System/Prescription Data

File : C:\Documents and Settings\Administrator\My Documents\SXT\SXT_seq2.ZMX
Title: Yohkoh Soft X-ray Telescope
Date : TUE OCT 28 2003

LENS NOTES:

Notes...

GENERAL LENS DATA:

```
Surfaces               :               5
Stop                   :               1
System Aperture        : Entrance Pupil Diameter = 250
Glass Catalogs         : Schott
Ray Aiming             : Off
Apodization            :Uniform, factor =   0.00000E+000
Temperature (C)        :   -2.00000E+001
Pressure (ATM)         :    0.00000E+000
Effective Focal Length :    0.0008610308 (in air at system temperature and pressure)
Effective Focal Length :    0.0008610308 (in image space)
Back Focal Length      :        5090.444
Total Track            :            3340
Image Space F/#        :   3.444123e-006
Paraxial Working F/#   :           10000
Working F/#            :       0.5899292
Image Space NA         :               0
Object Space NA        :       1.25e-008
Stop Radius            :             125
Paraxial Image Height  :               0
Paraxial Magnification :               0
Entrance Pupil Diameter :            250
Entrance Pupil Position :              0
Exit Pupil Diameter    :   6.447009e-005
Exit Pupil Position    :        1534.257
Field Type             : Angle in degrees
Maximum Field          :       0.7071068
Primary Wave           :          0.0008
Lens Units             :   Millimeters
Angular Magnification  :        -3877767

Fields          : 2
Field Type: Angle in degrees
#        X-Value        Y-Value         Weight
 1       0.016600       0.011600       1.000000
 2       0.500000       0.500000       1.000000

Vignetting Factors
#       VDX       VDY       VCX       VCY       VAN
1  0.000000  0.000000  0.000000  0.000000  0.000000
2  0.000000  0.000000  0.000000  0.000000  0.000000

Wavelengths     : 1
Units: Microns
#          Value         Weight
 1       0.000800       1.000000
```

SURFACE DATA SUMMARY:

Surf	Type	Comment	Radius	Thickness	Glass	Diameter	Conic
OBJ	STANDARD	SOURCE	Infinity	Infinity		0	0
STO	STANDARD	STOP	Infinity	10		461.3	1
2	STANDARD		Infinity	3330		238	0
3	STANDARD	1ST HYPER	-2.245209	-1751.786	MIRROR	251.0008	-1.000085
4	STANDARD	2ND HYPER	-2.687558	-1535.6	MIRROR	250	-1.003198
IMA	STANDARD		Infinity			80	0

SURFACE DATA DETAIL:

```
Surface OBJ     : STANDARD SOURCE
Surface STO     : STANDARD STOP
 Aperture       : Circular Aperture
 Minimum Radius :              0
 Maximum Radius :         230.65
Surface   2     : STANDARD
 Aperture       : Circular Obscuration
 Minimum Radius :              0
 Maximum Radius :            110
Surface   3     : STANDARD 1ST HYPER
 Aperture       : Circular Aperture
 Minimum Radius :            125
 Maximum Radius :       125.5004
Surface   4     : STANDARD 2ND HYPER
 Aperture       : Circular Aperture
```

```
 Minimum Radius :           123
 Maximum Radius :           125
Surface IMA     : STANDARD

COATING DEFINITIONS:


PHYSICAL OPTICS PROPAGATION SETTINGS SUMMARY:

 OBJ STANDARD               SOURCE
    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
    Reference Radius                       : Best Fit
 STO STANDARD                 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
    Reference Radius                       : Best Fit
   2 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
    Reference Radius                       : Best Fit
   3 STANDARD            1ST HYPER
    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
    Reference Radius                       : Best Fit
   4 STANDARD            2ND HYPER
    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
    Reference Radius                       : Best Fit
 IMA 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
    Reference Radius                       : Best Fit

EDGE THICKNESS DATA:

Surf         X-Edge         Y-Edge
 STO      10.000000      10.000000
   2      29.050705      29.050705
   3      24.820078      24.820078
   4     -11.257283     -11.257283
 IMA       0.000000       0.000000

SOLVE AND VARIABLE DATA:

 Semi Diameter   1      : Fixed
 Semi Diameter   2      : Fixed
 Semi Diameter   3      : Fixed
 Semi Diameter   4      : Fixed
 Semi Diameter   5      : Fixed

INDEX OF REFRACTION DATA:

System Temperature: -20.00
System Pressure   :   0.00

Surf                  Glass    Temp    Pres      0.000800
   0                          -20.00    0.00    1.00000000
   1                          -20.00    0.00    1.00000000
   2                          -20.00    0.00    1.00000000
   3                  MIRROR  -20.00    0.00    1.00000000
   4                  MIRROR  -20.00    0.00    1.00000000
   5                          -20.00    0.00    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

F/# DATA:
```

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

#	Field	Tan	Sag
Wavelength:		0.000800	
1	0.0166, 0.0116 deg:	0.5857	0.6884
2	0.5000, 0.5000 deg:	0.5492	0.5492

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

Reference Surface: 1

Surf	R11	R12	R13	X	
	R21	R22	R23	Y	
	R31	R32	R33	Z	
1	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	STOP
	0.0000000000	1.0000000000	0.0000000000	0.000000000E+000	
	0.0000000000	0.0000000000	1.0000000000	0.000000000E+000	
2	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	
	0.0000000000	1.0000000000	0.0000000000	0.000000000E+000	
	0.0000000000	0.0000000000	1.0000000000	1.000000000E+001	
3	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	1ST HYPER
	0.0000000000	1.0000000000	0.0000000000	0.000000000E+000	
	0.0000000000	0.0000000000	1.0000000000	3.340000000E+003	
4	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	2ND HYPER
	0.0000000000	1.0000000000	0.0000000000	0.000000000E+000	
	0.0000000000	0.0000000000	1.0000000000	1.588213500E+003	
5	1.0000000000	0.0000000000	0.0000000000	0.000000000E+000	
	0.0000000000	1.0000000000	0.0000000000	0.000000000E+000	
	0.0000000000	0.0000000000	1.0000000000	5.261350000E+001	

ELEMENT VOLUME DATA:

Values are only accurate for plane and spherical surfaces.
Element volumes are computed by assuming edges are squared up
to the larger of the front and back radial aperture.
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
Total Mass:			0.000000

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 = 0.000800 (Primary)		
Focal Length :	-0.000861	0.000861
Focal Planes :	3338.876676	1534.257252
Principal Planes :	3338.877537	1534.256391
Anti-Principal Planes :	3338.875815	1534.258113
Nodal Planes :	3338.877537	1534.256391
Anti-Nodal Planes :	3338.875815	1534.258113