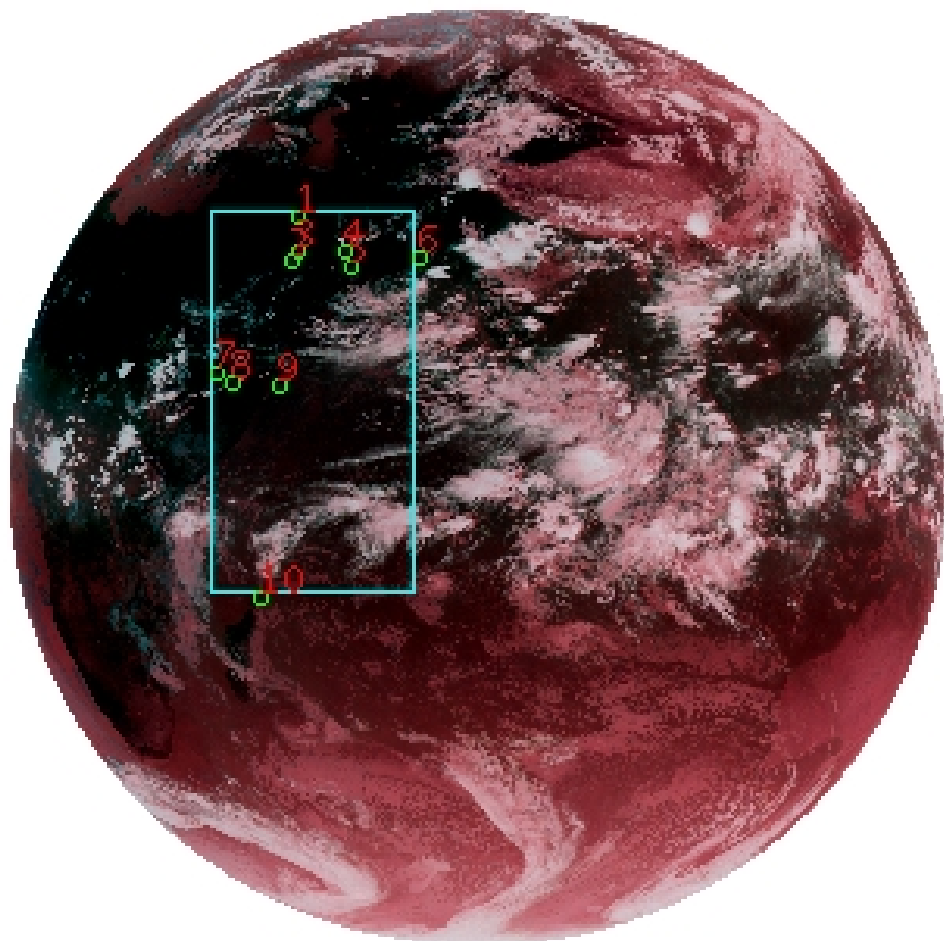


# DQE Report: Location Accuracy of INSAT-3DR-IMG STANDARD (FULL DISK) Product 3RIMG\_23JUN2020\_1215

Satellite INSAT-3DR No Of Bands 6 Product Type STANDARD  
 Sensor IMG LvOfProcess L1B Selected Band 2-TIR1  
 DOP/Time 23-06-20/24:15 Station ID BES Field View(deg) 18.006  
 Res(Y,X) [Km] (4.0,4.0) Res(Y,X) [uRad] (112.0,112.0)

(81.042N,-7.157W)

(81.042N,155.157E)



(-81.042S,-7.157W)

(-81.042S,155.157E)

GCP Distribution overview for 3RIMG23JUN20201215L1BSTD

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

GCP Coverage(%) 38.88 (N-S) 21.04 (E-W)

Location Error(E)

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

## Location Error (In IR Pixels)

|        | Mean   | Direction | Stddev | RMS   |
|--------|--------|-----------|--------|-------|
| Along  | 1.988  | N         | 1.245  | 2.345 |
| Across | -1.873 | W         | 1.197  | 2.223 |

