APERTURE STOP
   Use Rays To Propagate To Next Surface  : Off
   Recompute Pilot Beam                   : Off
   Do Not Rescale Beam Size Using Ray Data: Off
   Use Angular Spectrum Propagator        : Off
   Output Pilot Radius                    : Best Fit
  3 STANDARD              PRIMARY
   Use Rays To Propagate To Next Surface  : Off
   Recompute Pilot Beam                   : Off
   Do Not Rescale Beam Size Using Ray Data: Off
   Use Angular Spectrum Propagator        : Off
   Output Pilot Radius                    : Best Fit
  4 STANDARD            SECONDARY
   Use Rays To Propagate To Next Surface  : Off
   Recompute Pilot Beam                   : Off
   Do Not Rescale Beam Size Using Ray Data: Off
   Use Angular Spectrum Propagator        : Off
   Output Pilot Radius                    : Best Fit
  5 STANDARD         Primary hole
   Use Rays To Propagate To Next Surface  : Off
   Recompute Pilot Beam                   : Off
   Do Not Rescale Beam Size Using Ray Data: Off
   Use Angular Spectrum Propagator        : Off
   Output Pilot Radius                    : Best Fit
  6 TILTSURF              ADC 1A
   Use Rays To Propagate To Next Surface  : Off
   Recompute Pilot Beam                   : Off
   Do Not Rescale Beam Size Using Ray Data: Off
   Use Angular Spectrum Propagator        : Off
   Output Pilot Radius                    : Best Fit
  7 TILTSURF              ADC 1B
   Use Rays To Propagate To Next Surface  : Off
   Recompute Pilot Beam                   : Off
   Do Not Rescale Beam Size Using Ray Data: Off
   Use Angular Spectrum Propagator        : Off
   Output Pilot Radius                    : Best Fit
  8 STANDARD
   Use Rays To Propagate To Next Surface  : Off
   Recompute Pilot Beam                   : Off
   Do Not Rescale Beam Size Using Ray Data: Off
   Use Angular Spectrum Propagator        : Off
   Output Pilot Radius                    : Best Fit
  9 STANDARD              ADC 2A
   Use Rays To Propagate To Next Surface  : Off
   Recompute Pilot Beam                   : Off
   Do Not Rescale Beam Size Using Ray Data: Off
   Use Angular Spectrum Propagator        : Off
   Output Pilot Radius                    : Best Fit
 10 TILTSURF               ADC 2B
   Use Rays To Propagate To Next Surface  : Off
   Recompute Pilot Beam                   : Off
   Do Not Rescale Beam Size Using Ray Data: Off
   Use Angular Spectrum Propagator        : Off
   Output Pilot Radius                    : Best Fit
 11 TILTSURF
   Use Rays To Propagate To Next Surface  : Off
   Recompute Pilot Beam                   : Off
   Do Not Rescale Beam Size Using Ray Data: Off
   Use Angular Spectrum Propagator        : Off
   Output Pilot Radius                    : Best Fit
 12 STANDARD      Mounting flange
   Use Rays To Propagate To Next Surface  : Off
   Recompute Pilot Beam                   : Off
   Do Not Rescale Beam Size Using Ray Data: Off
   Use Angular Spectrum Propagator        : Off
   Output Pilot Radius                    : Best Fit
 13 STANDARD          Fold Mirror
   Use Rays To Propagate To Next Surface  : Off
   Recompute Pilot Beam                   : Off
   Do Not Rescale Beam Size Using Ray Data: Off
   Use Angular Spectrum Propagator        : Off
   Output Pilot Radius                    : Best Fit
 14 STANDARD            Element 1
   Use Rays To Propagate To Next Surface  : Off
   Recompute Pilot Beam                   : Off
   Do Not Rescale Beam Size Using Ray Data: Off
   Use Angular Spectrum Propagator        : Off
   Output Pilot Radius                    : Best Fit
 15 STANDARD
   Use Rays To Propagate To Next Surface  : Off
```

```
  Recompute Pilot Beam                   : Off
  Do Not Rescale Beam Size Using Ray Data: Off
  Use Angular Spectrum Propagator        : Off
  Output Pilot Radius                    : Best Fit
16 STANDARD           Element 2
