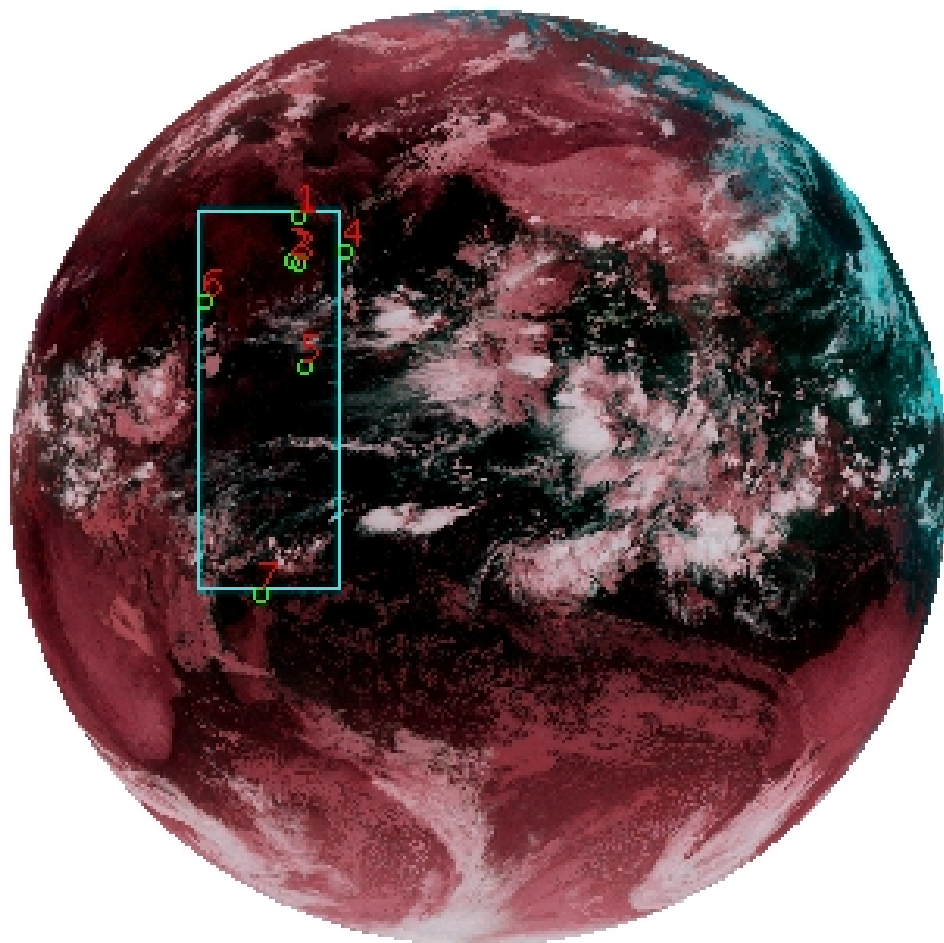


# DQE Report: Location Accuracy of INSAT-3DR-IMG STANDARD (FULL DISK) Product 3RIMG\_22JUN2020\_2145

Satellite INSAT-3DR No Of Bands 6 Product Type STANDARD  
 Sensor IMG LvlOfProcess L1B Selected Band 2-TIR1  
 DOP/Time 22-06-20/21:45 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 3RIMG22JUN20202145L1BSTD

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

GCP Coverage(%) 38.47 (N-S) 14.51 (E-W)

Location Error(E)

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

## Location Error (In IR Pixels)

|        | Mean   | Direction | Stddev | RMS   |
|--------|--------|-----------|--------|-------|
| Along  | 2.293  | N         | 1.691  | 2.849 |
| Across | -1.493 | W         | 1.763  | 2.310 |

## Scale (Km)

|         | Pixel Size | Stddev | %variation |
|---------|------------|--------|------------|
| Average | 4.638      | 0.486  | 15.956     |
| Along   | 4.607      | 0.541  | 15.182     |
| Across  | 5.006      | 1.110  | 25.142     |

## Internal Distortion (in IR Pixels)

|        | PeakToPeak | Mean   | Stddev | RMS   |
|--------|------------|--------|--------|-------|
| Along  | 3.551      | -0.127 | 1.22   | 1.230 |
| Across | 3.519      | 2.746  | 1.05   | 2.939 |

