System/Prescription Data

File : C:\tbida\zemax\zemax\dct\rc\RC_D11\GWAVES_As_built\RC_ADC_Guider_no_MLM_wide_field_as-built_Tol.zmx
Title: GWAVES on DCT
Date : MON SEP 13 2010

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  :       -15946.06 (in air at system temperature and pressure)
Effective Focal Length  :       -15946.06 (in image space)
Back Focal Length       :        1.975129
Total Track             :        8005.254
Image Space F/#         :        3.796681
Paraxial Working F/#    :        3.808515
Working F/#             :        3.794074
Image Space NA          :       0.1297695
Object Space NA         :   2.099999e-007
Stop Radius             :            2100
Paraxial Image Height   :        4.486943
Paraxial Magnification  :               0
Entrance Pupil Diameter :            4200
Entrance Pupil Position :            6000
Exit Pupil Diameter     :        4.910463
Exit Pupil Position     :        18.61859
Field Type              : Angle in degrees
Maximum Radial Field    :      0.01612203
Primary Wavelength      :             0.5 µm
Lens Units              :   Millimeters
Angular Magnification   :        855.3172

Fields          : 9
Field Type: Angle in degrees
#        X-Value        Y-Value         Weight
 1      -0.011400      -0.011400       1.000000
 2       0.000000      -0.011400       1.000000
 3       0.011400      -0.011400       1.000000
 4      -0.011400       0.000000       1.000000
 5       0.000000       0.000000       5.000000
 6       0.011400       0.000000       1.000000
 7      -0.011400       0.011400       1.000000
 8       0.000000       0.011400       1.000000
 9       0.011400       0.011400       1.000000

Vignetting Factors
#       VDX       VDY       VCX       VCY       VAN
1  0.000000 -0.005113  0.000014  0.005113  0.000000
2  0.000000 -0.005111  0.000014  0.005111  0.000000
3  0.000000 -0.005113  0.000014  0.005113  0.000000
4  0.000000 -0.006211  0.000014  0.006211  0.000000
5  0.000000 -0.006210  0.000014  0.006210  0.000000
6  0.000000 -0.006211  0.000014  0.006211  0.000000
7  0.000255 -0.007307  0.000274  0.007309  0.000000
8  0.000000 -0.007308  0.000014  0.007308  0.000000
9 -0.000255 -0.007307  0.000274  0.007309  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 STO
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		165.4531	0	Mounting fla
13	STANDARD	Infinity	130		105.4893	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 Mirr
21	COORDBRK	-	-94.76		-	-	
22	STANDARD	Infinity	-40.6312		22.92062	0	
23	COORDBRK	-	0		-	-	Probe tilt b
24	STANDARD	Infinity	-7		16.40332	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	-54.21494		20	0	
28	STANDARD	-34.957	-2.01	N-KZFS11	20	0	Coll 1
29	STANDARD	-12	-8.003	S-FPL51	20	0	Coll 2
30	STANDARD	82.621	-4.640311		20	0	
31	STANDARD	Infinity	0		24	0	Pupil
32	STANDARD	Infinity	-4	N-BK7	20	0	Filter
33	STANDARD	Infinity	-11.4242		20	0	
34	STANDARD	-20.381	-6.115	S-FPL51	19	0	Cam 1
35	STANDARD	23.055	-3.726562		19	0	
36	STANDARD	15.175	-2.032	N-KZFS11	19	0	Cam 2
37	STANDARD	23.224	-16.94383		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			9.160424	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
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     : STANDARD Filter
 Aperture       : Floating Aperture
 Maximum Radius :            10
Surface  33     : STANDARD
 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

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	-57.079167	-57.079167
28	-5.915897	-5.915897
29	-2.028844	-2.028844
30	-5.247717	-5.247717
31	0.000000	0.000000
32	-4.000000	-4.000000
33	-13.773700	-13.773700
34	-1.717242	-1.717242
35	-2.433278	-2.433278
36	-3.341625	-3.341625
37	-16.806835	-16.806835
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 :	-0.0114
5	Y-field	2 :	-0.0114
6	Y-field	3 :	-0.0114
7	Y-field	4 :	0
8	Y-field	5 :	0
9	Y-field	6 :	0
10	Y-field	7 :	0.0114
11	Y-field	8 :	0.0114
12	Y-field	9 :	0.0114

