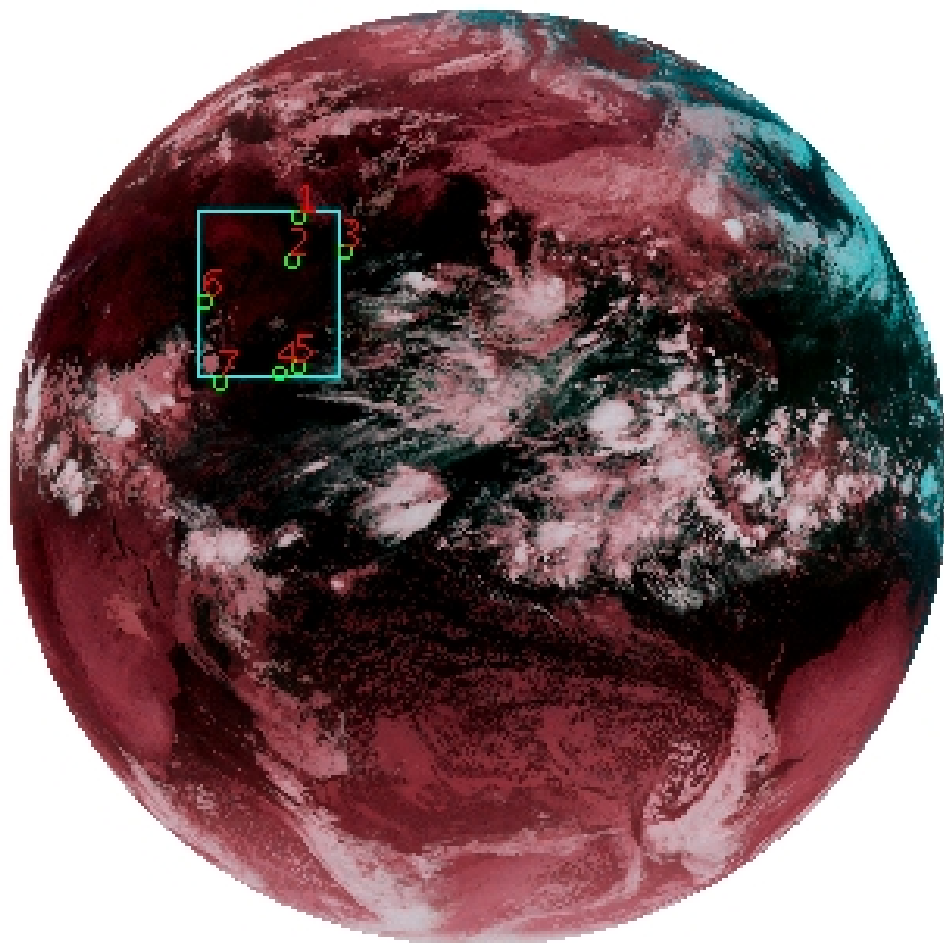


# DQE Report: Location Accuracy of INSAT-3DR-IMG STANDARD (FULL DISK) Product 3RIMG\_21JUN2020\_2145

Satellite INSAT-3DR No Of Bands 6 Product Type STANDARD  
 Sensor IMG LvlOfProcess L1B Selected Band 2-TIR1  
 DOP/Time 21-06-20/21:45 Station ID BES Field View(deg) 17.99  
 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 3RIMG21JUN20202145L1BSTD

Image Width: 2805 Image Height: 2816 No Of GCPs: 7

GCP Coverage(%) 16.91 (N-S) 14.44 (E-W)

Location Error(E)

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

## Location Error (In IR Pixels)

|        | Mean   | Direction | Stddev | RMS   |
|--------|--------|-----------|--------|-------|
| Along  | 2.311  | N         | 1.098  | 2.558 |
| Across | -3.811 | W         | 0.880  | 3.911 |

## Scale (Km)

|         | Pixel Size | Stddev | %variation |
|---------|------------|--------|------------|
| Average | 4.634      | 0.395  | 15.855     |
| Along   | 4.655      | 0.288  | 16.366     |
| Across  | 4.838      | 0.155  | 20.943     |

## Internal Distortion (in IR Pixels)

|        | PeakToPeak | Mean   | Stddev | RMS   |
|--------|------------|--------|--------|-------|
| Along  | 2.375      | -0.190 | 0.88   | 0.903 |
| Across | 2.442      | 0.898  | 0.92   | 1.285 |

