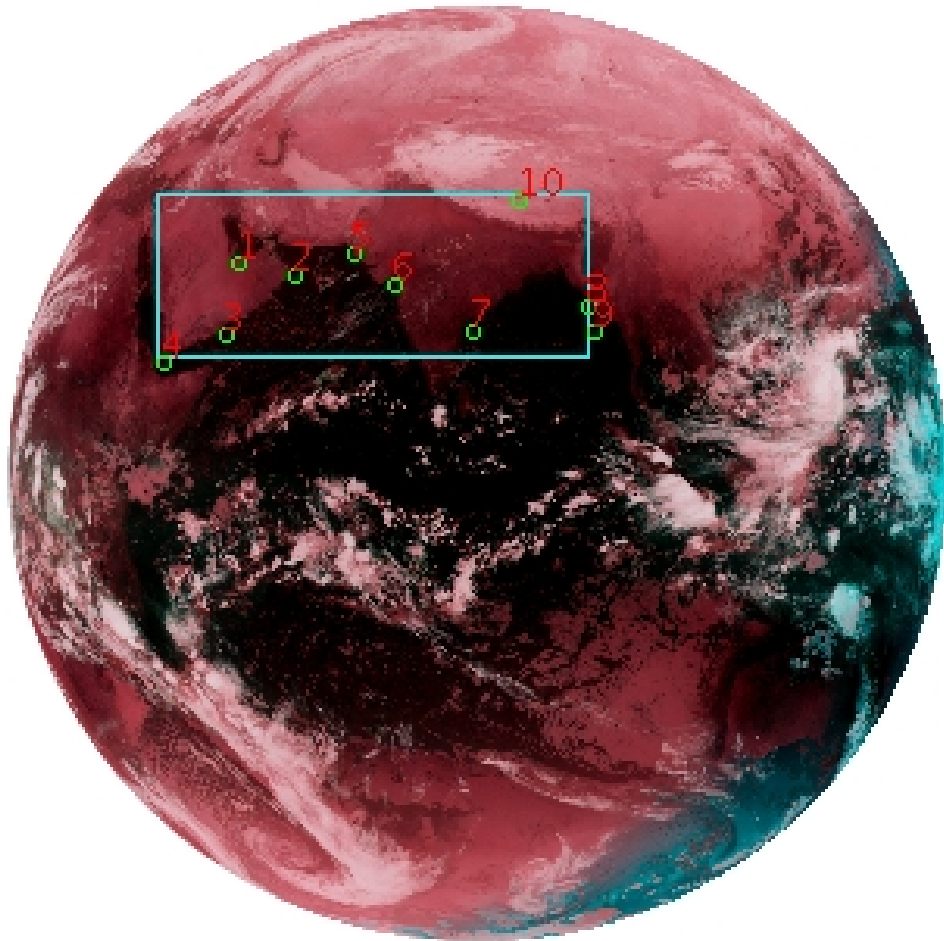


DQE Report: Location Accuracy of INSAT-3D-IMG STANDARD(FULL DISK) Product 3DIMG_14DEC2017_2130

Satellite INSAT-3D **No Of Bands** 6 **Product Type** STANDARD
Sensor IMG **LvlOfProcess** L1B **Selected Band** 2-TIR1
DOP/Time 14-12-17/21:30 **Station ID** BES **Field View(deg)** 17.974
Res(Y,X) [Km] (4.0,4.0) **Res(Y,X) [uRad]** (112.0,112.0)

(81.042N,0.843W)

(81.042N,163.157E)



(-81.042S,0.843W)

(-81.042S,163.157E)

GCP Distribution overview for 3DIMG14DEC20172130L1BSTD

Image Width: 2805 **Image Height:** 2816 **No Of GCPs:** 10

GCP Coverage(%) 16.68 **(N-S)** 44.13 **(E-W)**

Location Error(E)

Legend — 0Km < E <= 50Km — 50Km < E <= 100Km — E >100Km

Location Error (In IR Pixels)

| | Mean | Direction | Stddev | RMS |
|--------|--------|-----------|--------|-------|
| Along | 1.414 | N | 1.520 | 2.076 |
| Across | -2.175 | W | 1.294 | 2.531 |

