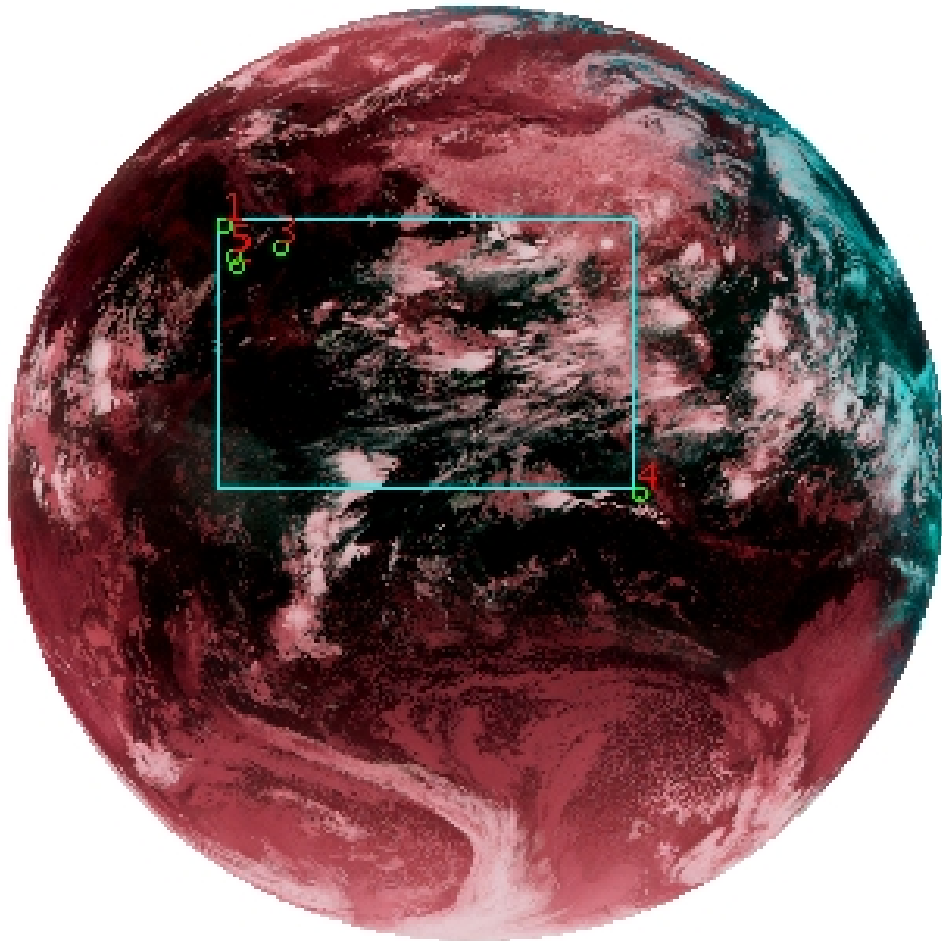


# DQE Report: Location Accuracy of INSAT-3D-IMG STANDARD(FULL DISK) Product 3DIMG\_26JUN2019\_2130

Satellite INSAT-3D No Of Bands 6 Product Type STANDARD  
 Sensor IMG LvlOfProcess L1B Selected Band 2-TIR1  
 DOP/Time 26-06-19/21:30 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 3DIMG26JUN20192130L1BSTD

Image Width: 2805 Image Height: 2816 No Of GCPs: 5

GCP Coverage(%) 27.64 (N-S) 42.77 (E-W)

Location Error(E)

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

## Location Error (In IR Pixels)

|        | Mean   | Direction | Stddev | RMS   |
|--------|--------|-----------|--------|-------|
| Along  | -0.010 | S         | 1.350  | 1.350 |
| Across | 0.425  | E         | 2.723  | 2.756 |

## Scale (Km)

|         | Pixel Size | Stddev | %variation |
|---------|------------|--------|------------|
| Average | 5.145      | 0.822  | 28.636     |
| Along   | 5.650      | 0.066  | 41.262     |
| Across  | 5.357      | 0.019  | 33.915     |

