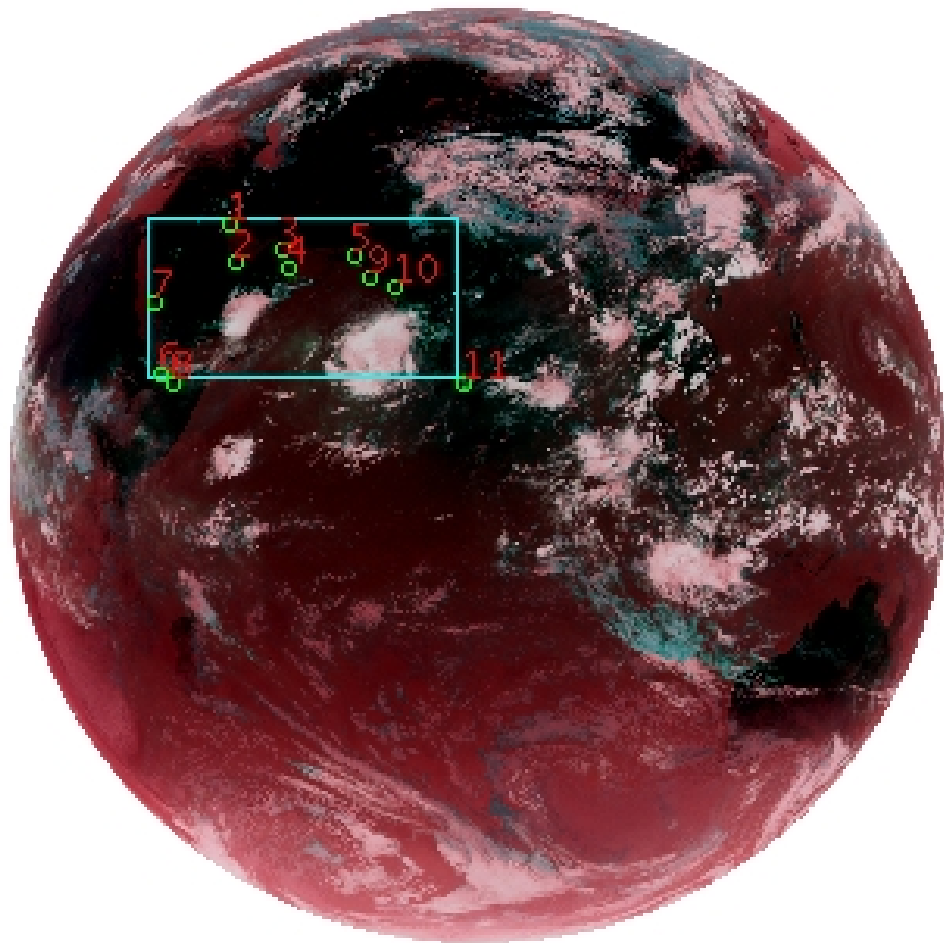


# DQE Report: Location Accuracy of INSAT-3D-IMG STANDARD(FULL DISK) Product 3DIMG\_31MAY2020\_0600

Satellite INSAT-3D No Of Bands 6 Product Type STANDARD  
 Sensor IMG LvlOfProcess L1B Selected Band 2-TIR1  
 DOP/Time 31-05-20/06:00 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 3DIMG31MAY20200600L1BSTD

Image Width: 2805 Image Height: 2816 No Of GCPs: 11

GCP Coverage(%) 16.21 (N-S) 31.73 (E-W)

Location Error(E)

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

## Location Error (In IR Pixels)

|        | Mean   | Direction | Stddev | RMS   |
|--------|--------|-----------|--------|-------|
| Along  | 0.588  | N         | 0.963  | 1.129 |
| Across | -3.696 | W         | 1.245  | 3.900 |

