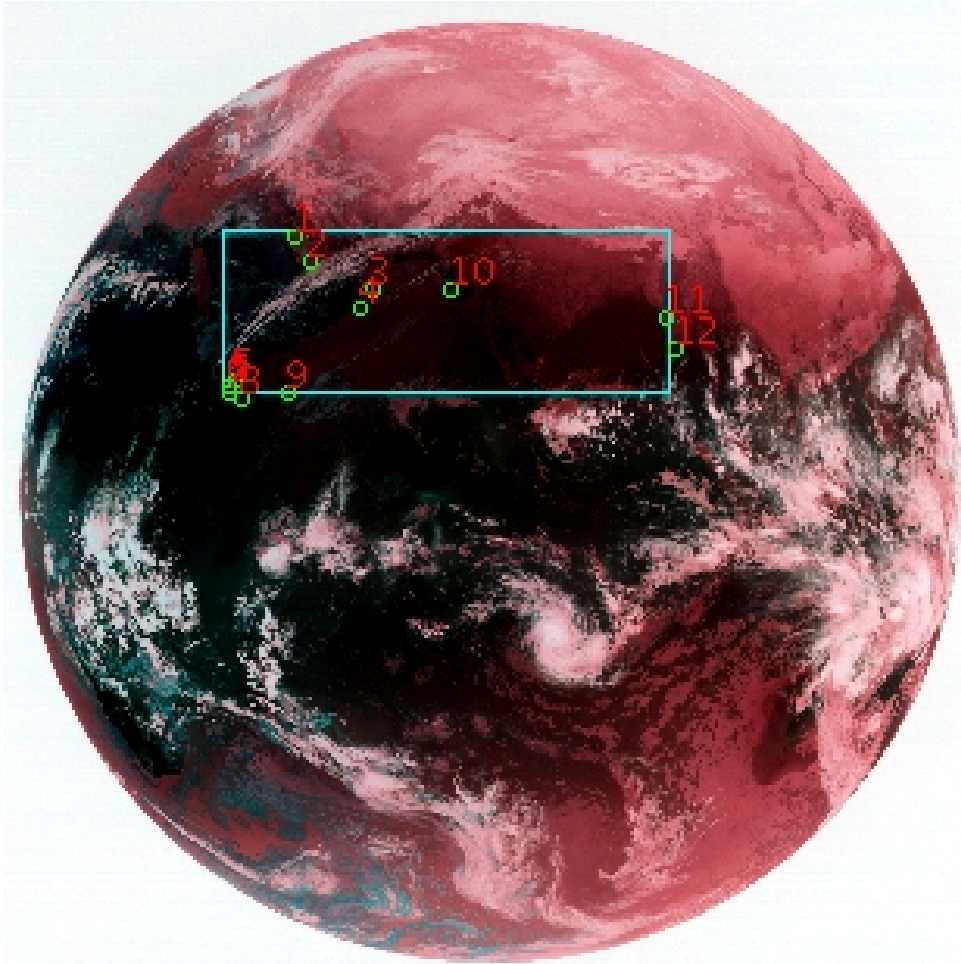


# DQE Report: Location Accuracy of INSAT-3DR-IMG STANDARD(FULL DISK) Product 3RIMG\_29JAN2018\_1215

|               |                |                 |               |                 |          |
|---------------|----------------|-----------------|---------------|-----------------|----------|
| Satellite     | INSAT-3DR      | No Of Bands     | 6             | Product Type    | STANDARD |
| Sensor        | IMG            | LvlOfProcess    | L1B           | Selected Band   | 2-TIR1   |
| DOP/Time      | 29-01-18/24:15 | Station ID      | BES           | Field View(deg) | 18.006   |
| Res(Y,X) [Km] | (4.0,4.0)      | Res(Y,X) [uRad] | (112.0,112.0) |                 |          |

(80.92N,-7.114W)

(80.92N,155.297E)



(-81.289S,-7.114W)

(-81.289S,155.297E)

GCP Distribution overview for 3RIMG29JAN20181215L1BDQE

Image Width: 2805 Image Height: 2816 No Of GCPs: 12

GCP Coverage(%) 16.50 (N-S) 45.90 (E-W)

## Location Error(E)

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

## Location Error (In IR Pixels)

|        | Mean   | Direction | Stddev | RMS   |
|--------|--------|-----------|--------|-------|
| Along  | -3.303 | S         | 0.674  | 3.371 |
| Across | 9.005  | E         | 1.774  | 9.178 |

## Scale (Km)

|         | Pixel Size | Stddev | %variation |
|---------|------------|--------|------------|
| Average | 4.431      | 0.400  | 10.767     |
| Along   | 4.951      | 1.510  | 23.773     |
| Across  | 4.431      | 0.530  | 10.767     |