## Scale (Km)

|         | Pixel Size | Stddev | %variation |
|---------|------------|--------|------------|
| Average | 4.486      | 0.433  | 12.145     |
| Along   | 4.499      | 0.584  | 12.470     |
| Across  | 6.029      | 7.343  | 50.737     |

## Internal Distortion (in IR Pixels)

|        | PeakToPeak | Mean  | Stddev | RMS   |
|--------|------------|-------|--------|-------|
| Along  | 2.970      | 0.210 | 1.00   | 1.020 |
| Across | 3.253      | 1.071 | 1.05   | 1.501 |

## Attitude Residuals (Deg)

| Pitch    | Roll     | Yaw     |
|----------|----------|---------|
| -0.03145 | -0.02501 | 0.19223 |

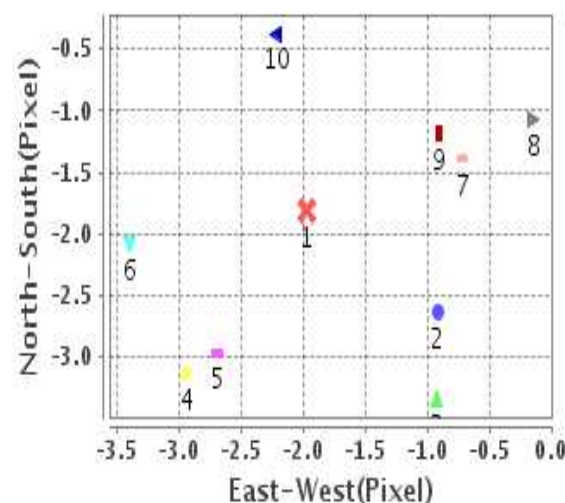
## Reference Used

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

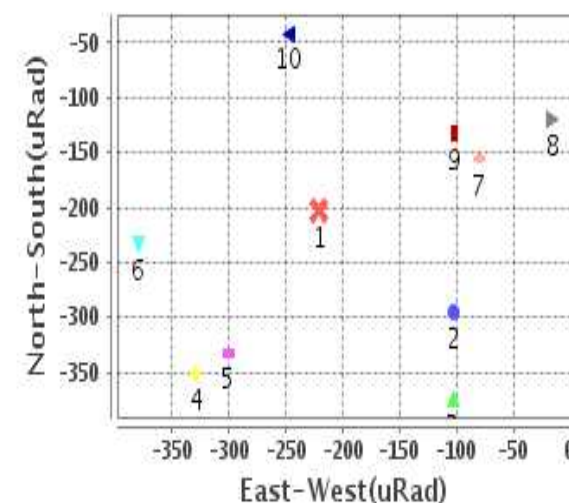
## Radial Error (in IR Pixels)

|      |       |
|------|-------|
| Mean | 2.934 |
| Min  | 1.027 |
| Max  | 4.662 |
| CE90 | 4.652 |

## Location Error For GCPs(Pixel)



## Location Error For GCPs(uRad)



Detailed Product Information

Ancillary Info

|                   |               |                           |            |
|-------------------|---------------|---------------------------|------------|
| Satellite         | INSAT-3DR     | Generation Date           | 23-06-20   |
| Sensor            | IMG           | DQE Date                  | 24-06-2020 |
| PassType          | NONE          | Aquisition Date           | 23-06-20   |
| Imaging Mode      | FULL_FRAME    | Aquisition Time(GMT)      | 24:15      |
| 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)   | 74.0       |
| LvlOfProcessing   | STANDARD      | Predicted Center Lat(deg) | -999.99    |
| DP JobId          | 3RIMG_23JUN20 | Predicted Center Lon(deg) | -999.99    |
| ProductCode       | NONE          |                           |            |
| Field View(deg)   | 18.006        |                           |            |