## Internal Distortion (in IR Pixels)

|        | PeakToPeak | Mean   | Stddev | RMS   |
|--------|------------|--------|--------|-------|
| Along  | 2.318      | -1.951 | 0.87   | 2.135 |
| Across | 2.787      | 4.861  | 0.99   | 4.960 |

## Attitude Residuals (Deg)

| Pitch    | Roll    | Yaw      |
|----------|---------|----------|
| -0.00333 | 0.00503 | -0.08114 |

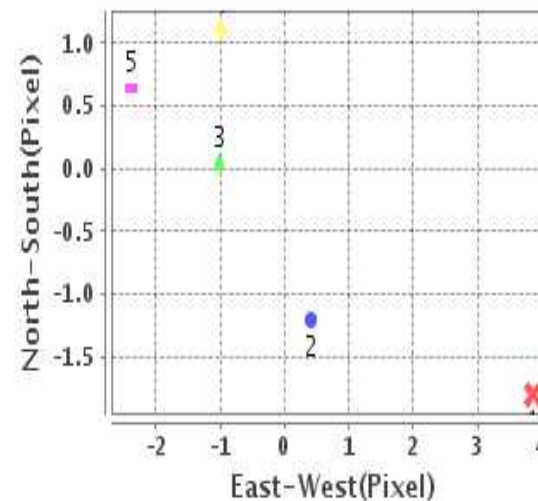
## Reference Used

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

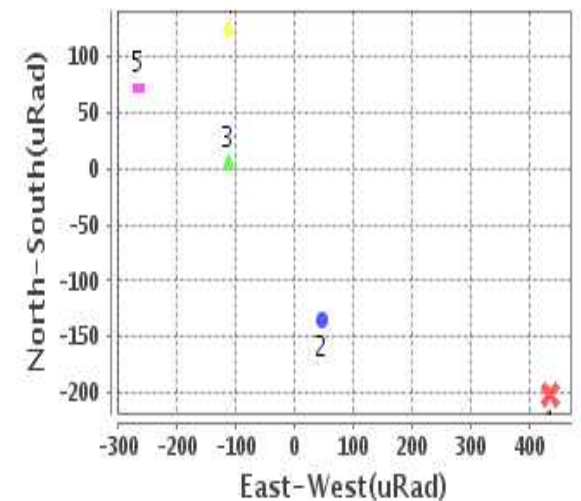
## Radial Error (in IR Pixels)

|      |       |
|------|-------|
| Mean | 2.460 |
| Min  | .984  |
| Max  | 5.927 |
| CE90 | 2.712 |

## Location Error For GCPs(Pixel)



## Location Error For GCPs(uRad)



Detailed Product Information

Ancillary Info

|                   |               |                           |            |
|-------------------|---------------|---------------------------|------------|
| Satellite         | INSAT-3D      | Generation Date           | 27-06-19   |
| Sensor            | IMG           | DQE Date                  | 28-06-2019 |
| PassType          | NONE          | Aquisition Date           | 26-06-19   |
| 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_26JUN20 | 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 : 3DIMG26JUN20192130L1BSTD**

(-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

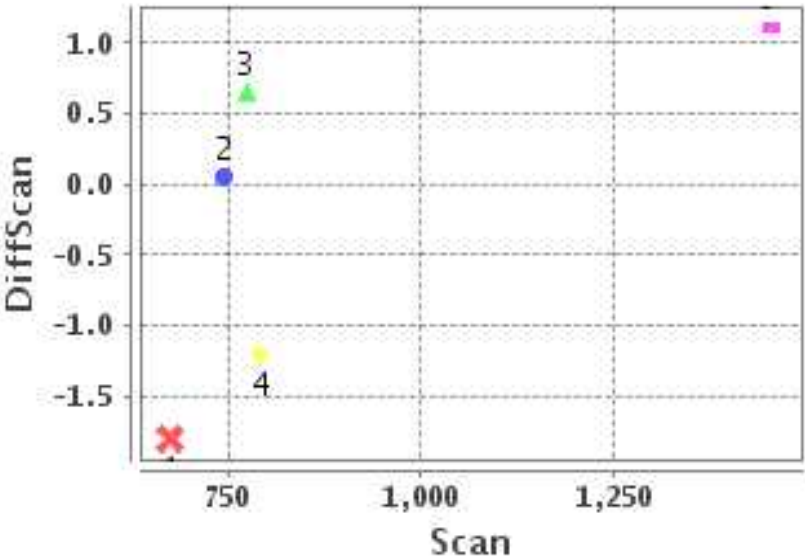
Image Width (pixels) : 2805      Image Height (pixels) : 2816      No of GCPs : 5