  Use Rays To Propagate To Next Surface  : Off
  Recompute Pilot Beam                   : Off
  Do Not Rescale Beam Size Using Ray Data: Off
  Use Angular Spectrum Propagator        : Off
  Output Pilot Radius                    : Best Fit
17 STANDARD
  Use Rays To Propagate To Next Surface  : Off
  Recompute Pilot Beam                   : Off
  Do Not Rescale Beam Size Using Ray Data: Off
  Use Angular Spectrum Propagator        : Off
  Output Pilot Radius                    : Best Fit
18 COORDBRK
  Use Rays To Propagate To Next Surface  : Off
  Recompute Pilot Beam                   : Off
  Do Not Rescale Beam Size Using Ray Data: Off
  Use Angular Spectrum Propagator        : Off
  Output Pilot Radius                    : Best Fit
19 COORDBRK
  Use Rays To Propagate To Next Surface  : Off
  Recompute Pilot Beam                   : Off
  Do Not Rescale Beam Size Using Ray Data: Off
  Use Angular Spectrum Propagator        : Off
  Output Pilot Radius                    : Best Fit
20 BICONICX       Pickoff Mirror
  Use Rays To Propagate To Next Surface  : Off
  Recompute Pilot Beam                   : Off
  Do Not Rescale Beam Size Using Ray Data: Off
  Use Angular Spectrum Propagator        : Off
  Output Pilot Radius                    : Best Fit
21 COORDBRK
  Use Rays To Propagate To Next Surface  : Off
  Recompute Pilot Beam                   : Off
  Do Not Rescale Beam Size Using Ray Data: Off
  Use Angular Spectrum Propagator        : Off
  Output Pilot Radius                    : Best Fit
22 STANDARD
  Use Rays To Propagate To Next Surface  : Off
  Recompute Pilot Beam                   : Off
  Do Not Rescale Beam Size Using Ray Data: Off
  Use Angular Spectrum Propagator        : Off
  Output Pilot Radius                    : Best Fit
23 COORDBRK      probe tilt bias
  Use Rays To Propagate To Next Surface  : Off
  Recompute Pilot Beam                   : Off
  Do Not Rescale Beam Size Using Ray Data: Off
  Use Angular Spectrum Propagator        : Off
  Output Pilot Radius                    : Best Fit
24 STANDARD           TEL FOCUS
  Use Rays To Propagate To Next Surface  : Off
  Recompute Pilot Beam                   : Off
  Do Not Rescale Beam Size Using Ray Data: Off
  Use Angular Spectrum Propagator        : Off
  Output Pilot Radius                    : Best Fit
25 STANDARD         Beamsplitter
  Use Rays To Propagate To Next Surface  : Off
  Recompute Pilot Beam                   : Off
  Do Not Rescale Beam Size Using Ray Data: Off
  Use Angular Spectrum Propagator        : Off
  Output Pilot Radius                    : Best Fit
26 STANDARD          FL 011-1365
  Use Rays To Propagate To Next Surface  : Off
  Recompute Pilot Beam                   : Off
  Do Not Rescale Beam Size Using Ray Data: Off
  Use Angular Spectrum Propagator        : Off
  Output Pilot Radius                    : Best Fit
27 STANDARD
  Use Rays To Propagate To Next Surface  : Off
  Recompute Pilot Beam                   : Off
  Do Not Rescale Beam Size Using Ray Data: Off
  Use Angular Spectrum Propagator        : Off
  Output Pilot Radius                    : Best Fit
28 STANDARD              Coll 1
  Use Rays To Propagate To Next Surface  : Off
  Recompute Pilot Beam                   : Off
  Do Not Rescale Beam Size Using Ray Data: Off
  Use Angular Spectrum Propagator        : Off
  Output Pilot Radius                    : Best Fit
29 STANDARD              Coll 2
  Use Rays To Propagate To Next Surface  : Off
  Recompute Pilot Beam                   : Off
  Do Not Rescale Beam Size Using Ray Data: Off
  Use Angular Spectrum Propagator        : Off
  Output Pilot Radius                    : Best Fit
30 STANDARD
  Use Rays To Propagate To Next Surface  : Off
```

```
    Recompute Pilot Beam                    : Off
    Do Not Rescale Beam Size Using Ray Data: Off
    Use Angular Spectrum Propagator         : Off