## Attitude Residuals (Deg)

| Pitch    | Roll     | Yaw     |
|----------|----------|---------|
| -0.05482 | -0.04720 | 0.46281 |

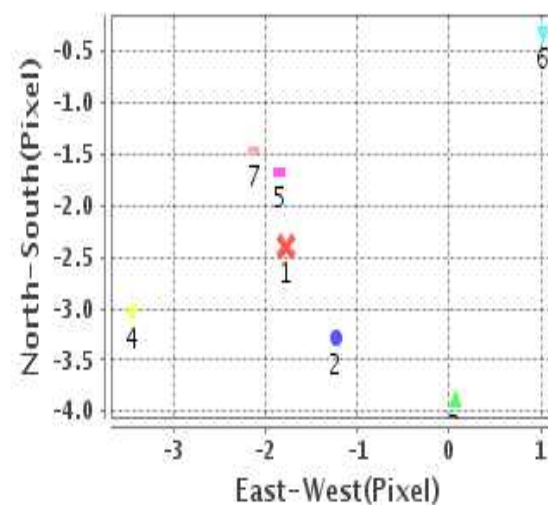
## Reference Used

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

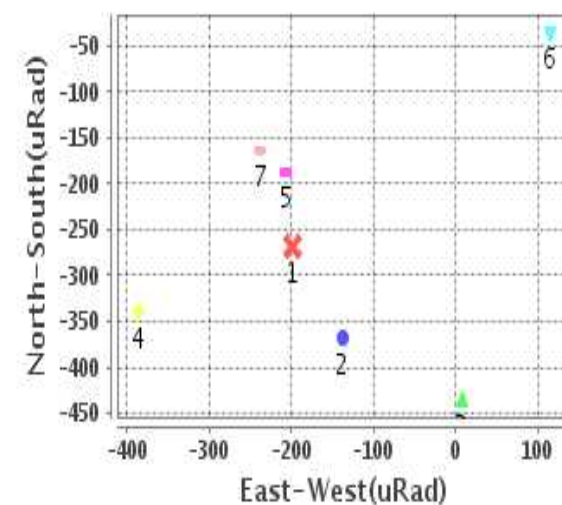
## Radial Error (in IR Pixels)

|      |       |
|------|-------|
| Mean | 3.423 |
| Min  | 1.800 |
| Max  | 5.352 |
| CE90 | 4.341 |

## 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                  | 23-06-2020 |
| PassType          | NONE          | Aquisition Date           | 22-06-20   |
| 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_22JUN20 | 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 :** 3RIMG22JUN20202145L1BSTD

(-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

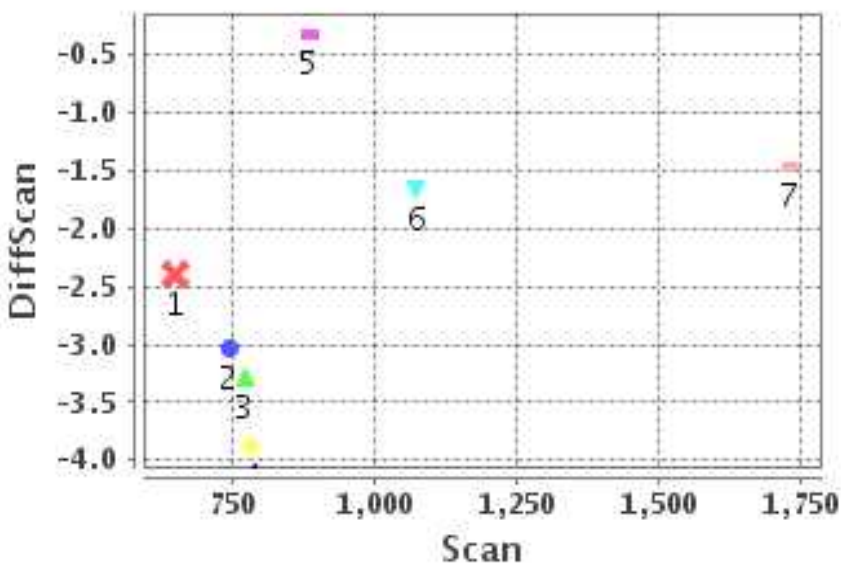
Image Width (pixels) : 2805      Image Height (pixels) : 2816      No of GCPs : 7

|          | Mean  | StdDev | Min   | Max     | Coverage(in %) |
|----------|-------|--------|-------|---------|----------------|
| GCP Scan | 946.3 | 342.9  | 646.2 | 1729.50 | 38.47 (N-S)    |
| GCP Pix  | 833.8 | 116.8  | 596.2 | 1003.25 | 14.51 (E-W)    |