|                 | Mean  | StdDev | Min   | Max     | Coverage(in %) |
|-----------------|-------|--------|-------|---------|----------------|
| <b>GCP Scan</b> | 887.6 | 285.6  | 675.0 | 1453.25 | 27.64 (N-S)    |
| <b>GCP Pix</b>  | 945.4 | 460.9  | 660.5 | 1860.25 | 42.77 (E-W)    |

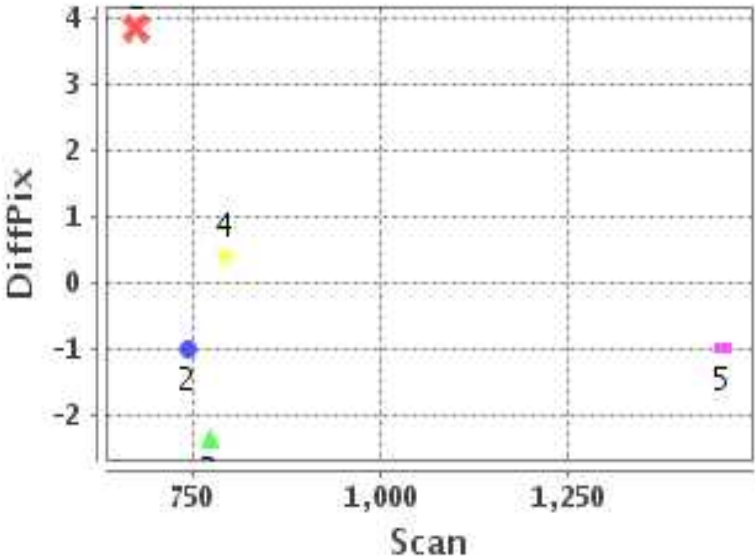
### Identified Control Point details : ( Differences are Reference - Product )

| No | Scan   | Pix    | DiffScan (line) | DiffPix (pixel) | DifLat (Km) | Dir | DifLon (Km) | Dir | Status   |
|----|--------|--------|-----------------|-----------------|-------------|-----|-------------|-----|----------|
| 1  | 675.0  | 660.5  | -1.8            | 3.86            | 8.164       | N   | 22.256      | E   | Accepted |
| 2  | 792.2  | 697.2  | -1.2            | 0.41            | 4.233       | N   | 2.144       | E   | Accepted |
| 3  | 744.2  | 823.2  | 0.1             | -1.01           | 1.869       | S   | 3.463       | W   | Accepted |
| 4  | 1453.2 | 1860.2 | 1.1             | -1.00           | 5.035       | S   | 3.215       | W   | Accepted |
| 5  | 773.5  | 685.5  | 0.6             | -2.38           | 5.698       | S   | 9.232       | W   | Accepted |