## Attitude Residuals (Deg)

| Pitch    | Roll     | Yaw     |
|----------|----------|---------|
| -0.04296 | -0.02617 | 0.15314 |

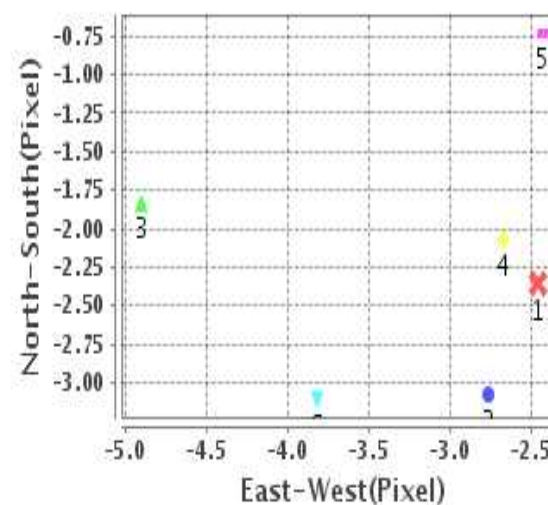
## Reference Used

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

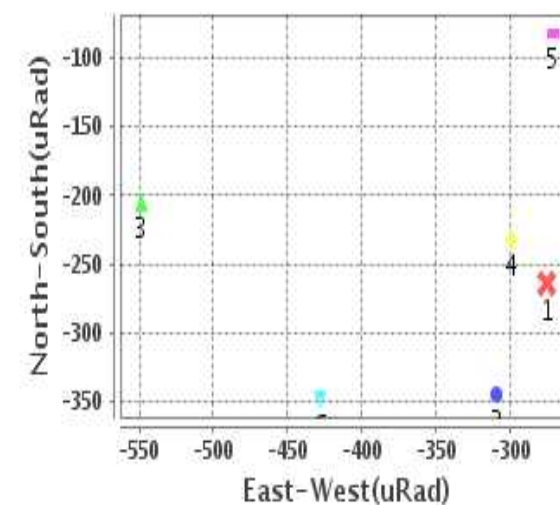
## Radial Error (in IR Pixels)

|      |       |
|------|-------|
| Mean | 4.515 |
| Min  | 2.512 |
| Max  | 5.739 |
| CE90 | 5.644 |

## Location Error For GCPs(Pixel)



## Location Error For GCPs(uRad)



Detailed Product Information

Ancillary Info

|                   |               |                           |            |
|-------------------|---------------|---------------------------|------------|
| Satellite         | INSAT-3DR     | Generation Date           | 22-06-20   |
| Sensor            | IMG           | DQE Date                  | 22-06-2020 |
| PassType          | NONE          | Aquisition Date           | 21-06-20   |
| Imaging Mode      | FULL_FRAME    | Aquisition Time(GMT)      | 21:45      |
| 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_21JUN20 | Predicted Center Lon(deg) | -999.99    |
| ProductCode       | NONE          |                           |            |
| Field View(deg)   | 17.99         |                           |            |

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 : 3RIMG21JUN20202145L1BSTD**

(-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

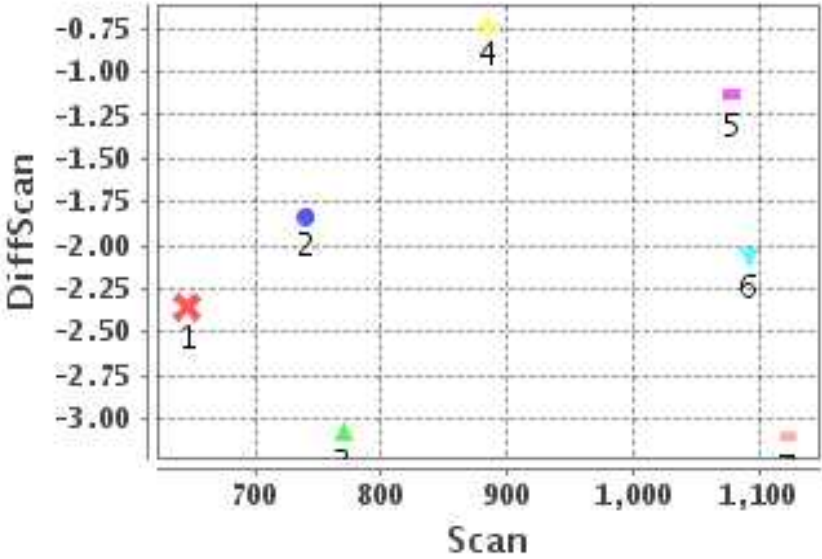
Image Width (pixels) : 2805      Image Height (pixels) : 2816      No of GCPs : 7