Scale (Km)

| | Pixel Size | Stddev | %variation |
|---------|------------|--------|------------|
| Average | 4.426 | 0.218 | 10.662 |
| Along | 6.008 | 6.989 | 50.204 |
| Across | 4.448 | 0.561 | 11.194 |

Internal Distortion (in IR Pixels)

| | PeakToPeak | Mean | Stddev | RMS |
|--------|------------|-------|--------|-------|
| Along | 5.322 | 1.055 | 1.63 | 1.940 |
| Across | 4.460 | 1.124 | 1.38 | 1.783 |

Attitude Residuals (Deg)

| Pitch | Roll | Yaw |
|----------|----------|---------|
| -0.01600 | -0.01396 | 0.14078 |

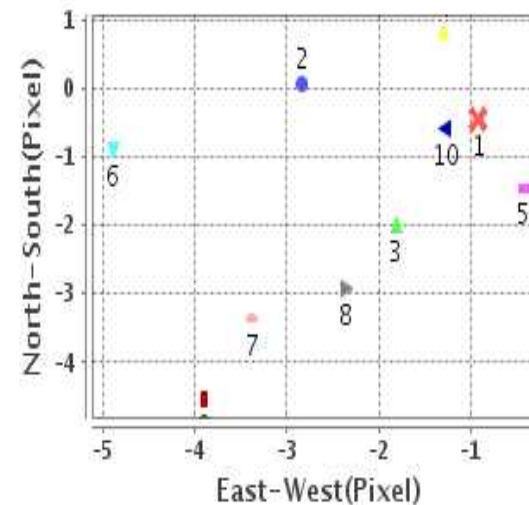
Reference Used

| Sensor | Resolution | Projection |
|--------|------------|------------|
| ETM | 500.00 | GGP |

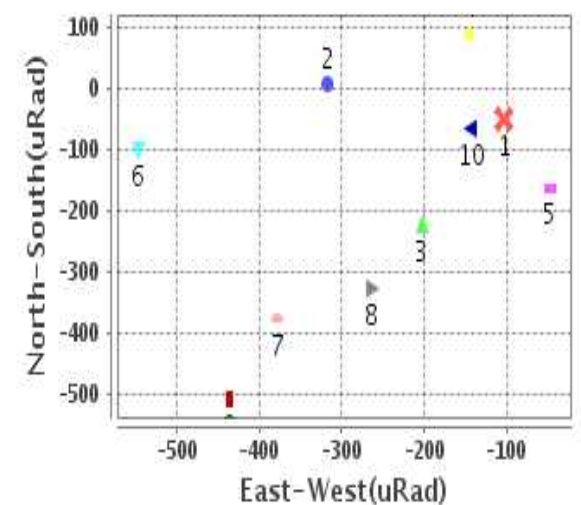
Radial Error (in IR Pixels)

| | |
|-------------|-------|
| Mean | 2.879 |
| Min | .648 |
| Max | 5.393 |
| CE90 | 4.780 |

Location Error For GCPs(Pixel)



Location Error For GCPs(uRad)



Detailed Product Information

Ancillary Info

| | | | |
|--------------------------|---------------|----------------------------------|------------|
| Satellite | INSAT-3D | Generation Date | 15-12-17 |
| Sensor | IMG | DQE Date | 15-12-2017 |
| PassType | NONE | Aquisition Date | 14-12-17 |
| Imaging Mode | FULL_FRAME | Aquisition Time(GMT) | 21:30 |
| Sat Altitude(m) | 3.6E7 | Nominal Altitude(Km) | 3.6E7 |
| Station | BES | Predicted Altitude(Km) | -999.99 |
| Sat Location(deg) | -999.99 E | Nominal Center Lat(deg) | 0.0 |
| Format | hdf5-1.8.8 | Nominal Center Lon(deg) | 82.0 |
| LvlOfProcessing | STANDARD(FULL | Predicted Center Lat(deg) | -999.99 |
| DP JobId | 3DIMG_14DEC20 | Predicted Center Lon(deg) | -999.99 |
| ProductCode | NONE | | |
| Field View(deg) | 17.974 | | |