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)   | 74.0    |
| 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) | -7.157  |
| SW_Lat(deg) | -81.042 |
| SW_Lon(deg) | -7.157  |
| NE_Lat(deg) | 81.042  |
| NE_Lon(deg) | 155.157 |
| SE_Lat(deg) | -81.042 |
| SE_Lon(deg) | 155.157 |

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 : 3RIMG23JUN20201215L1BSTD**

(-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

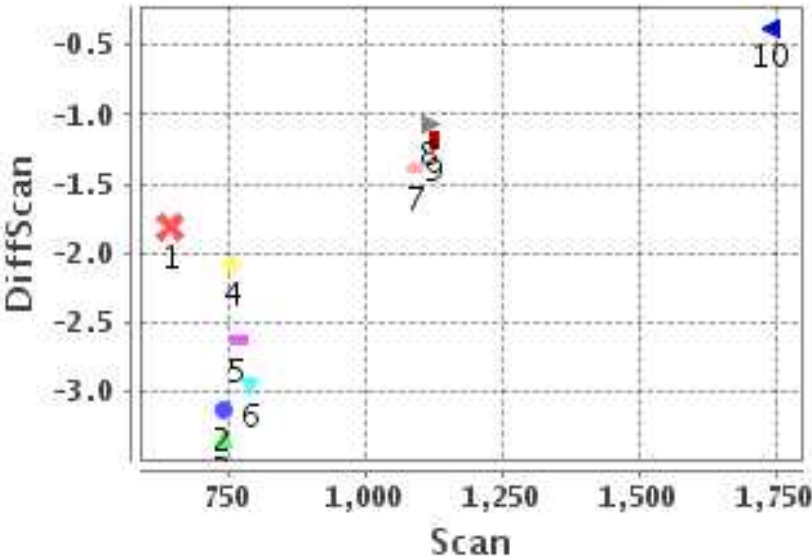
Image Width (pixels) : 2805      Image Height (pixels) : 2816      No of GCPs : 10

|                 | Mean  | StdDev | Min   | Max     | Coverage(in %) |
|-----------------|-------|--------|-------|---------|----------------|
| <b>GCP Scan</b> | 952.7 | 312.8  | 645.8 | 1740.50 | 38.88 (N-S)    |
| <b>GCP Pix</b>  | 871.6 | 165.6  | 632.2 | 1222.50 | 21.04 (E-W)    |

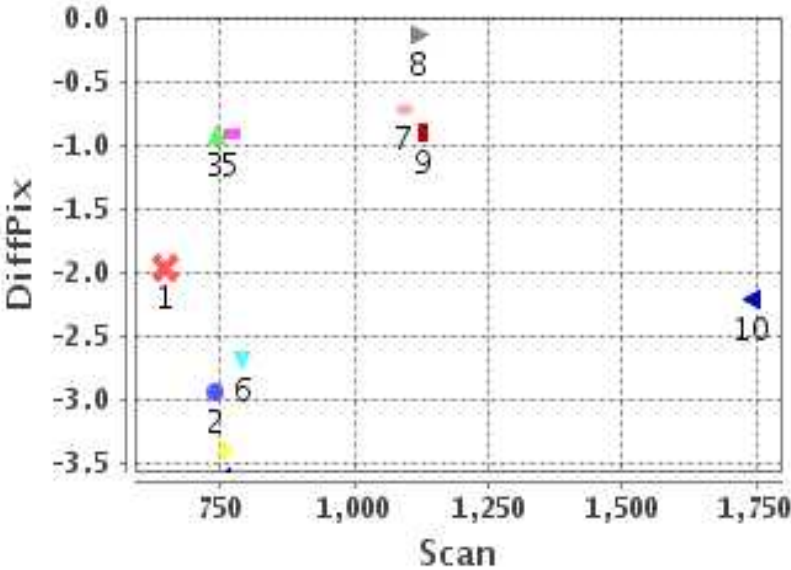
### Identified Control Point details : ( Differences are Reference - Product )