|                 | Mean  | StdDev | Min   | Max     | Coverage(in %) |
|-----------------|-------|--------|-------|---------|----------------|
| <b>GCP Scan</b> | 904.7 | 179.2  | 646.2 | 1122.50 | 16.91 (N-S)    |
| <b>GCP Pix</b>  | 806.2 | 130.3  | 599.8 | 1004.75 | 14.44 (E-W)    |

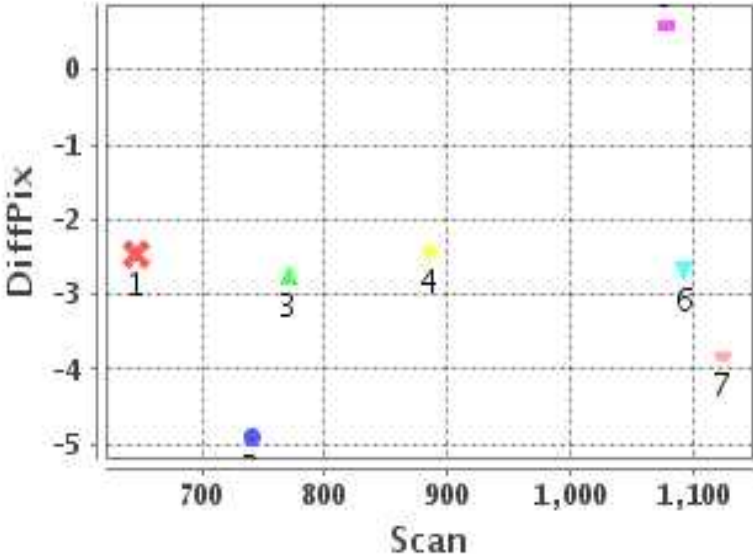
### Identified Control Point details : ( Differences are Reference - Product )

| No | Scan   | Pix    | DiffScan (line) | DiffPix (pixel) | DifLat (Km) | Dir | DifLon (Km) | Dir | Status   |
|----|--------|--------|-----------------|-----------------|-------------|-----|-------------|-----|----------|
| 1  | 646.2  | 865.0  | -2.4            | -2.46           | 12.221      | N   | 15.910      | W   | Accepted |
| 2  | 770.0  | 852.0  | -3.1            | -2.76           | 15.528      | N   | 16.908      | W   | Accepted |
| 3  | 740.2  | 1004.8 | -1.8            | -4.90           | 8.958       | N   | 20.722      | W   | Accepted |
| 4  | 1091.8 | 813.0  | -2.1            | -2.67           | 5.014       | N   | 12.084      | W   | Accepted |
| 5  | 1078.0 | 868.0  | -1.1            | 0.59            | 4.167       | N   | 2.627       | E   | Rejected |
| 6  | 884.2  | 599.8  | -0.7            | -2.42           | 2.504       | N   | 9.733       | W   | Accepted |
| 7  | 1122.5 | 640.8  | -3.1            | -3.82           | 11.228      | N   | 16.096      | W   | Accepted |