Projection Parameters

| | |
|--------------------------------------|----------|
| Projection | None |
| Ellipsoid | WGS_84 |
| Datum | WGS_84 |
| Zone | NotAvail |
| Semi_Major_Axis(Km) | 6378.14 |
| Semi_Minor_Axis(Km) | 6356.75 |
| Standard_Parallel1(deg) | -999.99 |
| Standard_Parallel2(deg) | -999.99 |
| Projection_Origin_Lon(deg) | -999.99 |
| Projection_Origin_Lat(deg) | -999.99 |
| Projection_False_Easting(Km) | -999.99 |
| Projection_False_Northing(Km) | -999.99 |

Scene Center Desc

| | |
|--------------------------|---------|
| Centre Lat(deg) | 0.0 |
| Center Lon(deg) | 82.0 |
| Centre Roll(deg) | -999.0 |
| Centre Pitch(deg) | -999.0 |
| Center Yaw(deg) | -999.0 |
| SunElevation(deg) | -999.99 |
| SunAzimuth(deg) | -999.99 |
| SatElevation(deg) | -999.99 |
| SatAzimuth(deg) | -999.99 |

Scene Corner Desc

| | |
|--------------------|---------|
| NW_Lat(deg) | 81.042 |
| NW_Lon(deg) | 0.843 |
| SW_Lat(deg) | -81.042 |
| SW_Lon(deg) | 0.843 |
| NE_Lat(deg) | 81.042 |
| NE_Lon(deg) | 163.157 |
| SE_Lat(deg) | -81.042 |
| SE_Lon(deg) | 163.157 |

Band Wise Details

| | Res_AL(Km) | Res_AX(Km) | Image Height | Image Width |
|-------------|------------|------------|--------------|-------------|
| MIR | 4.0 | 4.0 | 2816 | 2805 |
| SWIR | 1.0 | 1.0 | 11264 | 11220 |
| TIR1 | 4.0 | 4.0 | 2816 | 2805 |
| TIR2 | 4.0 | 4.0 | 2816 | 2805 |
| VIS | 1.0 | 1.0 | 11264 | 11220 |
| WV | 8.0 | 8.0 | 1408 | 1402 |

GDQE Computation Base

| | | | | | | | |
|-------------------|----------------|--------------------------------------|--------|-------------------------------|------------|----------------------------|-----------|
| Projection | MER | Wildpoint Rejection Threshold | 2.60 | SemiMajorAxis(m) | 6378137.00 | Mode Of Computation | grid |
| Ellipsoid | WGS_84 | | -sigma | SemiMinorAxis(m) | 6356752.31 | Used Reference Type | REFINSREF |
| Datum | WGS_84 | Unit | pixels | Standardparallel1(deg) | 17.0 | | |
| Zone | Not Applicable | | | Standardparallel2(deg) | 17.0 | | |

* -999.99 : Not Applicable/Not Available

References

JobId : 3DIMG14DEC20172130L1BSTD

(-999.99 - Not Available/Not Computed)

| Ref.No | Source | File Name | Resolution (m) | Projection |
|--------|--------|-----------------|------------------|------------|
| 1 | ETM | world_Band1.img | 500.0 | GGP |

