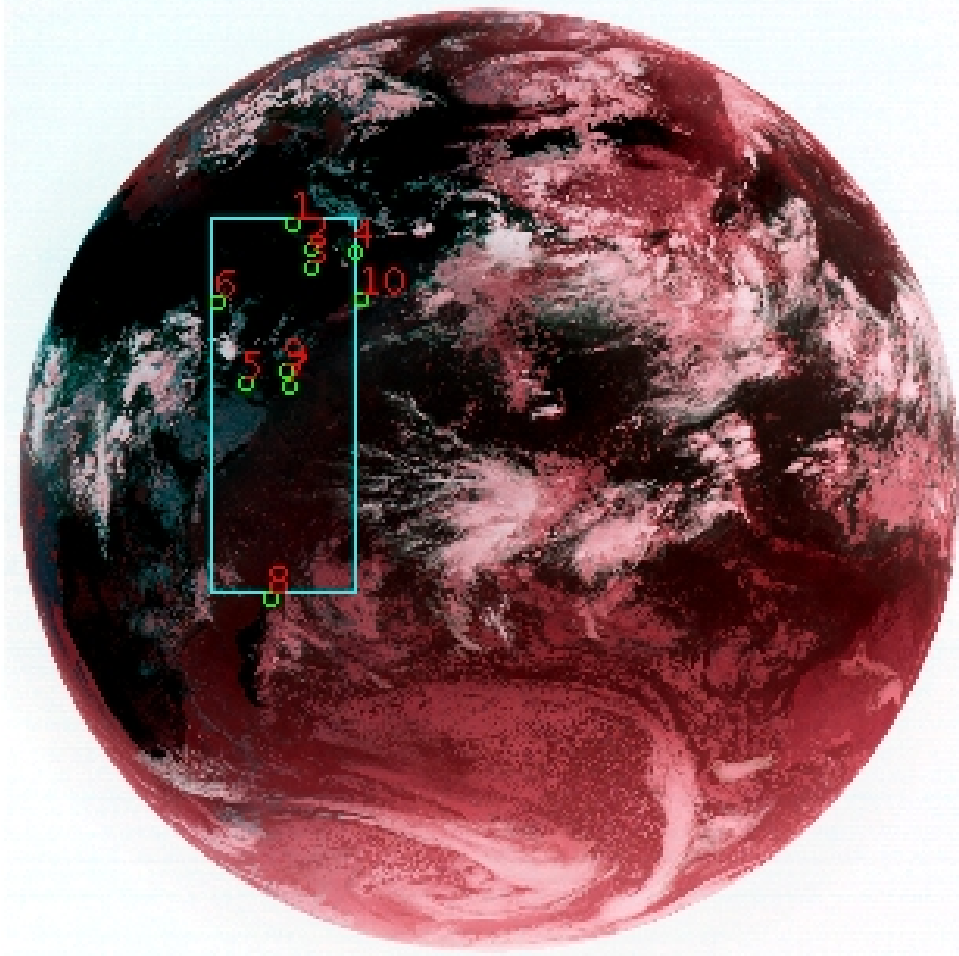


# DQE Report: Location Accuracy of INSAT-3DR-IMG STANDARD (FULL DISK) Product 3RIMG\_24JUL2018\_1214

**Satellite** INSAT-3DR    **No Of Bands** 6    **Product Type** STANDARD  
**Sensor** IMG    **LvlOfProcess** L1B    **Selected Band** 2-TIR1  
**DOP/Time** 24-07-18/24:14    **Station ID** BES    **Field View(deg)** 18.006  
**Res(Y,X) [Km]** (4.0,4.0)    **Res(Y,X) [uRad]** (112.0,112.0)

(80.813N,-7.248W)

(80.813N,155.165E)



(-81.233S,-7.248W)

(-81.233S,155.165E)

GCP Distribution overview for 3RIMG24JUL20181214L1BDQE

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

**GCP Coverage(%)** 38.57    **(N-S)** 14.88    **(E-W)**

## Location Error(E)

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

## Location Error (In IR Pixels)

|        | Mean    | Direction | Stddev | RMS    |
|--------|---------|-----------|--------|--------|
| Along  | 9.137   | N         | 1.893  | 9.331  |
| Across | -26.328 | W         | 2.725  | 26.469 |

