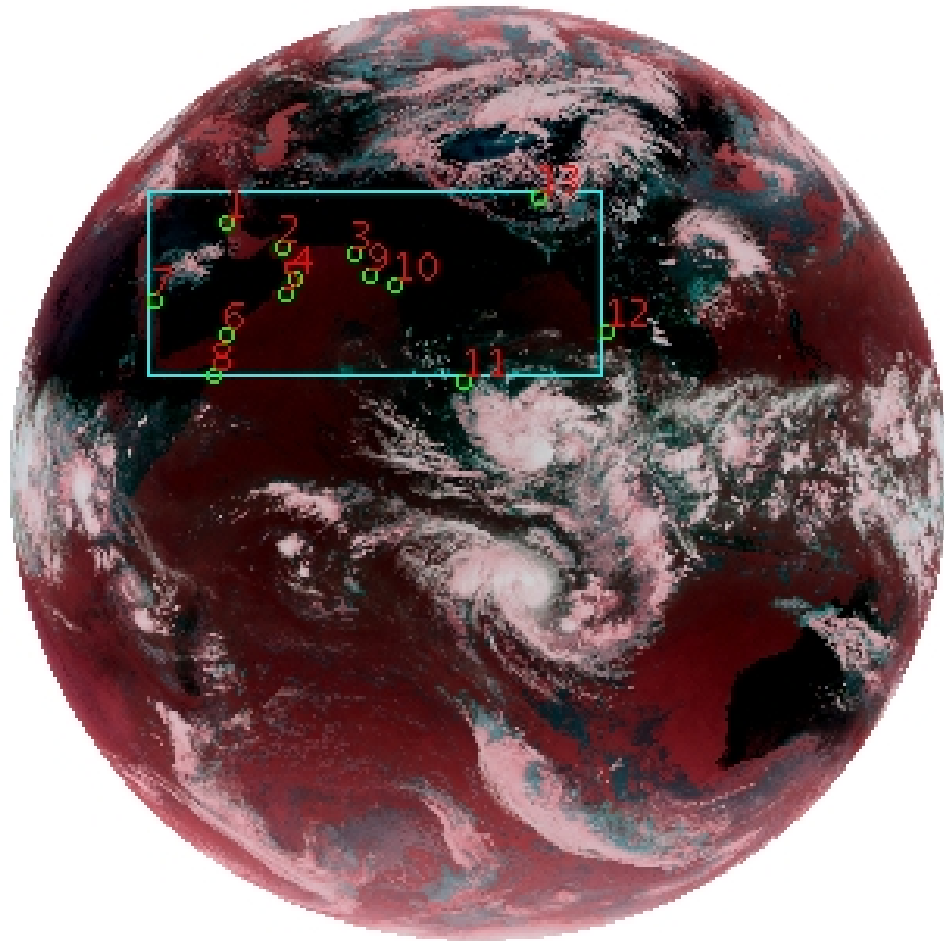


DQE Report: Location Accuracy of INSAT-3D-IMG STANDARD(FULL DISK) Product 3DIMG_26APR2019_0600

Satellite INSAT-3D **No Of Bands** 6 **Product Type** STANDARD
Sensor IMG **LvlOfProcess** L1B **Selected Band** 2-TIR1
DOP/Time 26-04-19/06:00 **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 3DIMG26APR20190600L1BSTD

Image Width: 2805 **Image Height:** 2816 **No Of GCPs:** 13

GCP Coverage(%) 18.84 **(N-S)** 46.33 **(E-W)**

Location Error(E)

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

Location Error (In IR Pixels)

| | Mean | Direction | Stddev | RMS |
|--------|--------|-----------|--------|-------|
| Along | 1.501 | N | 1.994 | 2.495 |
| Across | -2.099 | W | 1.126 | 2.382 |

Scale (Km)

| | Pixel Size | Stddev | %variation |
|---------|------------|--------|------------|
| Average | 4.532 | 0.405 | 13.312 |
| Along | 4.830 | 1.340 | 20.754 |
| Across | 4.718 | 0.535 | 17.957 |

Internal Distortion (in IR Pixels)

| | PeakToPeak | Mean | Stddev | RMS |
|--------|------------|--------|--------|-------|
| Along | 4.843 | 1.860 | 1.76 | 2.562 |
| Across | 3.477 | -0.025 | 0.98 | 0.977 |

Attitude Residuals (Deg)

| Pitch | Roll | Yaw |
|----------|----------|----------|
| -0.01621 | -0.00935 | -0.00414 |