Location Accuracy

GCP Distribution Statistics

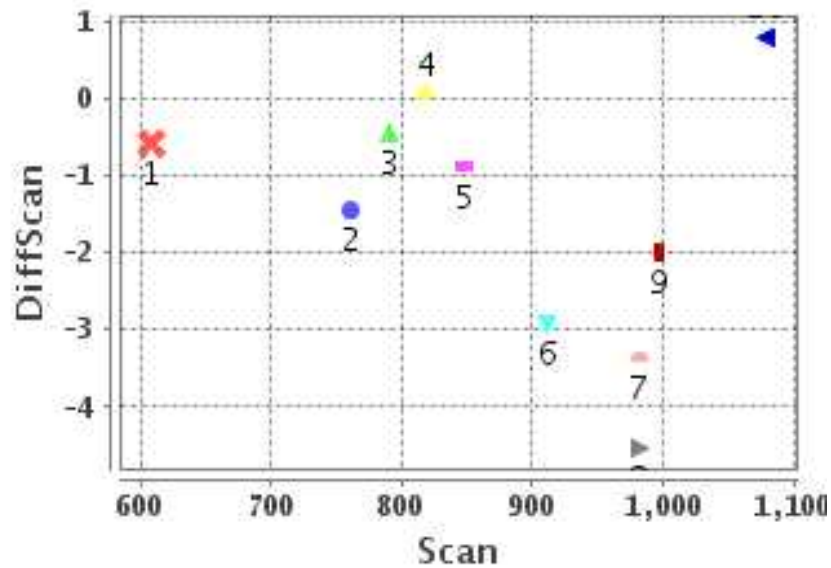
Image Width (pixels) : 2805 Image Height (pixels) : 2816 No of GCPs : 10

| | Mean | StdDev | Min | Max | Coverage(in %) |
|-----------------|--------|--------|-------|---------|----------------|
| GCP Scan | 877.8 | 132.3 | 608.2 | 1078.00 | 16.68 (N-S) |
| GCP Pix | 1119.6 | 422.4 | 485.5 | 1723.25 | 44.13 (E-W) |

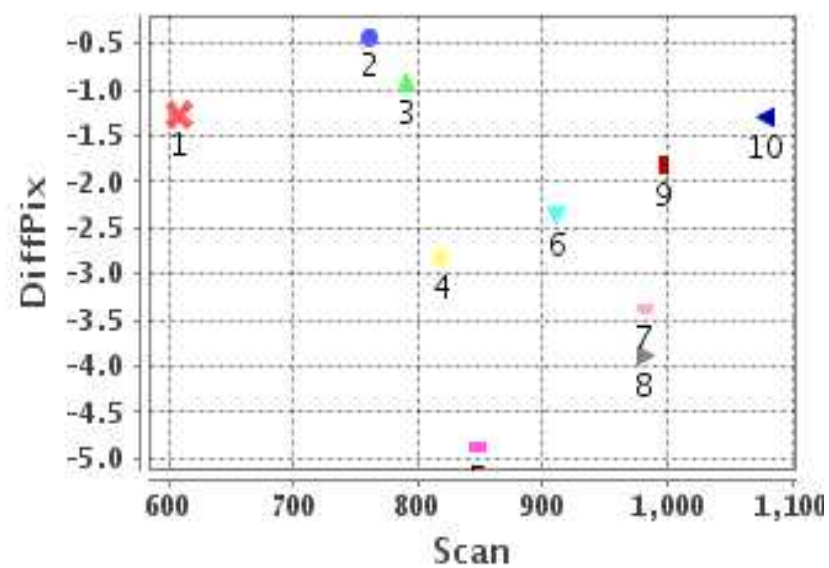
Identified Control Point details : (Differences are Reference - Product)

| No | Scan | Pix | DiffScan (line) | DiffPix (pixel) | DifLat (Km) | Dir | DifLon (Km) | Dir | Status |
|----|--------|--------|-----------------|-----------------|-------------|-----|-------------|-----|----------|
| 1 | 791.5 | 698.5 | -0.5 | -0.92 | 0.403 | S | 2.559 | W | Accepted |
| 2 | 819.0 | 862.2 | 0.0 | -2.83 | 0.502 | N | 12.314 | W | Accepted |
| 3 | 997.5 | 664.5 | -2.0 | -1.81 | 6.626 | N | 8.382 | W | Accepted |
| 4 | 1078.0 | 485.5 | 0.8 | -1.30 | 3.009 | S | 4.075 | W | Accepted |
| 5 | 761.2 | 1027.2 | -1.5 | -0.43 | 6.356 | N | 1.763 | W | Accepted |
| 6 | 848.0 | 1150.5 | -0.9 | -4.89 | 4.083 | N | 18.679 | W | Accepted |
| 7 | 981.5 | 1370.5 | -3.4 | -3.37 | 12.594 | N | 11.773 | W | Accepted |
| 8 | 911.2 | 1705.0 | -2.9 | -2.36 | 11.919 | N | 8.620 | W | Accepted |
| 9 | 981.5 | 1723.2 | -4.5 | -3.89 | 16.636 | N | 13.735 | W | Accepted |
| 10 | 608.2 | 1509.2 | -0.6 | -1.28 | 1.266 | N | 5.101 | W | Accepted |