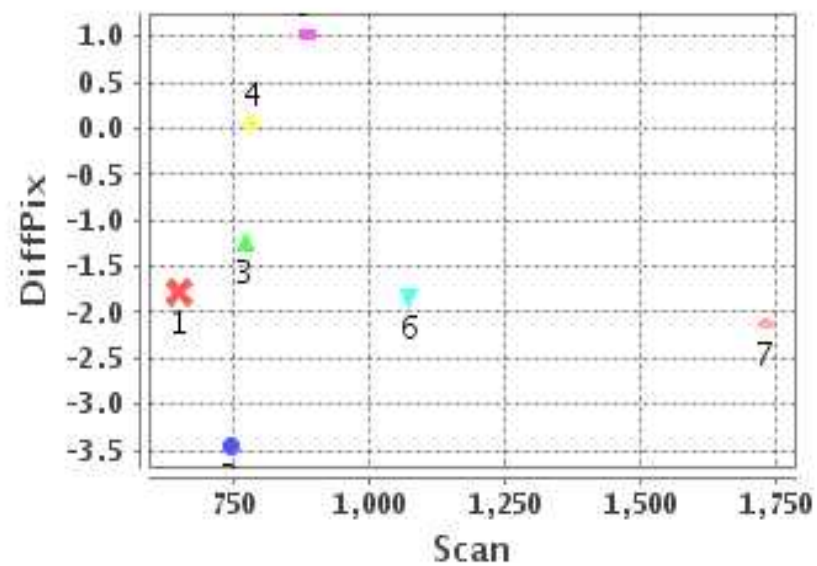
### Identified Control Point details : ( Differences are Reference - Product )

| No | Scan   | Pix    | DiffScan (line) | DiffPix (pixel) | DifLat (Km) | Dir | DifLon (Km) | Dir | Status   |
|----|--------|--------|-----------------|-----------------|-------------|-----|-------------|-----|----------|
| 1  | 646.2  | 864.2  | -2.4            | -1.78           | 12.477      | N   | 11.029      | W   | Accepted |
| 2  | 770.2  | 850.5  | -3.3            | -1.23           | 15.285      | N   | 7.103       | W   | Accepted |
| 3  | 781.2  | 867.2  | -3.9            | 0.07            | 17.207      | N   | 2.336       | W   | Accepted |
| 4  | 741.5  | 1003.2 | -3.0            | -3.45           | 13.414      | N   | 16.685      | W   | Accepted |
| 5  | 1071.5 | 890.5  | -1.7            | -1.85           | 4.850       | N   | 6.357       | W   | Accepted |
| 6  | 883.8  | 596.2  | -0.3            | 1.02            | 2.669       | S   | 7.926       | E   | Accepted |
| 7  | 1729.5 | 764.8  | -1.5            | -2.12           | 3.635       | N   | 6.216       | W   | Accepted |