Error(Pixels) Vs. GCPScan



Error(Pixels) Vs. GCPScan



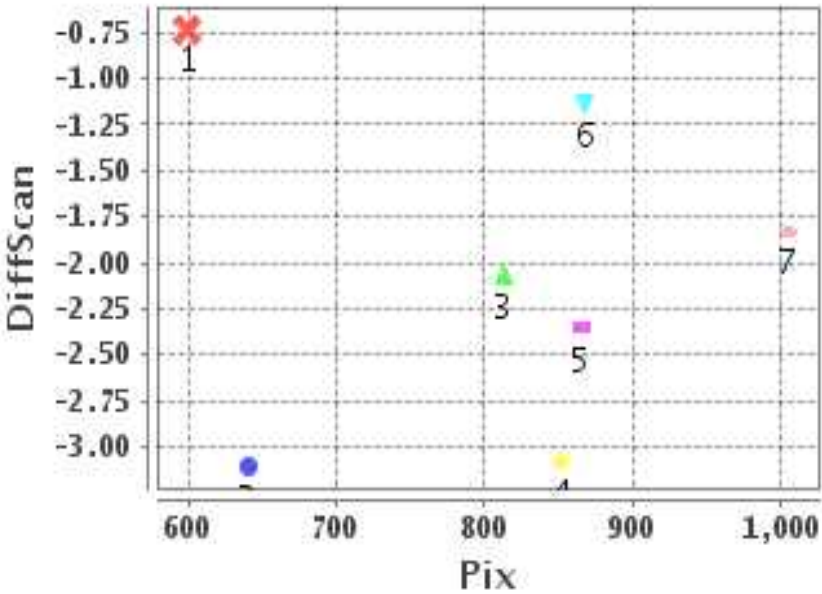
Number Of Points

|       |   |
|-------|---|
| North | 6 |
| South | 0 |
| East  | 0 |
| West  | 6 |

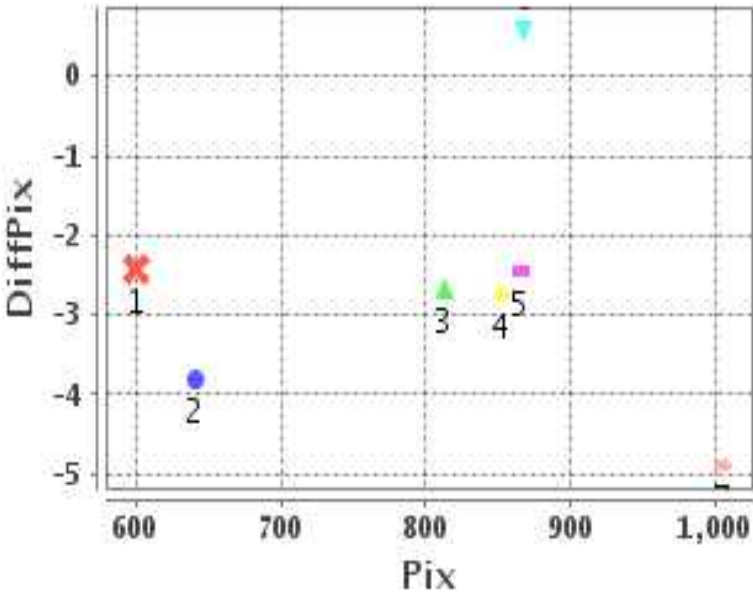
Radial Error ( Km )

|      |       |
|------|-------|
| Mean | 4.515 |
| Min  | 2.512 |
| Max  | 5.739 |
| CE90 | 5.644 |

Error(Pixels) Vs. GCPPix



Error(Pixels) Vs. GCPPix



Location Accuracy

|               | Mean   | StdDev | RMS   | Dir | * MinRMS | * MaxRMS |
|---------------|--------|--------|-------|-----|----------|----------|
| Along( Km )   | 2.311  | 1.098  | 2.558 | N   | 2.200    | 2.788    |
| Across ( Km ) | -3.811 | 0.880  | 3.911 | W   | 3.604    | 4.144    |

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)                   | 10.0867 | N     |  |
| Across(Mean,Dir)                  | -14.18  | W     |  |
| Scale(Km)                         |         |       |  |
| Average Scale (Mean,%Variation)   | 4.79    | 19.65 |  |
| Internal Distortion(Pixel)        |         |       |  |
| Along(Mean,Stddev)                | -0.45   | 1.17  |  |
| Across(Mean,Stddev)               | 0.19    | 0.15  |  |

|                                      |         |         |  |
|--------------------------------------|---------|---------|--|
| Scan Range-0-937; Pix Range-934-1869 |         |         |  |
| Number of GCPs                       | 1       |         |  |
| Location Error(Km)                   |         |         |  |
| Along(Mean,Dir)                      | 8.96    | N       |  |
| Across(Mean,Dir)                     | -20.72  | 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-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)                      | 8.12   | N     |  |
| Across(Mean,Dir)                     | -14.08 | W     |  |
| Scale(Km)                            |        |       |  |
| Average Scale (Mean,%Variation)      | 4.60   | 14.96 |  |
| Internal Distortion(Pixel)           |        |       |  |
| Along(Mean,Stddev)                   | 1.03   | 0.00  |  |
| Across(Mean,Stddev)                  | -1.15  | 0.00  |  |

|                                         |         |          |  |
|-----------------------------------------|---------|----------|--|
| 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