## Scale (Km)

|         | Pixel Size | Stddev | %variation |
|---------|------------|--------|------------|
| Average | 4.530      | 0.479  | 13.252     |
| Along   | 4.458      | 0.511  | 11.444     |
| Across  | 6.211      | 5.154  | 55.267     |

## Internal Distortion (in IR Pixels)

|        | PeakToPeak | Mean   | Stddev | RMS   |
|--------|------------|--------|--------|-------|
| Along  | 2.465      | 0.309  | 0.73   | 0.792 |
| Across | 2.667      | -1.424 | 0.82   | 1.643 |

## Attitude Residuals (Deg)

| Pitch    | Roll     | Yaw     |
|----------|----------|---------|
| -0.10541 | -0.06803 | 0.13791 |

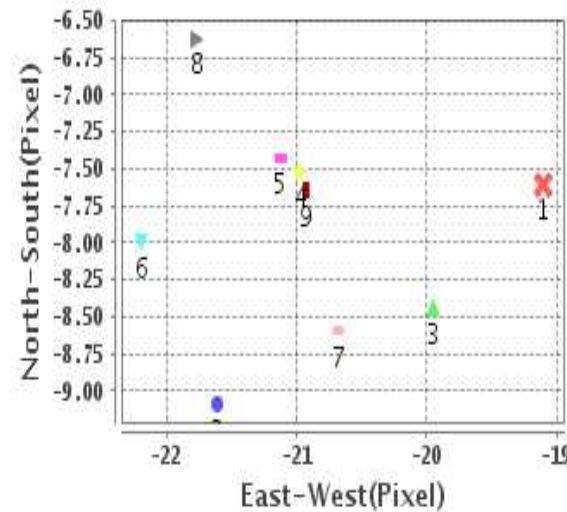
## Reference Used

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

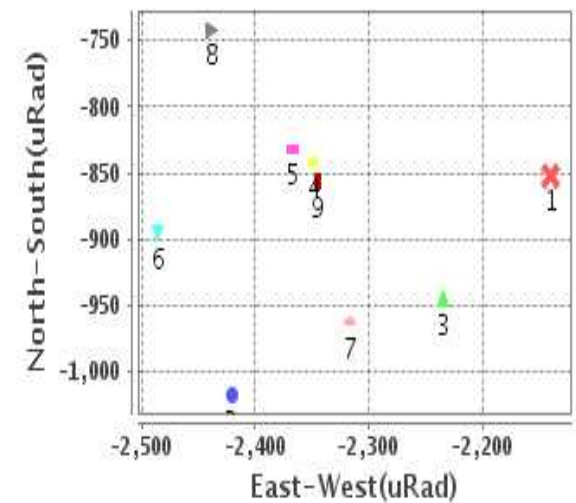
## Radial Error (in IR Pixels)

|             |        |
|-------------|--------|
| <b>Mean</b> | 27.909 |
| <b>Min</b>  | 24.715 |
| <b>Max</b>  | 34.038 |
| <b>CE90</b> | 30.856 |

## Location Error For GCPs(Pixel)



## Location Error For GCPs(uRad)



## Detailed Product Information

### Ancillary Info

|                          |               |                                  |            |
|--------------------------|---------------|----------------------------------|------------|
| <b>Satellite</b>         | INSAT-3DR     | <b>Generation Date</b>           | 24-07-18   |
| <b>Sensor</b>            | IMG           | <b>DQE Date</b>                  | 26-07-2018 |
| <b>PassType</b>          | NONE          | <b>Aquisition Date</b>           | 24-07-18   |
| <b>Imaging Mode</b>      | FULL_FRAME    | <b>Aquisition Time(GMT)</b>      | 24:14      |
| <b>Sat Altitude(m)</b>   | 3.6E7         | <b>Nominal Altitude(Km)</b>      | 3.6E7      |
| <b>Station</b>           | BES           | <b>Predicted Altitude(Km)</b>    | -999.99    |
| <b>Sat Location(deg)</b> | -999.99 E     | <b>Nominal Center Lat(deg)</b>   | 0.0        |
| <b>Format</b>            | hdf5-1.8.8    | <b>Nominal Center Lon(deg)</b>   | 74.0       |
| <b>LvlOfProcessing</b>   | STANDARD      | <b>Predicted Center Lat(deg)</b> | -999.99    |
| <b>DP JobId</b>          | 3RIMG_24JUL20 | <b>Predicted Center Lon(deg)</b> | -999.99    |
| <b>ProductCode</b>       | NONE          |                                  |            |
| <b>Field View(deg)</b>   | 18.006        |                                  |            |