Error(Pixels) Vs. GCPScan



Error(Pixels) Vs. GCPScan



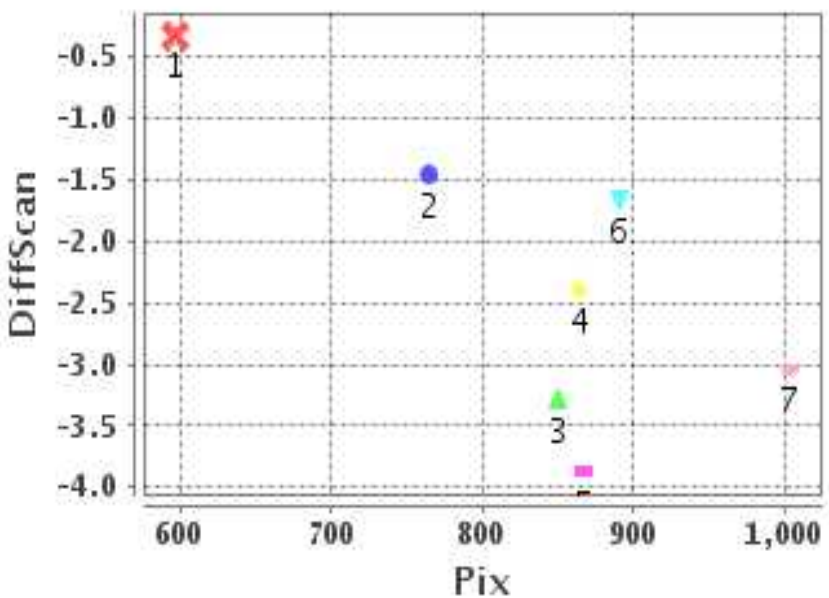
Number Of Points

|       |   |
|-------|---|
| North | 6 |
| South | 1 |
| East  | 1 |
| West  | 6 |

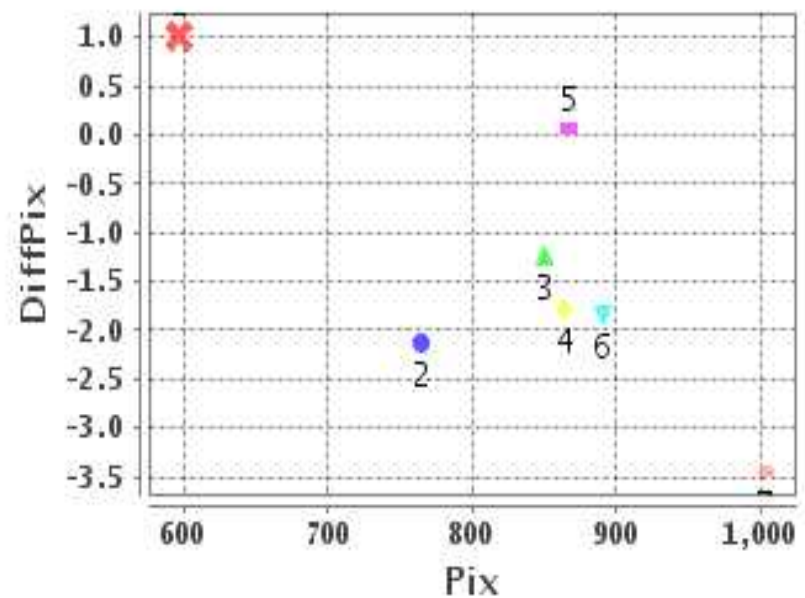
Radial Error ( Km )

|      |       |
|------|-------|
| Mean | 3.423 |
| Min  | 1.800 |
| Max  | 5.352 |
| CE90 | 4.341 |

Error(Pixels) Vs. GCPPix



Error(Pixels) Vs. GCPPix



Location Accuracy

|               | Mean   | StdDev | RMS   | Dir | * MinRMS | * MaxRMS |
|---------------|--------|--------|-------|-----|----------|----------|
| Along( Km )   | 2.293  | 1.691  | 2.849 | N   | 2.527    | 3.065    |
| Across ( Km ) | -1.493 | 1.763  | 2.310 | W   | 1.824    | 2.484    |

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)                   | 10.5775 | N     |  |
| Across(Mean,Dir)                  | -3.14   | W     |  |
| Scale(Km)                         |         |       |  |
| Average Scale (Mean,%Variation)   | 5.00    | 25.01 |  |
| Internal Distortion(Pixel)        |         |       |  |
| Along(Mean,Stddev)                | 0.09    | 1.55  |  |
| Across(Mean,Stddev)               | 2.00    | 0.77  |  |

|                                      |         |         |  |
|--------------------------------------|---------|---------|--|
| Scan Range-0-937; Pix Range-934-1869 |         |         |  |
| Number of GCPs                       | 1       |         |  |
| Location Error(Km)                   |         |         |  |
| Along(Mean,Dir)                      | 13.41   | N       |  |
| Across(Mean,Dir)                     | -16.68  | 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)                      | 4.245 | N    |  |
| Across(Mean,Dir)                     | -6.29 | W    |  |
| Scale(Km)                            |       |      |  |
| Average Scale (Mean,%Variation)      | 3.99  | 0.37 |  |
| Internal Distortion(Pixel)           |       |      |  |
| Along(Mean,Stddev)                   | -0.21 | 0.00 |  |
| Across(Mean,Stddev)                  | -0.27 | 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