Error(Pixels) Vs. GCPScan



Error(Pixels) Vs. GCPScan



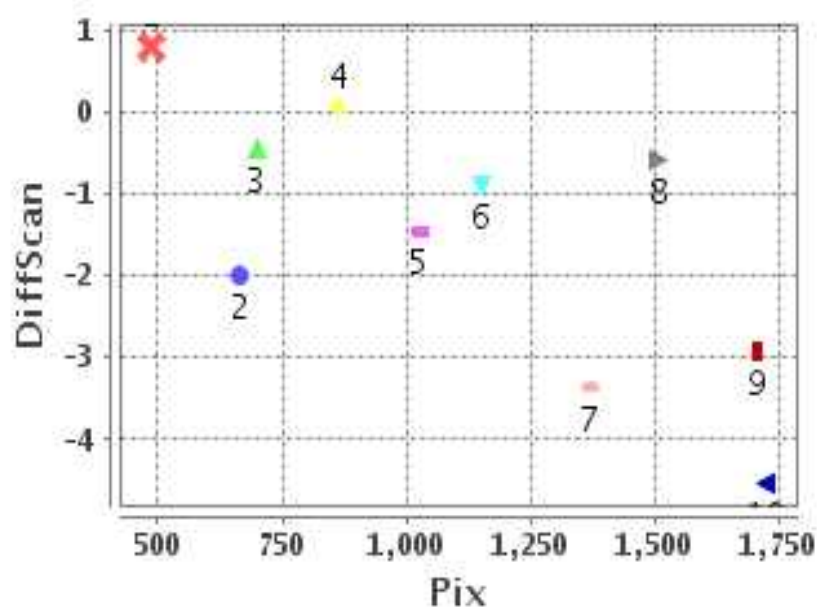
Number Of Points

| | |
|-------|----|
| North | 8 |
| South | 2 |
| East | 0 |
| West | 10 |

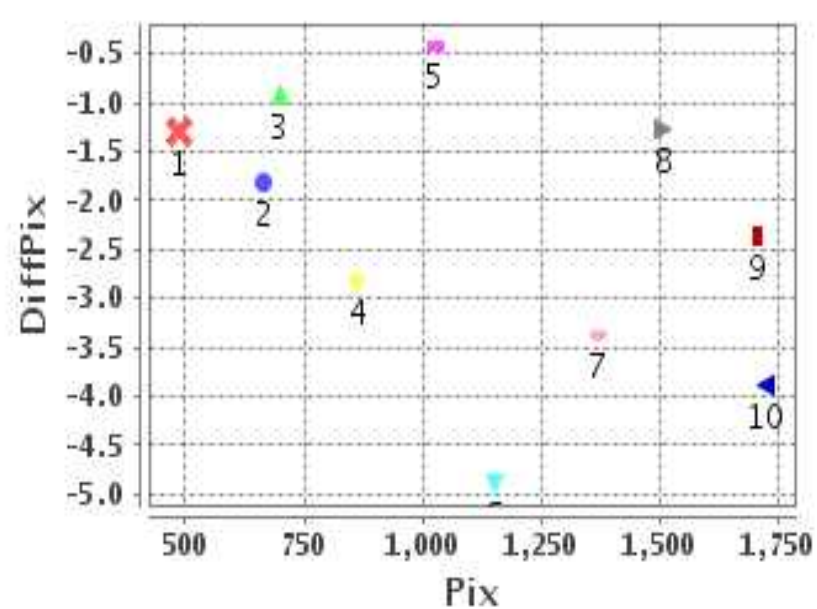
Radial Error (Km)

| | |
|------|-------|
| Mean | 2.879 |
| Min | .648 |
| Max | 5.393 |
| CE90 | 4.780 |