### Projection Parameters

|                                      |          |
|--------------------------------------|----------|
| <b>Projection</b>                    | None     |
| <b>Ellipsoid</b>                     | WGS_84   |
| <b>Datum</b>                         | WGS_84   |
| <b>Zone</b>                          | NotAvail |
| <b>Semi_Major_Axis(Km)</b>           | 6378.14  |
| <b>Semi_Minor_Axis(Km)</b>           | 6356.75  |
| <b>Standard_Parallel1(deg)</b>       | -999.99  |
| <b>Standard_Parallel2(deg)</b>       | -999.99  |
| <b>Projection_Origin_Lon(deg)</b>    | -999.99  |
| <b>Projection_Origin_Lat(deg)</b>    | -999.99  |
| <b>Projection_False_Easting(Km)</b>  | -999.99  |
| <b>Projection_False_Northing(Km)</b> | -999.99  |

### Scene Center Desc

|                          |         |
|--------------------------|---------|
| <b>Centre Lat(deg)</b>   | -0.21   |
| <b>Center Lon(deg)</b>   | 73.958  |
| <b>Centre Roll(deg)</b>  | -999.0  |
| <b>Centre Pitch(deg)</b> | -999.0  |
| <b>Center Yaw(deg)</b>   | -999.0  |
| <b>SunElevation(deg)</b> | -999.99 |
| <b>SunAzimuth(deg)</b>   | -999.99 |
| <b>SatElevation(deg)</b> | -999.99 |
| <b>SatAzimuth(deg)</b>   | -999.99 |

### Scene Corner Desc

|                    |         |
|--------------------|---------|
| <b>NW_Lat(deg)</b> | 80.813  |
| <b>NW_Lon(deg)</b> | -7.248  |
| <b>SW_Lat(deg)</b> | -81.233 |
| <b>SW_Lon(deg)</b> | -7.248  |
| <b>NE_Lat(deg)</b> | 80.813  |
| <b>NE_Lon(deg)</b> | 155.165 |
| <b>SE_Lat(deg)</b> | -81.233 |
| <b>SE_Lon(deg)</b> | 155.165 |

### Band Wise Details

|             | Res_AL(Km) | Res_AX(Km) | Image Height | Image Width |
|-------------|------------|------------|--------------|-------------|
| <b>MIR</b>  | 4.0        | 4.0        | 2816         | 2805        |
| <b>SWIR</b> | 1.0        | 1.0        | 11264        | 11220       |
| <b>TIR1</b> | 4.0        | 4.0        | 2816         | 2805        |
| <b>TIR2</b> | 4.0        | 4.0        | 2816         | 2805        |
| <b>VIS</b>  | 1.0        | 1.0        | 11264        | 11220       |
| <b>WV</b>   | 8.0        | 8.0        | 1408         | 1402        |

## GDQE Computation Base

|                   |                |                                      |        |                               |            |                            |           |
|-------------------|----------------|--------------------------------------|--------|-------------------------------|------------|----------------------------|-----------|
| <b>Projection</b> | MER            | <b>Wildpoint Rejection Threshold</b> | 2.60   | <b>SemiMajorAxis(m)</b>       | 6378137.00 | <b>Mode Of Computation</b> | grid      |
| <b>Ellipsoid</b>  | WGS_84         |                                      | -sigma | <b>SemiMinorAxis(m)</b>       | 6356752.31 | <b>Used Reference Type</b> | REFINSREF |
| <b>Datum</b>      | WGS_84         | <b>Unit</b>                          | pixels | <b>Standardparallel1(deg)</b> | 17.0       |                            |           |
| <b>Zone</b>       | Not Applicable |                                      |        | <b>Standardparallel2(deg)</b> | 17.0       |                            |           |