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
 Thickness of  27       : Variable
 Semi Diameter  27      : Fixed
 Glass of  28           : Index offset by -0.000070, Abbe offset by -0.050000
 Semi Diameter  28      : Fixed
 Glass of  29           : Index offset by 0.000040, Abbe offset by 0.054000
 Semi Diameter  29      : Fixed
 Thickness of  30       : Variable
 Semi Diameter  30      : Fixed
 Semi Diameter  31      : Fixed
 Semi Diameter  32      : Fixed
 Thickness of  33       : Variable
 Semi Diameter  33      : Fixed
 Glass of  34           : Index offset by 0.000040, Abbe offset by 0.054000
 Semi Diameter  34      : Fixed
 Thickness of  35       : Variable
 Semi Diameter  35      : Fixed
 Glass of  36           : Index offset by -0.000070, Abbe offset by -0.050000
 Semi Diameter  36      : Fixed
 Thickness of  37       : Variable
 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 so
   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 so
  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 so
  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 so
  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	1.67447939	1.66504925	1.64636727	1.63351960	1.62695332	
29	S-FPL51	25.00	1.00	1.51112823	1.50769813	1.50053758	1.49532531	1.49256741	Re
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	S-FPL51	25.00	1.00	1.51112823	1.50769813	1.50053758	1.49532531	1.49256741	Re
35		20.00	1.00	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	
36	N-KZFS11	20.00	1.00	1.67447939	1.66504925	1.64636727	1.63351960	1.62695332	
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	S-FPL51	13.10000000	Recommended - Low Partial Dispersion
30		0.00000000	
31		0.00000000	
32	N-BK7	7.10000000	
33		0.00000000	
34	S-FPL51	13.10000000	Recommended - Low Partial Dispersion
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 -8.461493549E+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 -8.662493549E+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 -9.462793549E+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 -9.926824631E+001

32   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000 Filter
     0.0000000000   1.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   0.0000000000   1.0000000000 -9.926824631E+001

