

Terrestrial Calibration # 1 of DSS 301 SN0051  
55mm lens

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## **DISCLAIMER**

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## **Special Notes**

1. Terrestrial Calibration Data was collected on April 19, 2006
2. IMU Boresight Initial Calibration has not been computed

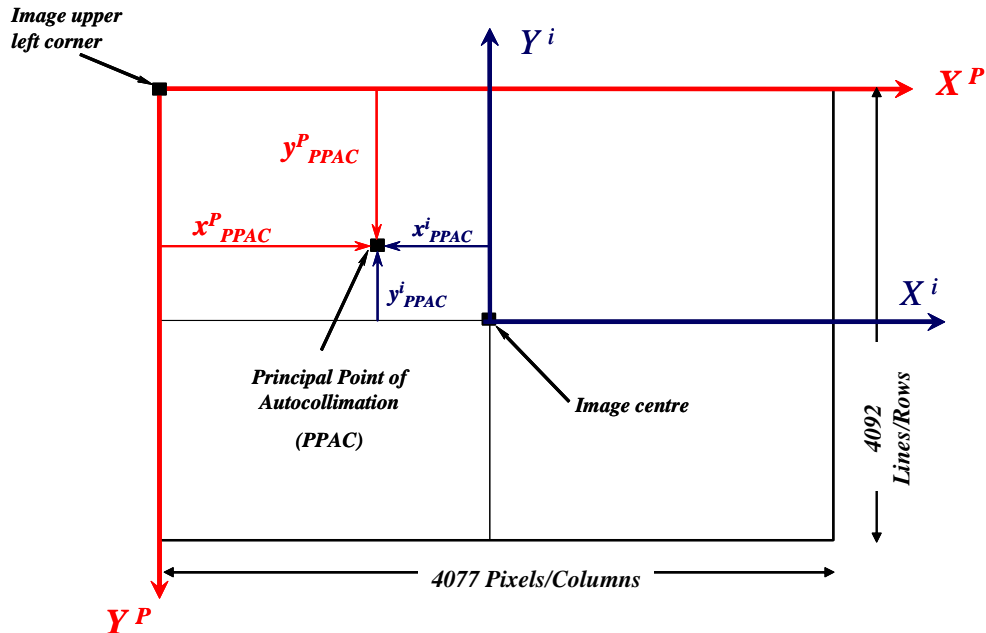
**Table 1: Serial Numbers of the DSS Components**

Component	SN
CCS	C00037
IMU	N/A
Digital Back	200413720
Lens (55 mm)	15127550
AE Prism Finder	019920
IR Filter	22107
VIS Filter	22063
Camera Body	018979

**Table 2: Camera Calibrated Parameters of DSS 301 SN 0051 - 55mm lens - VIS**

Parameter	Value	Accuracy
$f$ (mm)	55.032	0.009 mm
$x_{PPAC}^p$ (pixels) <sup>+</sup>	2014.75	0.4 pixel
$y_{PPAC}^p$ (pixels) <sup>+</sup>	2037.76	0.4 pixel
$x_{PPAC}^i$ (mm) <sup>++</sup>	-0.214	0.0036
$y_{PPAC}^i$ (mm) <sup>++</sup>	0.074	0.0036

- <sup>+</sup>  $x_{PPAC}^p$  and  $y_{PPAC}^p$  are the offsets of the principal point of Autocollimation measured from image upper left corner, (image size 4077 pixels x 4092 lines) see Figure 1
- <sup>++</sup>  $x_{PPAC}^i$  and  $y_{PPAC}^i$  are measured from image centre (pixel size = 9 microns) see Figure 1



**Remarks**

1.  $X^i$  and  $Y^i$ : Image Coordinate Frame – **Right Handed System**
2.  $X^p$  and  $Y^p$ : Pixel/Monitor Coordinate Frame – **Left Handed System**

**Figure 1: An Example of The Principal Point Offsets in a generic DSS Digital Image**

**Table 3 Radial Lens Distortion Table of DSS 301 SN 0051 – 55 mm lens - VIS**

Radial Distance (mm)	Radial Distortion (Pixel)	Radial Distortion (microns)
1.00	-0.00	-0.023
2.00	-0.02	-0.187
3.00	-0.07	-0.631
4.00	-0.17	-1.495
5.00	-0.32	-2.916
6.00	-0.56	-5.031
7.00	-0.89	-7.974
8.00	-1.32	-11.877
9.00	-1.87	-16.867
10.00	-2.56	-23.066
11.00	-3.40	-30.591
12.00	-4.39	-39.550
13.00	-5.56	-50.041
14.00	-6.91	-62.154
15.00	-8.44	-75.960
16.00	-10.17	-91.518
17.00	-12.10	-108.864
18.00	-14.22	-128.013
19.00	-16.55	-148.952
20.00	-19.07	-171.637
21.00	-21.78	-195.988
22.00	-24.65	-221.884
23.00	-27.68	-249.157
24.00	-30.84	-277.585
25.00	-34.10	-306.885
26.00	-37.41	-336.710

**Table 4: Calibrated Lens Distortion Coefficients - SN0051**

Coefficient	Value
K1	-1.8952558e-009
K2	+1.8428495e-017
K3	+2.7237792e-024

**Table 5: Camera Calibrated Gain Value and Default Settings for DSS 301 SN0051– 55 mm lens**

Filter Type	Calibrated Parameter	Calibrated Value
VIS	k (Gain value)	0.98
	ISO (Default)	300
	Exposure Compensation (Default)	-0.7
CIR	k (Gain value)	1.97
	ISO (Default)	200
	Exposure Compensation (Default)	-1.3