Error(Pixels) Vs. GCPPix



Error(Pixels) Vs. GCPPix



Location Accuracy

| | Mean | StdDev | RMS | Dir | * MinRMS | * MaxRMS |
|---------------|--------|--------|-------|-----|----------|----------|
| Along(Km) | 1.414 | 1.520 | 2.076 | N | 1.693 | 2.188 |
| Across (Km) | -2.175 | 1.294 | 2.531 | W | 2.166 | 2.663 |

Block-Wise Geo location Error Statistics

Location Accuracy,Scale,ID

| | | |
|--|-------|-------|
| Scan Range-0-937; Pix Range-0-934 | | |
| Number of GCPs | 2 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 0.05 | N |
| Across(Mean,Dir) | -7.44 | W |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | 5.20 | 30.06 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | -0.50 | 0.00 |
| Across(Mean,Stddev) | 1.91 | 0.00 |

| | | |
|---|--------|-------|
| Scan Range-0-937; Pix Range-934-1869 | | |
| Number of GCPs | 4 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 5.9075 | N |
| Across(Mean,Dir) | -8.54 | W |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | 4.47 | 11.82 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | 1.17 | 0.85 |
| Across(Mean,Stddev) | 2.41 | 1.51 |

| | | |
|--|---------|----------|
| Scan Range-0-937; Pix Range-1869-2805 | | |
| Number of GCPs | -999 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | -999.99 | NotAvail |
| Across(Mean,Dir) | -999.99 | NotAvail |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | -999.99 | -999.9 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | -999.99 | -999.99 |
| Across(Mean,Stddev) | -999.99 | -999.99 |

| | | |
|---|-------|-------|
| Scan Range-937-1876; Pix Range-0-934 | | |
| Number of GCPs | 2 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 1.81 | N |
| Across(Mean,Dir) | -6.24 | W |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | 4.81 | 20.16 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | -2.80 | 0.00 |
| Across(Mean,Stddev) | 0.52 | 0.00 |

| | | |
|--|--------|------|
| Scan Range-937-1876; Pix Range-934-1869 | | |
| Number of GCPs | 2 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 14.62 | N |
| Across(Mean,Dir) | -12.75 | W |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | 4.05 | 1.29 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | 1.17 | 0.00 |
| Across(Mean,Stddev) | 0.52 | 0.00 |

| | | |
|---|---------|----------|
| Scan Range-937-1876; Pix Range-1869-2805 | | |
| Number of GCPs | -999 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | -999.99 | NotAvail |
| Across(Mean,Dir) | -999.99 | NotAvail |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | -999.99 | -999.9 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | -999.99 | -999.99 |
| Across(Mean,Stddev) | -999.99 | -999.99 |

| | | |
|--|---------|----------|
| Scan Range-1876-2816; Pix Range-0-934 | | |
| Number of GCPs | -999 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | -999.99 | NotAvail |
| Across(Mean,Dir) | -999.99 | NotAvail |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | -999.99 | -999.9 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | -999.99 | -999.99 |
| Across(Mean,Stddev) | -999.99 | -999.99 |

| | | |
|---|---------|----------|
| Scan Range-1876-2816; Pix Range-937-1869 | | |
| Number of GCPs | -999 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | -999.99 | NotAvail |
| Across(Mean,Dir) | -999.99 | NotAvail |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | -999.99 | -999.9 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | -999.99 | -999.99 |
| Across(Mean,Stddev) | -999.99 | -999.99 |

| | | |
|--|---------|----------|
| Scan Range-1876-2816; Pix Range-1869-2805 | | |
| Number of GCPs | -999 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | -999.99 | NotAvail |
| Across(Mean,Dir) | -999.99 | NotAvail |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | -999.99 | -999.9 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | -999.99 | -999.99 |
| Across(Mean,Stddev) | -999.99 | -999.99 |

*-999 : no gcp available

* -999.99 : values are not computed