\* -999.99 : Not Applicable/Not Available

## References

**JobId : 3RIMG24JUL20181214L1BDQE**

(-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

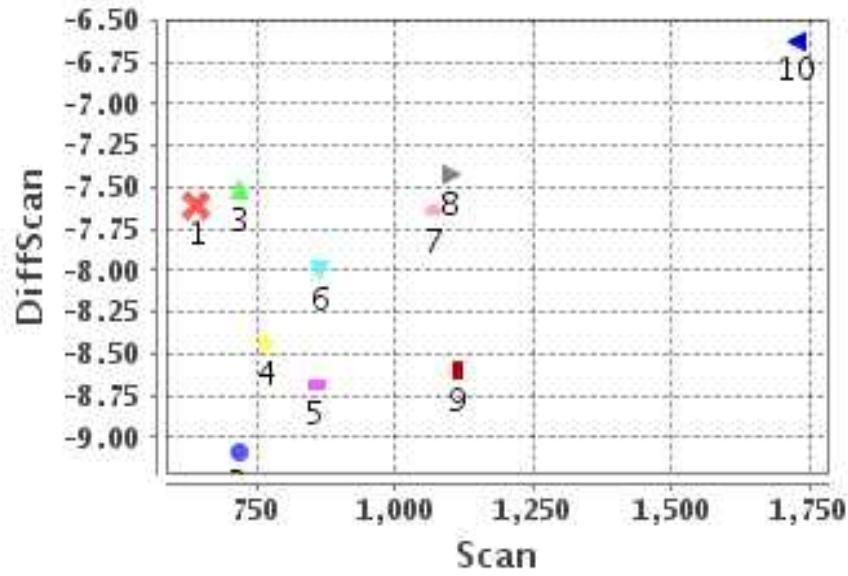
Image Width (pixels) : 2805      Image Height (pixels) : 2816      No of GCPs : 10

|                 | Mean  | StdDev | Min   | Max     | Coverage(in %) |
|-----------------|-------|--------|-------|---------|----------------|
| <b>GCP Scan</b> | 957.5 | 303.2  | 640.5 | 1726.75 | 38.57 (N-S)    |
| <b>GCP Pix</b>  | 827.5 | 121.8  | 605.2 | 1022.50 | 14.88 (E-W)    |

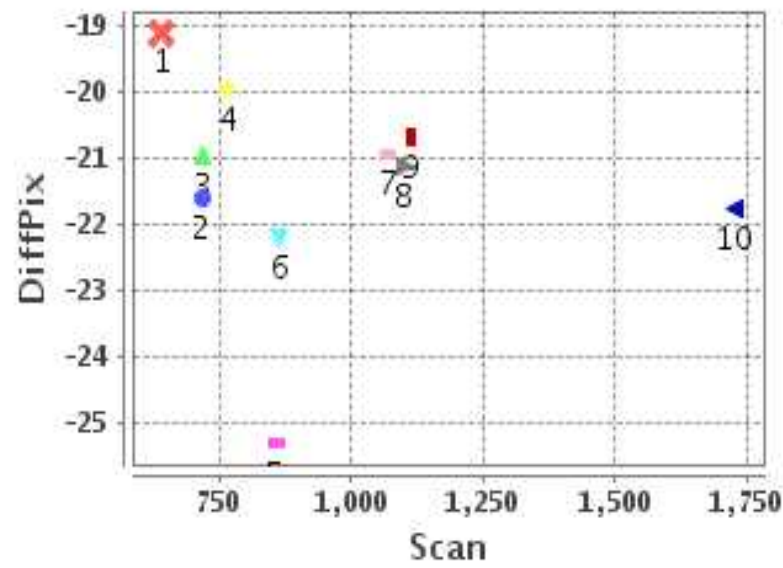
### Identified Control Point details : ( Differences are Reference - Product )