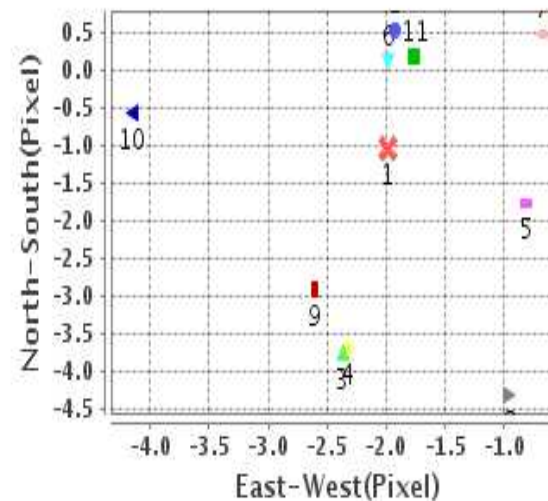
Reference Used

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

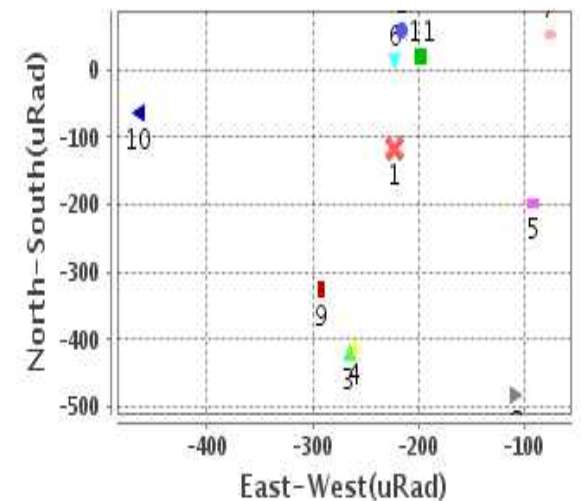
Radial Error (in IR Pixels)

| | |
|-------------|-------|
| Mean | 3.101 |
| Min | .633 |
| Max | 5.334 |
| CE90 | 4.931 |

Location Error For GCPs(Pixel)



Location Error For GCPs(uRad)



Detailed Product Information

Ancillary Info

| | | | |
|--------------------------|----------------|----------------------------------|------------|
| Satellite | INSAT-3D | Generation Date | 26-04-19 |
| Sensor | IMG | DQE Date | 29-04-2019 |
| PassType | NONE | Aquisition Date | 26-04-19 |
| Imaging Mode | FULL_FRAME | Aquisition Time(GMT) | 06:00 |
| 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_26APR20 | 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 : 3DIMG26APR20190600L1BSTD

(-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

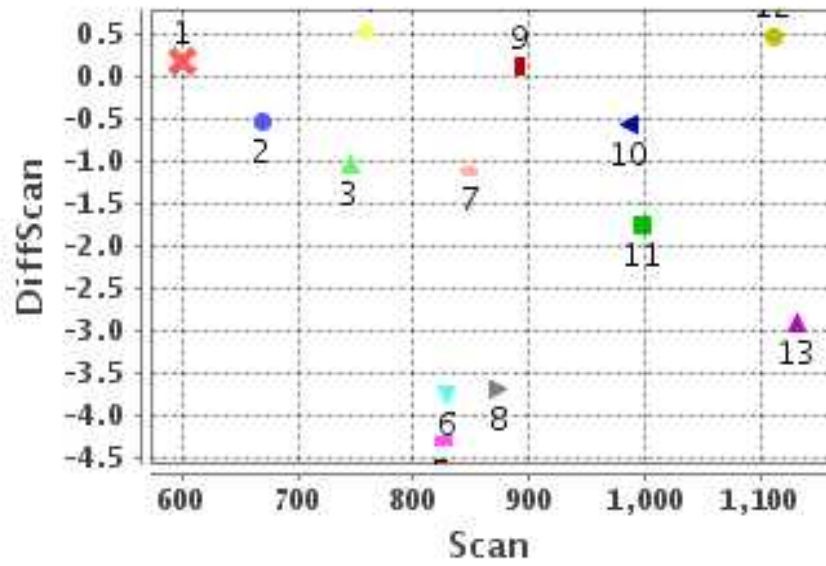
Image Width (pixels) : 2805 Image Height (pixels) : 2816 No of GCPs : 13

| | Mean | StdDev | Min | Max | Coverage(in %) |
|-----------------|-------|--------|-------|---------|----------------|
| GCP Scan | 866.6 | 152.2 | 600.0 | 1130.50 | 18.84 (N-S) |
| GCP Pix | 988.1 | 369.5 | 456.5 | 1756.00 | 46.33 (E-W) |