| No | Scan   | Pix    | DiffScan (line) | DiffPix (pixel) | DifLat (Km) | Dir | DifLon (Km) | Dir | Status   |
|----|--------|--------|-----------------|-----------------|-------------|-----|-------------|-----|----------|
| 1  | 645.8  | 864.5  | -1.8            | -1.97           | 5.840       | N   | 9.521       | W   | Accepted |
| 2  | 769.5  | 850.2  | -2.6            | -0.92           | 11.110      | N   | 5.816       | W   | Accepted |
| 3  | 742.5  | 872.0  | -3.3            | -0.92           | 15.048      | N   | 7.433       | W   | Accepted |
| 4  | 741.5  | 1002.8 | -3.1            | -2.94           | 13.904      | N   | 12.425      | W   | Accepted |
| 5  | 791.2  | 1023.2 | -3.0            | -2.69           | 13.702      | N   | 12.592      | W   | Accepted |
| 6  | 758.5  | 1222.5 | -2.1            | -3.39           | 7.766       | N   | 13.698      | W   | Accepted |
| 7  | 1091.5 | 632.2  | -1.4            | -0.72           | 3.845       | N   | 2.951       | W   | Accepted |
| 8  | 1119.0 | 681.2  | -1.1            | -0.14           | 4.857       | N   | 0.488       | E   | Accepted |
| 9  | 1127.2 | 810.8  | -1.2            | -0.90           | 3.997       | N   | 0.950       | W   | Accepted |
| 10 | 1740.5 | 757.0  | -0.4            | -2.21           | 0.559       | S   | 10.021      | W   | Accepted |

Error(Pixels) Vs. GCPScan



Error(Pixels) Vs. GCPScan



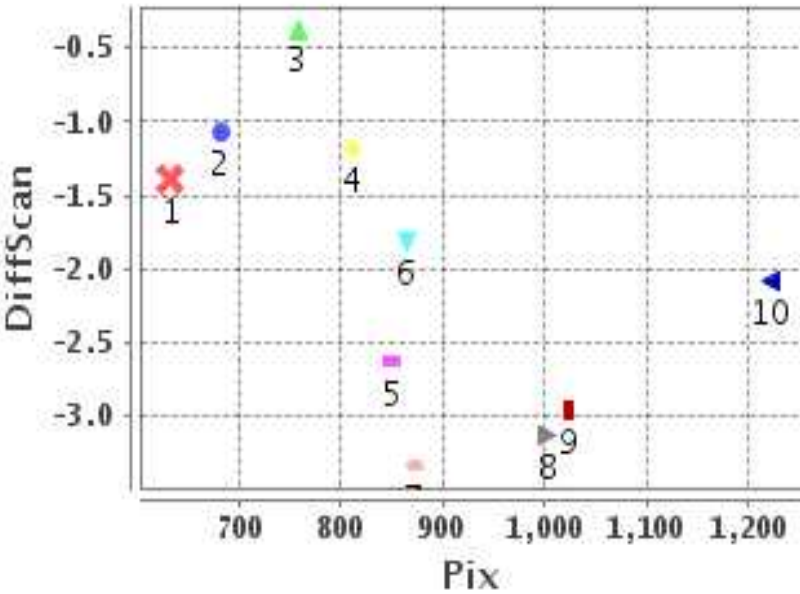
Number Of Points

|       |   |
|-------|---|
| North | 9 |
| South | 1 |
| East  | 1 |
| West  | 9 |