| No | Scan   | Pix    | DiffScan (line) | DiffPix (pixel) | DifLat (Km) | Dir | DifLon (Km) | Dir | Status   |
|----|--------|--------|-----------------|-----------------|-------------|-----|-------------|-----|----------|
| 1  | 640.5  | 821.5  | -7.6            | -19.10          | 43.733      | N   | 110.403     | W   | Accepted |
| 2  | 716.2  | 873.5  | -9.1            | -21.61          | 48.978      | N   | 113.289     | W   | Accepted |
| 3  | 766.5  | 873.0  | -8.4            | -19.95          | 41.022      | N   | 103.499     | W   | Accepted |
| 4  | 720.0  | 1006.5 | -7.5            | -20.97          | 39.728      | N   | 101.030     | W   | Accepted |
| 5  | 1100.5 | 687.0  | -7.4            | -21.13          | 29.846      | N   | 103.868     | W   | Accepted |
| 6  | 864.5  | 605.2  | -8.0            | -22.19          | 38.810      | N   | 130.506     | W   | Accepted |
| 7  | 1112.5 | 815.2  | -8.6            | -20.68          | 33.736      | N   | 92.927      | W   | Accepted |
| 8  | 1726.8 | 761.2  | -6.6            | -21.77          | 23.286      | N   | 96.275      | W   | Accepted |
| 9  | 1070.8 | 809.0  | -7.6            | -20.93          | 29.782      | N   | 96.022      | W   | Accepted |
| 10 | 856.5  | 1022.5 | -8.7            | -25.32          | 37.981      | N   | 111.670     | W   | Rejected |

### Error(Pixels) Vs. GCPScan



### Error(Pixels) Vs. GCPScan



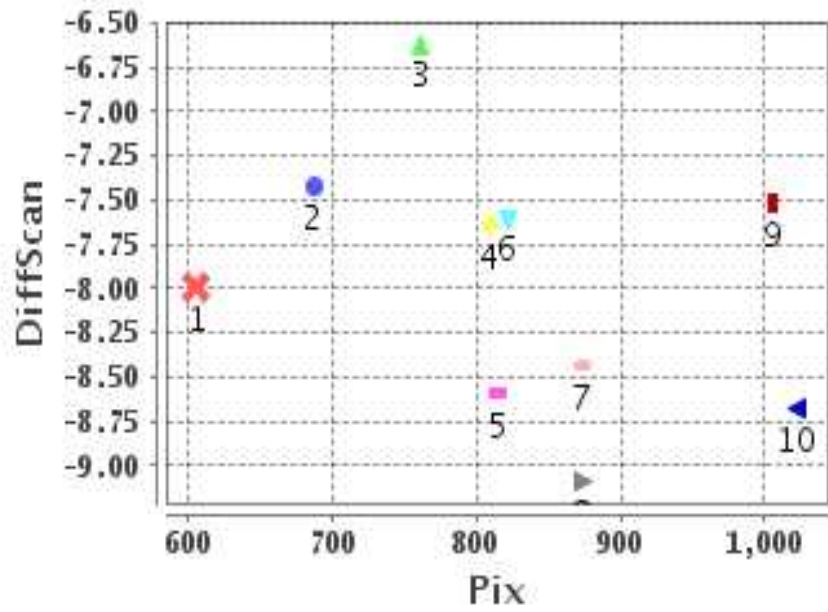
#### Number Of Points

|       |   |
|-------|---|
| North | 9 |
| South | 0 |
| East  | 0 |
| West  | 9 |

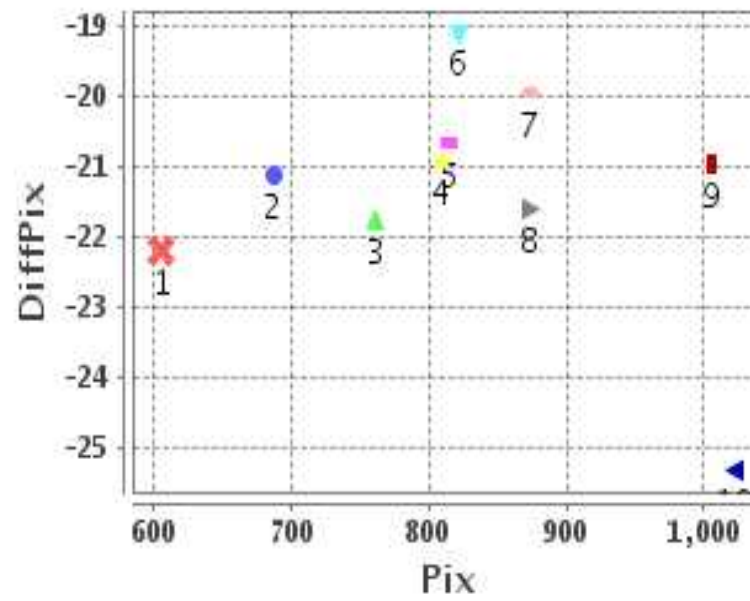
#### Radial Error ( Km )