33   1.0000000000   0.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   1.0000000000   0.0000000000  0.000000000E+000
     0.0000000000   0.0000000000   1.0000000000 -1.032682463E+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 -1.146924509E+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 -1.208074509E+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 -1.245340126E+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 -1.265660126E+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 -1.435098421E+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 -1.455098421E+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 -1.480098421E+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 -1.500098421E+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 -1.500098421E+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 -119.5719354919 Coll 1
```

29	0.0000000000	0.0000000000	-98.6249354919	Coll 2
30	0.0000000000	0.0000000000	-12.0069354919	
31	-	-	-	Pupil
32	-	-	-	Filter
33	-	-	-	
34	0.0000000000	0.0000000000	-135.0734508575	Cam 1
35	0.0000000000	0.0000000000	-97.7524508575	
36	0.0000000000	0.0000000000	-109.3590125822	Cam 2
37	0.0000000000	0.0000000000	-103.3420125822	
38	0.0000000000	0.0000000000	-133.1298421447	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	1.165695	3.196000	3.725561
Element surf 29 to 30	1.656850	3.620000	5.997797
Element surf 32 to 33	1.256637	2.510000	3.154159
Element surf 34 to 35	1.121623	3.620000	4.060276
Element surf 36 to 37	0.746645	3.196000	2.386277
Element surf 38 to 39	0.385387	2.510000	0.967322
Element surf 39 to 40	1.767146	2.510000	4.435536
Total Mass:			42811.977035

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 -0.0114, -0.0114 deg:	3.8854	3.8744	3.8729	3.8616	3.8653	3.8534
2 0.0000, -0.0114 deg:	3.8556	3.8293	3.8434	3.8169	3.8360	3.8088
3 0.0114, -0.0114 deg:	3.8849	3.8736	3.8724	3.8608	3.8647	3.8525
4 -0.0114, 0.0000 deg:	3.8445	3.8450	3.8324	3.8325	3.8249	3.8244
5 0.0000, 0.0000 deg:	3.8214	3.8065	3.8094	3.7942	3.8020	3.7862
6 0.0114, 0.0000 deg:	3.8442	3.8443	3.8320	3.8318	3.8245	3.8237
7 -0.0114, 0.0114 deg:	3.8928	3.8752	3.8803	3.8625	3.8725	3.8542
8 0.0000, 0.0114 deg:	3.8633	3.8294	3.8511	3.8170	3.8435	3.8088
9 0.0114, 0.0114 deg:	3.8923	3.8745	3.8798	3.8617	3.8720	3.8533

Wavelength:	0.650000		0.800000	
# Field	Tan	Sag	Tan	Sag
1 -0.0114, -0.0114 deg:	3.8729	3.8606	3.8809	3.8684
2 0.0000, -0.0114 deg:	3.8436	3.8159	3.8516	3.8235
3 0.0114, -0.0114 deg:	3.8723	3.8597	3.8803	3.8675
4 -0.0114, 0.0000 deg:	3.8323	3.8317	3.8401	3.8394
5 0.0000, 0.0000 deg:	3.8094	3.7933	3.8172	3.8009
6 0.0114, 0.0000 deg:	3.8319	3.8309	3.8397	3.8386

7	-0.0114, 0.0114 deg:	3.8800	3.8614	3.8880	3.8692
8	0.0000, 0.0114 deg:	3.8510	3.8159	3.8589	3.8235
9	0.0114, 0.0114 deg:	3.8795	3.8605	3.8874	3.8682

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 :	15982.612825	15982.612825
Focal Planes :	-13642077.548746	-0.067699
Principal Planes :	-13658060.161571	-15982.680524
Anti-Principal Planes :	-13626094.935921	15982.545126
Nodal Planes :	-13626094.935921	15982.545126
Anti-Nodal Planes :	-13658060.161571	-15982.680524
W = 0.400000		
Focal Length :	15949.002904	15949.002904
Focal Planes :	-13621921.613000	-0.026232
Principal Planes :	-13637870.615904	-15949.029135
Anti-Principal Planes :	-13605972.610096	15948.976672
Nodal Planes :	-13605972.610096	15948.976672
Anti-Nodal Planes :	-13637870.615904	-15949.029135
W = 0.500000 (Primary)		
Focal Length :	15946.058501	15946.058501
Focal Planes :	-13632938.840202	-0.024871
Principal Planes :	-13648884.898703	-15946.083372
Anti-Principal Planes :	-13616992.781702	15946.033629
Nodal Planes :	-13616992.781702	15946.033629
Anti-Nodal Planes :	-13648884.898703	-15946.083372
W = 0.650000		
Focal Length :	15993.135034	15993.135034
Focal Planes :	-13678152.489638	-0.088887
Principal Planes :	-13694145.624672	-15993.223921
Anti-Principal Planes :	-13662159.354604	15993.046147
Nodal Planes :	-13662159.354604	15993.046147
Anti-Nodal Planes :	-13694145.624672	-15993.223921
W = 0.800000		
Focal Length :	16032.960901	16032.960901
Focal Planes :	-13712201.390217	-0.144436
Principal Planes :	-13728234.351118	-16033.105337
Anti-Principal Planes :	-13696168.429315	16032.816466
Nodal Planes :	-13696168.429315	16032.816466
Anti-Nodal Planes :	-13728234.351118	-16033.105337

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 STANDARD              Filter
  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
  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\ZEMAX\DCT\RC\RC_D11\GWAVES_AS_BUILT\RC_ADC_GUIDER_NO_MLM_WIDE_FIELD_AS-BUILT_TOL.ZMX
Session File
  C:\TBIDA\ZEMAX\ZEMAX\DCT\RC\RC_D11\GWAVES_AS_BUILT\RC_ADC_GUIDER_NO_MLM_WIDE_FIELD_AS-BUILT_TOL.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
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