    Output Pilot Radius                     : Best Fit
  31 STANDARD               Pupil
    Use Rays To Propagate To Next Surface  : Off
    Recompute Pilot Beam                    : Off
    Do Not Rescale Beam Size Using Ray Data: Off
    Use Angular Spectrum Propagator         : Off
    Output Pilot Radius                     : Best Fit
  32 USERSURF        0768-86 S MLM
    Use Rays To Propagate To Next Surface  : Off
    Recompute Pilot Beam                    : Off
    Do Not Rescale Beam Size Using Ray Data: Off
    Use Angular Spectrum Propagator         : Off
    Output Pilot Radius                     : Best Fit
  33 STANDARD          OS 015-0147
    Use Rays To Propagate To Next Surface  : Off
    Recompute Pilot Beam                    : Off
    Do Not Rescale Beam Size Using Ray Data: Off
    Use Angular Spectrum Propagator         : Off
    Output Pilot Radius                     : Best Fit
  34 STANDARD               Cam 1
    Use Rays To Propagate To Next Surface  : Off
    Recompute Pilot Beam                    : Off
    Do Not Rescale Beam Size Using Ray Data: Off
    Use Angular Spectrum Propagator         : Off
    Output Pilot Radius                     : Best Fit
  35 STANDARD
    Use Rays To Propagate To Next Surface  : Off
    Recompute Pilot Beam                    : Off
    Do Not Rescale Beam Size Using Ray Data: Off
    Use Angular Spectrum Propagator         : Off
    Output Pilot Radius                     : Best Fit
  36 STANDARD               Cam 2
    Use Rays To Propagate To Next Surface  : Off
    Recompute Pilot Beam                    : Off
    Do Not Rescale Beam Size Using Ray Data: Off
    Use Angular Spectrum Propagator         : Off
    Output Pilot Radius                     : Best Fit
  37 STANDARD
    Use Rays To Propagate To Next Surface  : Off
    Recompute Pilot Beam                    : Off
    Do Not Rescale Beam Size Using Ray Data: Off
    Use Angular Spectrum Propagator         : Off
    Output Pilot Radius                     : Best Fit
  38 STANDARD          FF 015-0066
    Use Rays To Propagate To Next Surface  : Off
    Recompute Pilot Beam                    : Off
    Do Not Rescale Beam Size Using Ray Data: Off
    Use Angular Spectrum Propagator         : Off
    Output Pilot Radius                     : Best Fit
  39 STANDARD              Window
    Use Rays To Propagate To Next Surface  : Off
    Recompute Pilot Beam                    : Off
    Do Not Rescale Beam Size Using Ray Data: Off
    Use Angular Spectrum Propagator         : Off
    Output Pilot Radius                     : Best Fit
  40 STANDARD
    Use Rays To Propagate To Next Surface  : Off
    Recompute Pilot Beam                    : Off
    Do Not Rescale Beam Size Using Ray Data: Off
    Use Angular Spectrum Propagator         : Off
    Output Pilot Radius                     : Best Fit
  41 COORDBRK
    Use Rays To Propagate To Next Surface  : Off
    Recompute Pilot Beam                    : Off
    Do Not Rescale Beam Size Using Ray Data: Off
    Use Angular Spectrum Propagator         : Off
    Output Pilot Radius                     : Best Fit
 IMA STANDARD               CCD67
    Use Rays To Propagate To Next Surface  : Off
    Recompute Pilot Beam                    : Off
    Do Not Rescale Beam Size Using Ray Data: Off
    Use Angular Spectrum Propagator         : Off
    Output Pilot Radius                     : Best Fit

FILES USED:

ZEMAX File
  C:\TBIDA\ZEMAX\DCT\RC_D11\RC_ADC_GUIDER_768-86_MLM_WIDE_FIELD_5.ZMX
Session File
  C:\TBIDA\ZEMAX\DCT\RC_D11\RC_ADC_GUIDER_768-86_MLM_WIDE_FIELD_5.SES
Glass Catalogs
  C:\PROGRAM FILES\ZEMAX\GLASSCAT\SCHOTT.AGF
  C:\PROGRAM FILES\ZEMAX\GLASSCAT\INFRARED.AGF
  C:\PROGRAM FILES\ZEMAX\GLASSCAT\OHARA.AGF
Coating Data
  C:\PROGRAM FILES\ZEMAX\COATINGS\COATING.DAT
Surface DLL's
```

C:\PROGRAM FILES\ZEMAX\DLL\US_ARRAY.DLL