|      |        |
|------|--------|
| Mean | 27.909 |
| Min  | 24.715 |
| Max  | 34.038 |
| CE90 | 30.856 |

### Error(Pixels) Vs. GCPPix



### Error(Pixels) Vs. GCPPix



#### Location Accuracy

|               | Mean    | StdDev | RMS    | Dir | * MinRMS | * MaxRMS |
|---------------|---------|--------|--------|-----|----------|----------|
| Along( Km )   | 9.137   | 1.893  | 9.331  | N   | 8.900    | 9.680    |
| Across ( Km ) | -26.328 | 2.725  | 26.469 | W   | 25.595   | 26.846   |

## Block-Wise Geo location Error Statistics

### Location Accuracy,Scale,ID

|  |         |       |  |
|--|---------|-------|--|
| <b>Scan Range-0-937; Pix Range-0-934</b> |         |       |  |
| Number of GCPs                           | 4       |       |  |
| <b>Location Error(Km)</b>                |         |       |  |
| Along(Mean,Dir)                          | 43.1325 | N     |  |
| Across(Mean,Dir)                         | -114.42 | W     |  |
| <b>Scale(Km)</b>                         |         |       |  |
| Average Scale (Mean,%Variation)          | 5.09    | 27.18 |  |
| <b>Internal Distortion(Pixel)</b>        |         |       |  |
| Along(Mean,Stddev)                       | 0.90    | 0.45  |  |
| Across(Mean,Stddev)                      | -1.97   | 1.04  |  |

|   |         |         |  |
|---|---------|---------|--|
| <b>Scan Range-0-937; Pix Range-934-1869</b> |         |         |  |
| Number of GCPs                              | 1       |         |  |
| <b>Location Error(Km)</b>                   |         |         |  |
| Along(Mean,Dir)                             | 39.73   | N       |  |
| Across(Mean,Dir)                            | -101.03 | W       |  |
| <b>Scale(Km)</b>                            |         |         |  |
| Average Scale (Mean,%Variation)             | -999.99 | -999.9  |  |
| <b>Internal Distortion(Pixel)</b>           |         |         |  |
| Along(Mean,Stddev)                          | -999.99 | -999.99 |  |
| Across(Mean,Stddev)                         | -999.99 | -999.99 |  |

|  |         |          |  |
|--|---------|----------|--|
| <b>Scan Range-0-937; Pix Range-1869-2805</b> |         |          |  |
| Number of GCPs                               | -999    |          |  |
| <b>Location Error(Km)</b>                    |         |          |  |
| Along(Mean,Dir)                              | -999.99 | NotAvail |  |
| Across(Mean,Dir)                             | -999.99 | NotAvail |  |
| <b>Scale(Km)</b>                             |         |          |  |
| Average Scale (Mean,%Variation)              | -999.99 | -999.9   |  |
| <b>Internal Distortion(Pixel)</b>            |         |          |  |
| Along(Mean,Stddev)                           | -999.99 | -999.99  |  |
| Across(Mean,Stddev)                          | -999.99 | -999.99  |  |

|   |         |      |  |
|---|---------|------|--|
| <b>Scan Range-937-1876; Pix Range-0-934</b> |         |      |  |
| Number of GCPs                              | 4       |      |  |
| <b>Location Error(Km)</b>                   |         |      |  |
| Along(Mean,Dir)                             | 29.1625 | N    |  |
| Across(Mean,Dir)                            | -97.27  | W    |  |
| <b>Scale(Km)</b>                            |         |      |  |
| Average Scale (Mean,%Variation)             | 4.18    | 4.59 |  |
| <b>Internal Distortion(Pixel)</b>           |         |      |  |
| Along(Mean,Stddev)                          | -0.09   | 0.81 |  |
| Across(Mean,Stddev)                         | -0.00   | 0.47 |  |