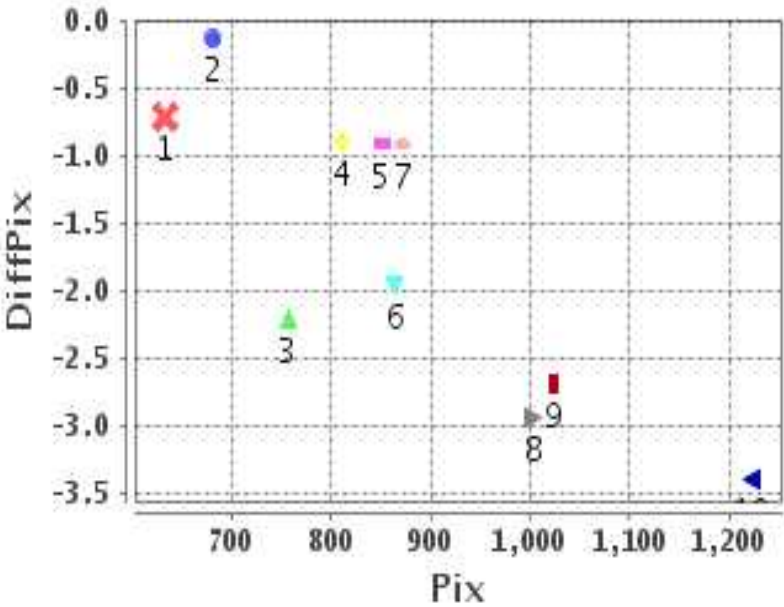
Radial Error ( Km )

|      |       |
|------|-------|
| Mean | 2.934 |
| Min  | 1.027 |
| Max  | 4.662 |
| CE90 | 4.652 |

Error(Pixels) Vs. GCPPix



Error(Pixels) Vs. GCPPix



Location Accuracy

|               | Mean   | StdDev | RMS   | Dir | * MinRMS | * MaxRMS |
|---------------|--------|--------|-------|-----|----------|----------|
| Along( Km )   | 1.988  | 1.245  | 2.345 | N   | 2.130    | 2.472    |
| Across ( Km ) | -1.873 | 1.197  | 2.223 | W   | 2.046    | 2.343    |

Block-Wise Geo location Error Statistics

Location Accuracy,Scale,ID

|                                   |         |       |  |
|-----------------------------------|---------|-------|--|
| Scan Range-0-937; Pix Range-0-934 |         |       |  |
| Number of GCPs                    | 3       |       |  |
| Location Error(Km)                |         |       |  |
| Along(Mean,Dir)                   | 10.6667 | N     |  |
| Across(Mean,Dir)                  | -7.59   | W     |  |
| Scale(Km)                         |         |       |  |
| Average Scale (Mean,%Variation)   | 5.12    | 28.06 |  |
| Internal Distortion(Pixel)        |         |       |  |
| Along(Mean,Stddev)                | 1.18    | 0.35  |  |
| Across(Mean,Stddev)               | 0.53    | 0.52  |  |

|                                      |             |       |  |
|--------------------------------------|-------------|-------|--|
| Scan Range-0-937; Pix Range-934-1869 |             |       |  |
| Number of GCPs                       | 3           |       |  |
| Location Error(Km)                   |             |       |  |
| Along(Mean,Dir)                      | 11.78670000 | N     |  |
| Across(Mean,Dir)                     | -12.90      | W     |  |
| Scale(Km)                            |             |       |  |
| Average Scale (Mean,%Variation)      | 4.69        | 17.26 |  |
| Internal Distortion(Pixel)           |             |       |  |
| Along(Mean,Stddev)                   | -0.60       | 0.44  |  |
| Across(Mean,Stddev)                  | 0.10        | 0.35  |  |

|                                       |         |          |  |
|---------------------------------------|---------|----------|--|
| 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                       | 4     |       |  |
| Location Error(Km)                   |       |       |  |
| Along(Mean,Dir)                      | 3.035 | N     |  |
| Across(Mean,Dir)                     | -3.36 | W     |  |
| Scale(Km)                            |       |       |  |
| Average Scale (Mean,%Variation)      | 4.41  | 10.21 |  |
| Internal Distortion(Pixel)           |       |       |  |
| Along(Mean,Stddev)                   | -0.51 | 0.36  |  |
| Across(Mean,Stddev)                  | 0.37  | 0.86  |  |

|                                         |         |          |  |
|-----------------------------------------|---------|----------|--|
| Scan Range-937-1876; 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-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