Error(Pixels) Vs. GCPScan



Error(Pixels) Vs. GCPScan



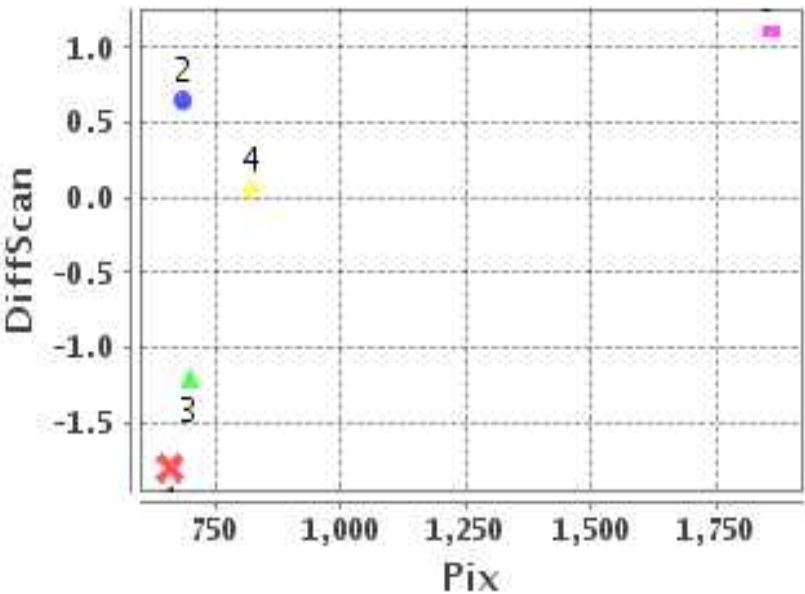
Number Of Points

|       |   |
|-------|---|
| North | 2 |
| South | 3 |
| East  | 2 |
| West  | 3 |

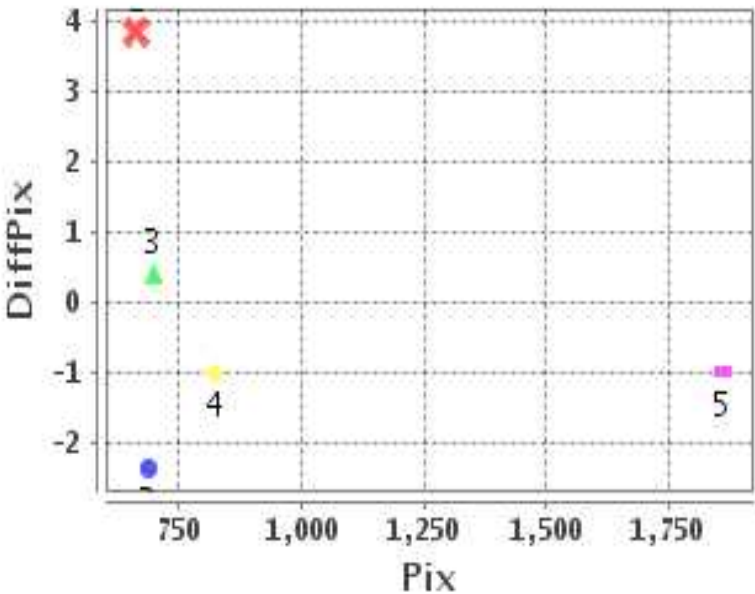
Radial Error ( Km )

|      |       |
|------|-------|
| Mean | 2.460 |
| Min  | .984  |
| Max  | 5.927 |
| CE90 | 2.712 |

Error(Pixels) Vs. GCPPix



Error(Pixels) Vs. GCPPix



Location Accuracy

|               | Mean   | StdDev | RMS   | Dir | * MinRMS | * MaxRMS |
|---------------|--------|--------|-------|-----|----------|----------|
| Along( Km )   | -0.010 | 1.350  | 1.350 | S   | 1.113    | 1.492    |
| Across ( Km ) | 0.425  | 2.723  | 2.756 | E   | 1.324    | 3.069    |

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)                   | 1.205 | N     |  |
| Across(Mean,Dir)                  | 2.93  | E     |  |
| Scale(Km)                         |       |       |  |
| Average Scale (Mean,%Variation)   | 5.68  | 42.07 |  |
| Internal Distortion(Pixel)        |       |       |  |
| Along(Mean,Stddev)                | -1.63 | 0.77  |  |
| Across(Mean,Stddev)               | 4.86  | 1.14  |  |

|                                      |         |          |  |
|--------------------------------------|---------|----------|--|
| Scan Range-0-937; Pix Range-934-1869 |         |          |  |
| 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-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                       | -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-934-1869 |         |         |  |
| Number of GCPs                          | 1       |         |  |
| Location Error(Km)                      |         |         |  |
| Along(Mean,Dir)                         | -5.034  | S       |  |
| Across(Mean,Dir)                        | -3.21   | W       |  |
| 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-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