

**Terrestrial Calibration # 1 of DSS 301 SN005
55mm lens**

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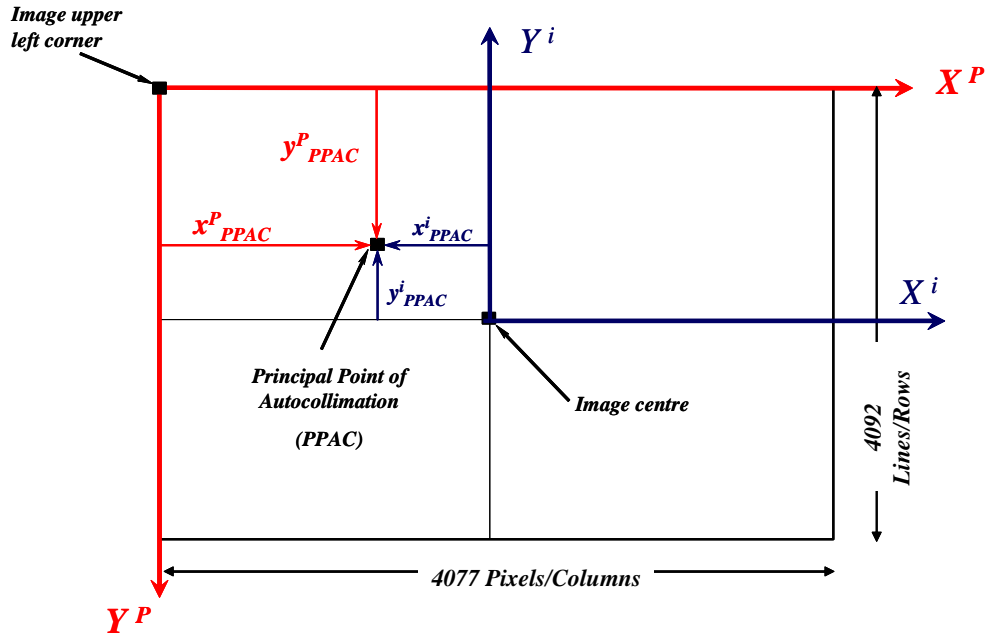
Table 1: Serial Numbers of the DSS Components

| Component | SN |
|-----------------|-----------|
| CCS | 0040 |
| IMU | N/A |
| Digital Back | 200411490 |
| Lens (55 mm) | 15128338 |
| AE Prism Finder | 16481 |
| IR Filter | 9510221 |
| VIS Filter | 212 |
| Camera Body | 16805 |

Table 2: Camera Calibrated Parameters of DSS 301 SN 0005 - 55mm lens - VIS

| Parameter | Value | Accuracy |
|------------------------------------|---------|-----------|
| f (mm) | 55.001 | 0.009 mm |
| Pixel Non-squareness | 1.0 | 0.0000001 |
| x_{PPAC}^P (pixels) ⁺ | 2043.32 | 0.4 pixel |
| y_{PPAC}^P (pixels) ⁺ | 2044.73 | 0.4 pixel |
| x_{PPAC}^I (mm) ⁺⁺ | 0.043 | 0.0036 |
| y_{PPAC}^I (mm) ⁺⁺ | 0.011 | 0.0036 |

- ⁺ 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
- ⁺⁺ x_{PPAC}^I and y_{PPAC}^I are measured from image centre (pixel size = 9 microns) see Figure 1



Remarks

- X^I and Y^I : Image Coordinate Frame – **Right** Handed System
- 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 0005 - 55mm lens - VIS

| Radial Distance (mm) | Radial Distortion (Pixel) | Radial Distortion (microns) |
|----------------------|---------------------------|-----------------------------|
| 1 | -0.00 | -0.023 |
| 2 | -0.02 | -0.188 |
| 3 | -0.07 | -0.633 |
| 4 | -0.17 | -1.498 |
| 5 | -0.32 | -2.921 |
| 6 | -0.56 | -5.036 |
| 7 | -0.89 | -7.976 |
| 8 | -1.32 | -11.870 |
| 9 | -1.87 | -16.841 |
| 10 | -2.56 | -23.010 |
| 11 | -3.39 | -30.490 |
| 12 | -4.38 | -39.392 |
| 13 | -5.53 | -49.814 |
| 14 | -6.87 | -61.853 |
| 15 | -8.40 | -75.594 |
| 16 | -10.12 | -91.113 |
| 17 | -12.05 | -108.477 |
| 18 | -14.19 | -127.743 |
| 19 | -16.55 | -148.954 |
| 20 | -19.13 | -172.144 |
| 21 | -21.93 | -197.331 |
| 22 | -24.95 | -224.519 |
| 23 | -28.19 | -253.696 |
| 24 | -31.65 | -284.835 |
| 25 | -35.32 | -317.890 |
| 26 | -39.20 | -352.796 |

Table 4: Camera Calibrated Gain Value and Default Settings for DSS 301 SN0005– 55 mm lens

| Filter Type | Calibrated Parameter | Calibrated Value |
|-------------|---------------------------------|------------------|
| VIS | k (Gain value) | 0.5 |
| | ISO (Default) | 300 |
| | Exposure Compensation (Default) | 0.0 |
| CIR | k (Gain value) | 1.0 |
| | ISO (Default) | 200 |
| | Exposure Compensation (Default) | -0.7 |