## Internal Distortion (in IR Pixels)

|        | PeakToPeak | Mean   | Stddev | RMS   |
|--------|------------|--------|--------|-------|
| Along  | 1.971      | -0.932 | 0.62   | 1.118 |
| Across | 3.747      | 0.395  | 1.06   | 1.136 |

## Attitude Residuals (Deg)

| Pitch   | Roll    | Yaw      |
|---------|---------|----------|
| 0.05142 | 0.02279 | -0.04133 |

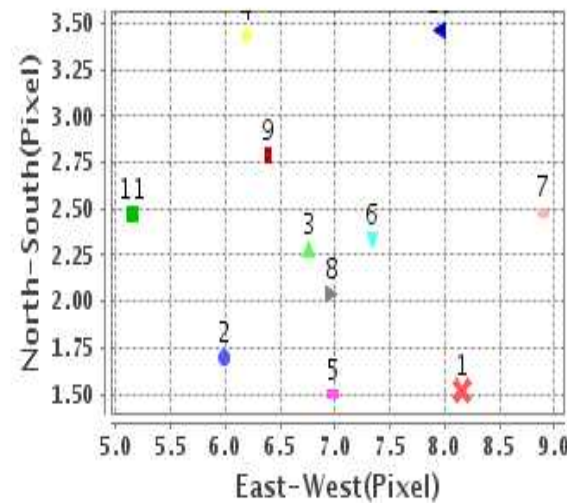
## Reference Used

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

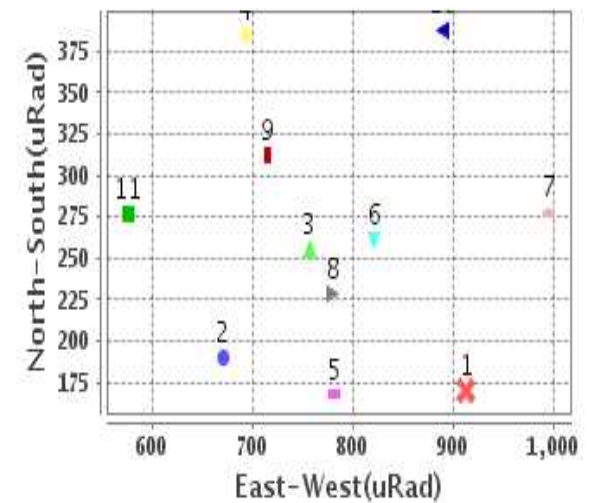
## Radial Error (in IR Pixels)

|      |        |
|------|--------|
| Mean | 9.636  |
| Min  | 6.603  |
| Max  | 13.269 |
| CE90 | 10.493 |

## Location Error For GCPs(Pixel)



## Location Error For GCPs(uRad)



## Detailed Product Information

### Ancillary Info

|                          |                |                                  |            |
|--------------------------|----------------|----------------------------------|------------|
| <b>Satellite</b>         | INSAT-3DR      | <b>Generation Date</b>           | 29-01-18   |
| <b>Sensor</b>            | IMG            | <b>DQE Date</b>                  | 07-05-2018 |
| <b>PassType</b>          | NONE           | <b>Aquisition Date</b>           | 29-01-18   |
| <b>Imaging Mode</b>      | FULL_FRAME     | <b>Aquisition Time(GMT)</b>      | 24:15      |
| <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(FULL) | <b>Predicted Center Lat(deg)</b> | -999.99    |
| <b>DP JobId</b>          | 3RIMG_29JAN20  | <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>   | -0.184  |
| <b>Center Lon(deg)</b>   | 74.092  |
| <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> | 80.92   |
| <b>NW_Lon(deg)</b> | -7.114  |
| <b>SW_Lat(deg)</b> | -81.289 |
| <b>SW_Lon(deg)</b> | -7.114  |
| <b>NE_Lat(deg)</b> | 80.92   |
| <b>NE_Lon(deg)</b> | 155.297 |
| <b>SE_Lat(deg)</b> | -81.289 |
| <b>SE_Lon(deg)</b> | 155.297 |