## Scale (Km)

|         | Pixel Size | Stddev | %variation |
|---------|------------|--------|------------|
| Average | 4.803      | 0.497  | 20.069     |
| Along   | 4.897      | 1.149  | 22.434     |
| Across  | 4.887      | 0.588  | 22.166     |

## Internal Distortion (in IR Pixels)

|        | PeakToPeak | Mean  | Stddev | RMS   |
|--------|------------|-------|--------|-------|
| Along  | 3.311      | 0.667 | 0.94   | 1.153 |
| Across | 4.019      | 0.970 | 1.11   | 1.474 |

## Attitude Residuals (Deg)

| Pitch    | Roll     | Yaw     |
|----------|----------|---------|
| -0.02373 | -0.01276 | 0.11774 |

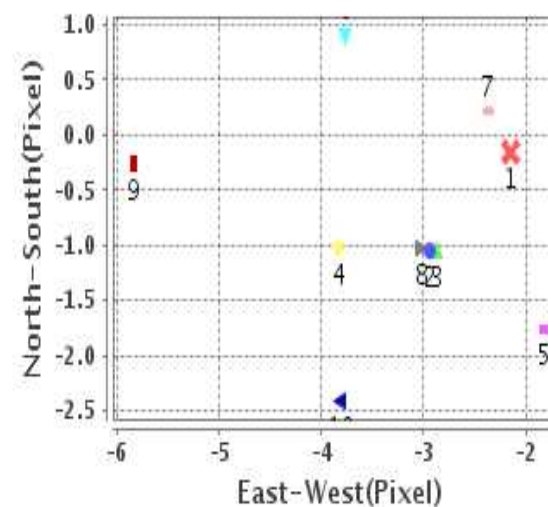
## Reference Used

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

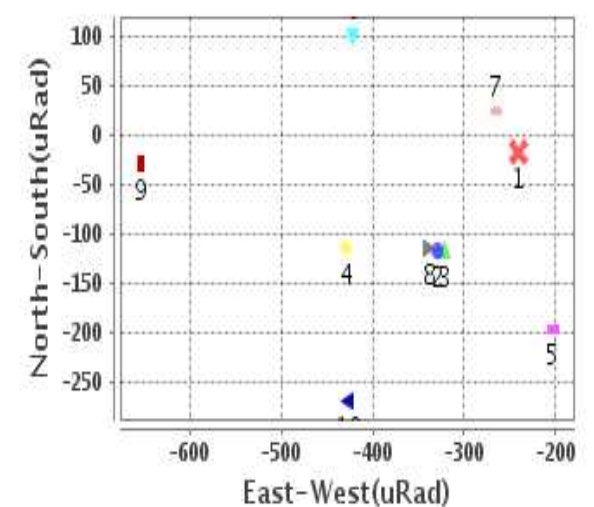
## Radial Error (in IR Pixels)

|      |       |
|------|-------|
| Mean | 3.897 |
| Min  | 2.349 |
| Max  | 5.679 |
| CE90 | 5.428 |

## Location Error For GCPs(Pixel)



## Location Error For GCPs(uRad)



Detailed Product Information

Ancillary Info

|                   |               |                           |            |
|-------------------|---------------|---------------------------|------------|
| Satellite         | INSAT-3D      | Generation Date           | 31-05-20   |
| Sensor            | IMG           | DQE Date                  | 01-06-2020 |
| PassType          | NONE          | Aquisition Date           | 31-05-20   |
| 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_31MAY2  | 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                          | meters | Standardparallel1(deg) | 17.0       |                     |           |
| Zone       | Not Applicable |                               |        | Standardparallel2(deg) | 17.0       |                     |           |

\* -999.99 : Not Applicable/Not Available

## References

**JobId : 3DIMG31MAY20200600L1BSTD**

(-999.99 - Not Available/Not Computed)