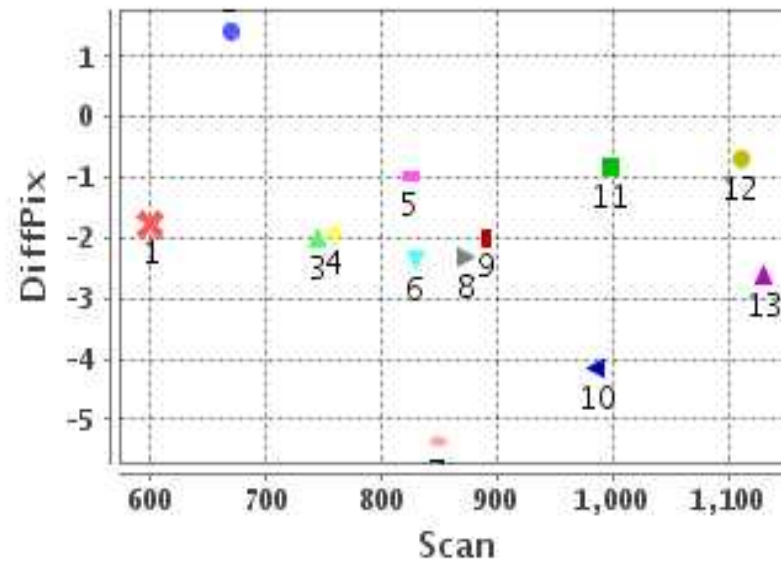
Identified Control Point details : (Differences are Reference - Product)

| No | Scan | Pix | DiffScan (line) | DiffPix (pixel) | DifLat (Km) | Dir | DifLon (Km) | Dir | Status |
|----|--------|--------|-----------------|-----------------|-------------|-----|-------------|-----|----------|
| 1 | 669.2 | 662.0 | -0.5 | 1.43 | 1.182 | N | 7.574 | E | Rejected |
| 2 | 745.2 | 824.2 | -1.0 | -1.99 | 4.501 | N | 9.852 | W | Accepted |
| 3 | 759.2 | 1028.8 | 0.5 | -1.93 | 4.145 | S | 4.958 | W | Accepted |
| 4 | 829.2 | 861.5 | -3.8 | -2.37 | 16.412 | N | 12.138 | W | Accepted |
| 5 | 873.2 | 834.0 | -3.7 | -2.32 | 16.532 | N | 13.490 | W | Accepted |
| 6 | 997.2 | 663.5 | -1.8 | -0.81 | 6.626 | N | 3.057 | W | Accepted |
| 7 | 891.2 | 456.5 | 0.1 | -1.98 | 1.305 | S | 9.733 | W | Accepted |
| 8 | 1111.0 | 625.2 | 0.5 | -0.67 | 2.056 | S | 1.476 | W | Accepted |
| 9 | 825.2 | 1074.5 | -4.3 | -0.96 | 19.265 | N | 4.221 | W | Accepted |
| 10 | 848.2 | 1151.0 | -1.1 | -5.37 | 5.060 | N | 22.864 | W | Rejected |
| 11 | 1130.5 | 1345.5 | -2.9 | -2.61 | 9.278 | N | 7.934 | W | Accepted |
| 12 | 986.0 | 1756.0 | -0.6 | -4.15 | 2.507 | N | 16.963 | W | Accepted |
| 13 | 600.0 | 1562.0 | 0.2 | -1.76 | 1.582 | S | 8.535 | W | Accepted |