|  |         |          |  |
|--|---------|----------|--|
| <b>Scan Range-937-1876; Pix Range-934-1869</b> |         |          |  |
| Number of GCPs                                 | -999    |          |  |
| <b>Location Error(Km)</b>                      |         |          |  |
| Along(Mean,Dir)                                | -999.99 | NotAvail |  |
| Across(Mean,Dir)                               | -999.99 | NotAvail |  |
| <b>Scale(Km)</b>                               |         |          |  |
| Average Scale (Mean,%Variation)                | -999.99 | -999.9   |  |
| <b>Internal Distortion(Pixel)</b>              |         |          |  |
| Along(Mean,Stddev)                             | -999.99 | -999.99  |  |
| Across(Mean,Stddev)                            | -999.99 | -999.99  |  |

|   |         |          |  |
|---|---------|----------|--|
| <b>Scan Range-937-1876; Pix Range-1869-2805</b> |         |          |  |
| Number of GCPs                                  | -999    |          |  |
| <b>Location Error(Km)</b>                       |         |          |  |
| Along(Mean,Dir)                                 | -999.99 | NotAvail |  |
| Across(Mean,Dir)                                | -999.99 | NotAvail |  |
| <b>Scale(Km)</b>                                |         |          |  |
| Average Scale (Mean,%Variation)                 | -999.99 | -999.9   |  |
| <b>Internal Distortion(Pixel)</b>               |         |          |  |
| Along(Mean,Stddev)                              | -999.99 | -999.99  |  |
| Across(Mean,Stddev)                             | -999.99 | -999.99  |  |

|  |         |          |  |
|--|---------|----------|--|
| <b>Scan Range-1876-2816; Pix Range-0-934</b> |         |          |  |
| Number of GCPs                               | -999    |          |  |
| <b>Location Error(Km)</b>                    |         |          |  |
| Along(Mean,Dir)                              | -999.99 | NotAvail |  |
| Across(Mean,Dir)                             | -999.99 | NotAvail |  |
| <b>Scale(Km)</b>                             |         |          |  |
| Average Scale (Mean,%Variation)              | -999.99 | -999.9   |  |
| <b>Internal Distortion(Pixel)</b>            |         |          |  |
| Along(Mean,Stddev)                           | -999.99 | -999.99  |  |
| Across(Mean,Stddev)                          | -999.99 | -999.99  |  |

|   |         |          |  |
|---|---------|----------|--|
| <b>Scan Range-1876-2816; Pix Range-937-1869</b> |         |          |  |
| Number of GCPs                                  | -999    |          |  |
| <b>Location Error(Km)</b>                       |         |          |  |
| Along(Mean,Dir)                                 | -999.99 | NotAvail |  |
| Across(Mean,Dir)                                | -999.99 | NotAvail |  |
| <b>Scale(Km)</b>                                |         |          |  |
| Average Scale (Mean,%Variation)                 | -999.99 | -999.9   |  |
| <b>Internal Distortion(Pixel)</b>               |         |          |  |
| Along(Mean,Stddev)                              | -999.99 | -999.99  |  |
| Across(Mean,Stddev)                             | -999.99 | -999.99  |  |

|  |         |          |  |
|--|---------|----------|--|
| <b>Scan Range-1876-2816; Pix Range-1869-2805</b> |         |          |  |
| Number of GCPs                                   | -999    |          |  |
| <b>Location Error(Km)</b>                        |         |          |  |
| Along(Mean,Dir)                                  | -999.99 | NotAvail |  |
| Across(Mean,Dir)                                 | -999.99 | NotAvail |  |
| <b>Scale(Km)</b>                                 |         |          |  |
| Average Scale (Mean,%Variation)                  | -999.99 | -999.9   |  |
| <b>Internal Distortion(Pixel)</b>                |         |          |  |
| Along(Mean,Stddev)                               | -999.99 | -999.99  |  |
| Across(Mean,Stddev)                              | -999.99 | -999.99  |  |

\*-999 : no gcp available

\* -999.99 : values are not computed