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

## Location Accuracy

### GCP Distribution Statistics

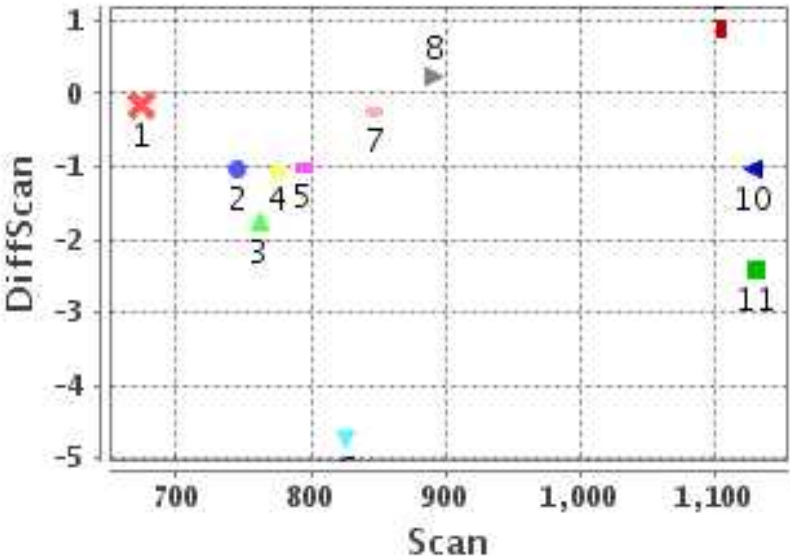
Image Width (pixels) : 2805      Image Height (pixels) : 2816      No of GCPs : 11

|                 | Mean  | StdDev | Min   | Max     | Coverage(in %) |
|-----------------|-------|--------|-------|---------|----------------|
| <b>GCP Scan</b> | 879.8 | 157.2  | 673.5 | 1130.00 | 16.21 (N-S)    |
| <b>GCP Pix</b>  | 823.1 | 284.5  | 456.8 | 1346.75 | 31.73 (E-W)    |

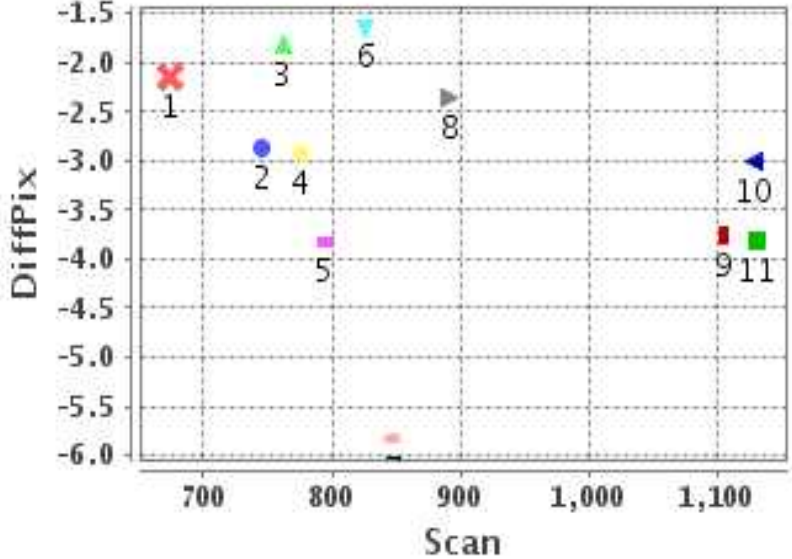
### Identified Control Point details : ( Differences are Reference - Product )