Error(Pixels) Vs. GCPScan



Error(Pixels) Vs. GCPScan



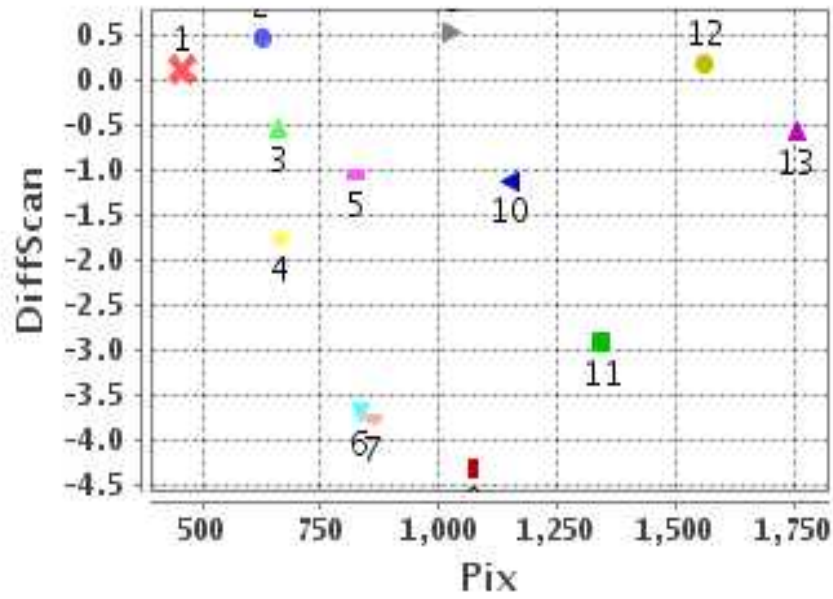
Number Of Points

| | |
|-------|----|
| North | 7 |
| South | 4 |
| East | 0 |
| West | 11 |

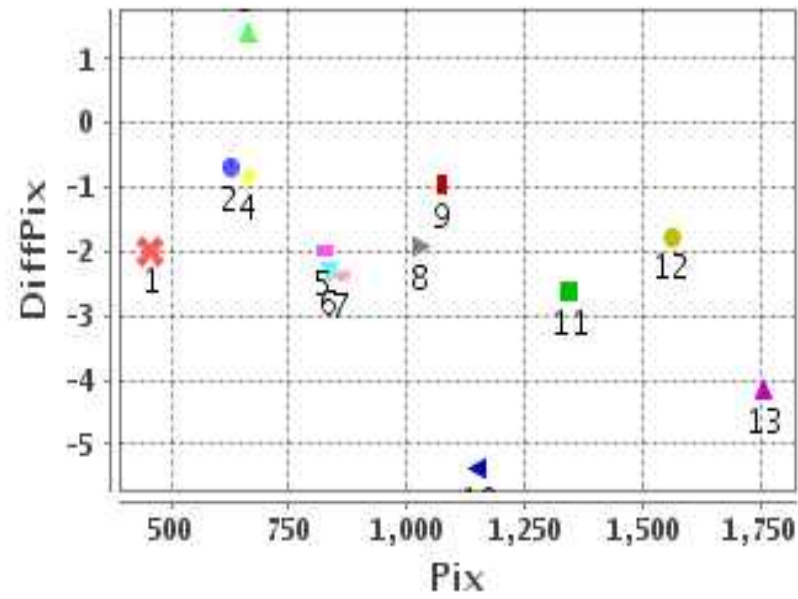
Radial Error (Km)

| | |
|------|-------|
| Mean | 3.101 |
| Min | .633 |
| Max | 5.334 |
| CE90 | 4.931 |

Error(Pixels) Vs. GCPPix



Error(Pixels) Vs. GCPPix



Location Accuracy

| | Mean | StdDev | RMS | Dir | * MinRMS | * MaxRMS |
|---------------|--------|--------|-------|-----|----------|----------|
| Along(Km) | 1.501 | 1.994 | 2.495 | N | 2.128 | 2.615 |
| Across (Km) | -2.099 | 1.126 | 2.382 | W | 2.108 | 2.495 |

Block-Wise Geo location Error Statistics

Location Accuracy,Scale,ID

| | | |
|--|--------|-------|
| Scan Range-0-937; Pix Range-0-934 | | |
| Number of GCPs | 4 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 9.035 | N |
| Across(Mean,Dir) | -11.30 | W |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | 5.01 | 25.27 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | 1.39 | 1.80 |
| Across(Mean,Stddev) | 0.24 | 0.17 |

| | | |
|---|---------|-------|
| Scan Range-0-937; Pix Range-934-1869 | | |
| Number of GCPs | 3 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 4.51333 | N |
| Across(Mean,Dir) | -5.91 | W |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | 4.61 | 15.20 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | 2.05 | 2.42 |
| Across(Mean,Stddev) | -0.57 | 0.40 |

| | | |
|--|---------|----------|
| 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) | 2.285 | N |
| Across(Mean,Dir) | -2.26 | W |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | 4.16 | 4.09 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | -2.24 | 0.00 |
| Across(Mean,Stddev) | 0.14 | 0.00 |

| | | |
|--|--------|------|
| Scan Range-937-1876; Pix Range-934-1869 | | |
| Number of GCPs | 2 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 5.89 | N |
| Across(Mean,Dir) | -12.45 | W |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | 4.04 | 0.89 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | 2.34 | 0.00 |
| Across(Mean,Stddev) | 1.54 | 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