| No | Scan   | Pix    | DiffScan (line) | DiffPix (pixel) | DifLat (Km) | Dir | DifLon (Km) | Dir | Status   |
|----|--------|--------|-----------------|-----------------|-------------|-----|-------------|-----|----------|
| 1  | 673.5  | 666.5  | -0.2            | -2.15           | 0.848       | S   | 9.468       | W   | Accepted |
| 2  | 775.2  | 686.0  | -1.1            | -2.93           | 4.554       | N   | 17.973      | W   | Accepted |
| 3  | 745.2  | 825.0  | -1.0            | -2.87           | 4.501       | N   | 15.842      | W   | Accepted |
| 4  | 794.5  | 841.2  | -1.0            | -3.83           | 3.305       | N   | 17.694      | W   | Accepted |
| 5  | 761.5  | 1028.5 | -1.8            | -1.81           | 6.599       | N   | 6.688       | W   | Accepted |
| 6  | 1104.2 | 470.0  | 0.9             | -3.77           | 3.902       | S   | 21.358      | W   | Accepted |
| 7  | 891.2  | 456.8  | 0.2             | -2.37           | 1.775       | S   | 10.398      | W   | Accepted |
| 8  | 1128.8 | 506.5  | -1.0            | -3.02           | 1.802       | N   | 13.741      | W   | Accepted |
| 9  | 825.8  | 1075.2 | -4.7            | -1.64           | 18.789      | N   | 8.259       | W   | Rejected |
| 10 | 847.2  | 1151.5 | -0.3            | -5.83           | 0.016       | N   | 22.716      | W   | Accepted |
| 11 | 1130.0 | 1346.8 | -2.4            | -3.81           | 9.278       | N   | 11.972      | W   | Accepted |

Error(Pixels) Vs. GCPScan



Error(Pixels) Vs. GCPScan



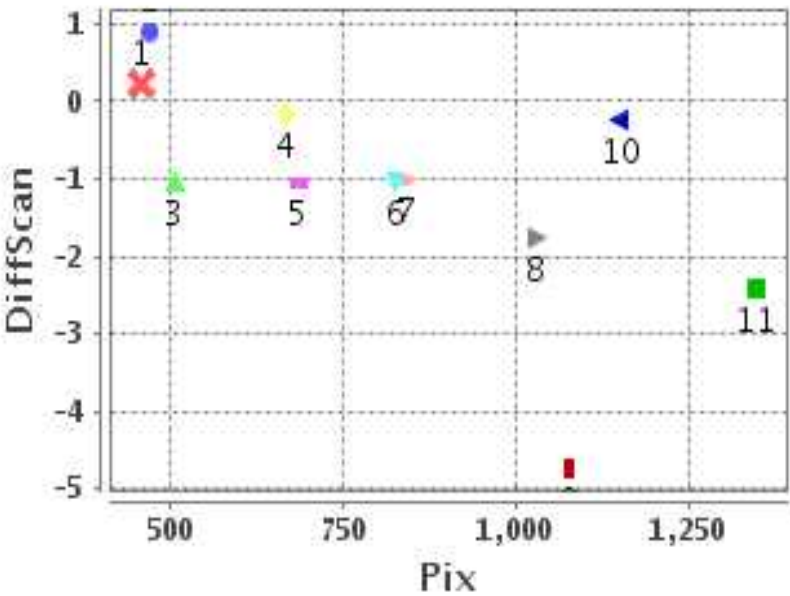
Number Of Points

|       |    |
|-------|----|
| North | 7  |
| South | 3  |
| East  | 0  |
| West  | 10 |

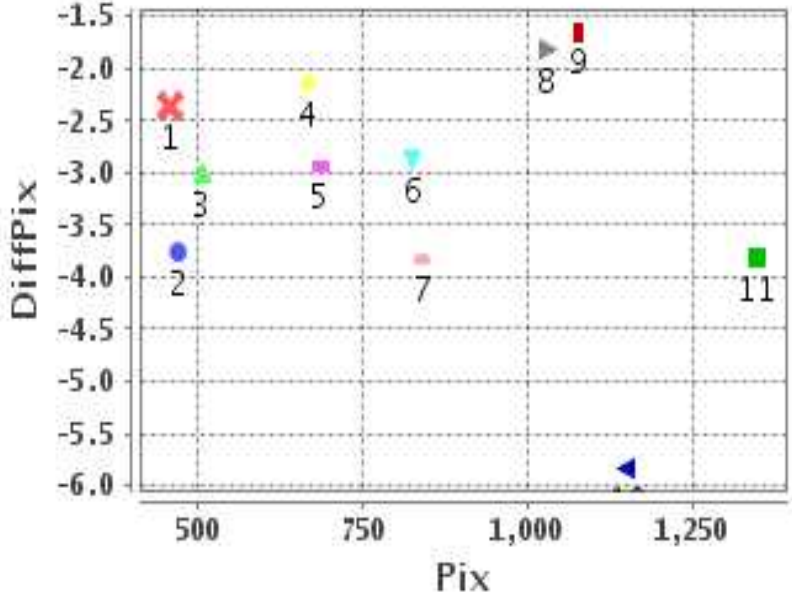
Radial Error ( Km )

|      |       |
|------|-------|
| Mean | 3.897 |
| Min  | 2.349 |
| Max  | 5.679 |
| CE90 | 5.428 |

Error(Pixels) Vs. GCPPix



Error(Pixels) Vs. GCPPix



Location Accuracy

|               | Mean   | StdDev | RMS   | Dir | * MinRMS | * MaxRMS |
|---------------|--------|--------|-------|-----|----------|----------|
| Along( Km )   | 0.588  | 0.963  | 1.129 | N   | 0.905    | 1.190    |
| Across ( Km ) | -3.696 | 1.245  | 3.900 | W   | 3.649    | 4.073    |

Block-Wise Geo location Error Statistics

Location Accuracy,Scale,ID

|                                   |        |       |  |
|-----------------------------------|--------|-------|--|
| Scan Range-0-937; Pix Range-0-934 |        |       |  |
| Number of GCPs                    | 5      |       |  |
| Location Error(Km)                |        |       |  |
| Along(Mean,Dir)                   | 1.946  | N     |  |
| Across(Mean,Dir)                  | -14.27 | W     |  |
| Scale(Km)                         |        |       |  |
| Average Scale (Mean,%Variation)   | 5.36   | 33.93 |  |
| Internal Distortion(Pixel)        |        |       |  |
| Along(Mean,Stddev)                | 0.57   | 0.54  |  |
| Across(Mean,Stddev)               | 0.58   | 0.59  |  |

|                                      |        |       |  |
|--------------------------------------|--------|-------|--|
| Scan Range-0-937; Pix Range-934-1869 |        |       |  |
| Number of GCPs                       | 2      |       |  |
| Location Error(Km)                   |        |       |  |
| Along(Mean,Dir)                      | 3.305  | N     |  |
| Across(Mean,Dir)                     | -14.70 | W     |  |
| Scale(Km)                            |        |       |  |
| Average Scale (Mean,%Variation)      | 4.73   | 18.21 |  |
| Internal Distortion(Pixel)           |        |       |  |
| Along(Mean,Stddev)                   | -1.50  | 0.00  |  |
| Across(Mean,Stddev)                  | 4.02   | 0.00  |  |

|                                       |         |          |  |
|---------------------------------------|---------|----------|--|
| 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)                      | -1.05  | S     |  |
| Across(Mean,Dir)                     | -17.55 | W     |  |
| Scale(Km)                            |        |       |  |
| Average Scale (Mean,%Variation)      | 5.69   | 42.16 |  |
| Internal Distortion(Pixel)           |        |       |  |
| Along(Mean,Stddev)                   | 1.93   | 0.00  |  |
| Across(Mean,Stddev)                  | -0.75  | 0.00  |  |

|                                         |         |         |  |
|-----------------------------------------|---------|---------|--|
| Scan Range-937-1876; Pix Range-934-1869 |         |         |  |
| Number of GCPs                          | 1       |         |  |
| Location Error(Km)                      |         |         |  |
| Along(Mean,Dir)                         | 9.27    | N       |  |
| Across(Mean,Dir)                        | -11.97  | 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