### 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 : 3RIMG29JAN20181215L1BDQE**

(-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

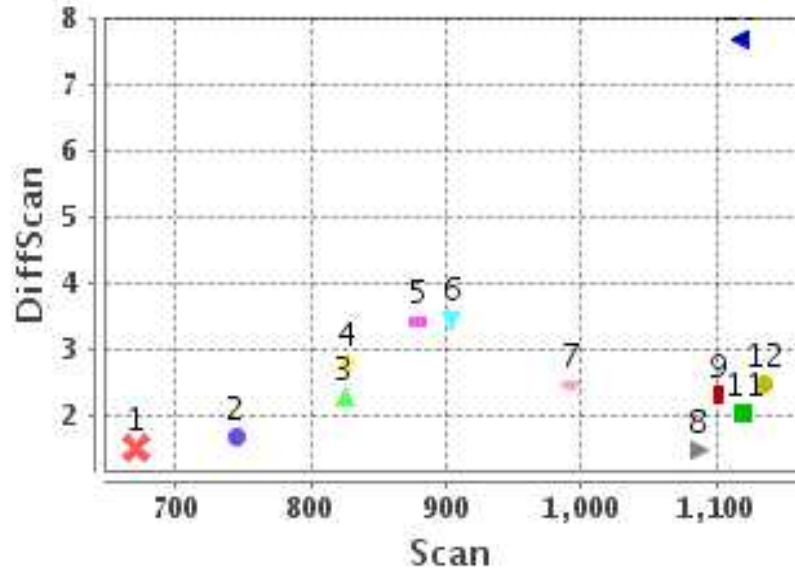
Image Width (pixels) : 2805      Image Height (pixels) : 2816      No of GCPs : 12

|                 | Mean   | StdDev | Min   | Max     | Coverage(in %) |
|-----------------|--------|--------|-------|---------|----------------|
| <b>GCP Scan</b> | 950.5  | 156.2  | 670.8 | 1135.50 | 16.50 (N-S)    |
| <b>GCP Pix</b>  | 1019.8 | 438.0  | 634.0 | 1921.50 | 45.90 (E-W)    |

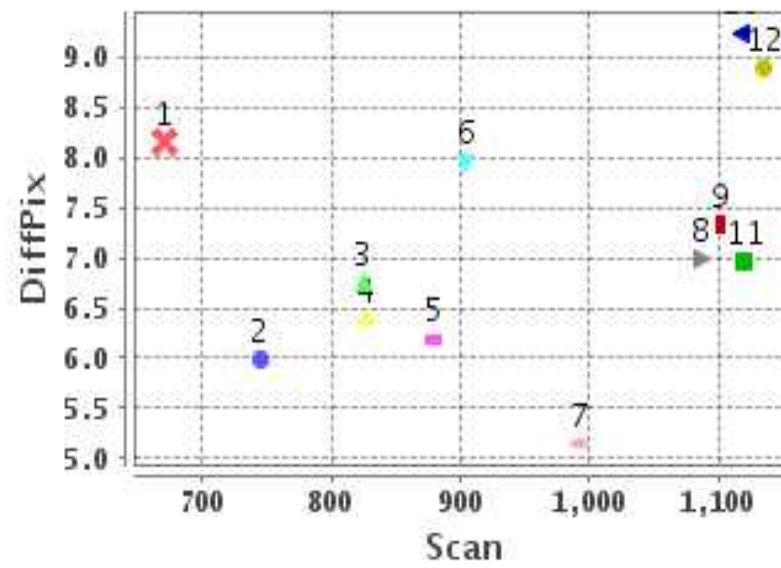
### Identified Control Point details : ( Differences are Reference - Product )

| No | Scan   | Pix    | DiffScan (line) | DiffPix (pixel) | DifLat (Km) | Dir | DifLon (Km) | Dir | Status   |
|----|--------|--------|-----------------|-----------------|-------------|-----|-------------|-----|----------|
| 1  | 670.8  | 819.5  | 1.5             | 8.16            | 14.661      | S   | 51.012      | E   | Accepted |
| 2  | 744.8  | 871.2  | 1.7             | 5.99            | 13.238      | S   | 34.105      | E   | Accepted |
| 3  | 825.5  | 1049.8 | 2.3             | 6.76            | 12.782      | S   | 35.604      | E   | Accepted |
| 4  | 879.2  | 1011.2 | 3.4             | 6.19            | 16.649      | S   | 30.982      | E   | Accepted |
| 5  | 1086.5 | 648.5  | 1.5             | 6.98            | 8.656       | S   | 38.519      | E   | Accepted |
| 6  | 1102.0 | 634.5  | 2.3             | 7.34            | 10.217      | S   | 40.708      | E   | Accepted |
| 7  | 1117.2 | 634.0  | 7.7             | 9.24            | 33.035      | S   | 50.420      | E   | Rejected |
| 8  | 1135.5 | 671.0  | 2.5             | 8.89            | 12.823      | S   | 44.205      | E   | Accepted |
| 9  | 1120.5 | 809.0  | 2.0             | 6.96            | 10.685      | S   | 32.599      | E   | Accepted |
| 10 | 826.5  | 1275.5 | 2.8             | 6.39            | 15.823      | S   | 30.032      | E   | Accepted |
| 11 | 904.8  | 1891.2 | 3.5             | 7.95            | 17.818      | S   | 34.912      | E   | Accepted |
| 12 | 992.5  | 1921.5 | 2.5             | 5.15            | 11.987      | S   | 23.536      | E   | Accepted |

### Error(Pixels) Vs. GCPScan



### Error(Pixels) Vs. GCPScan



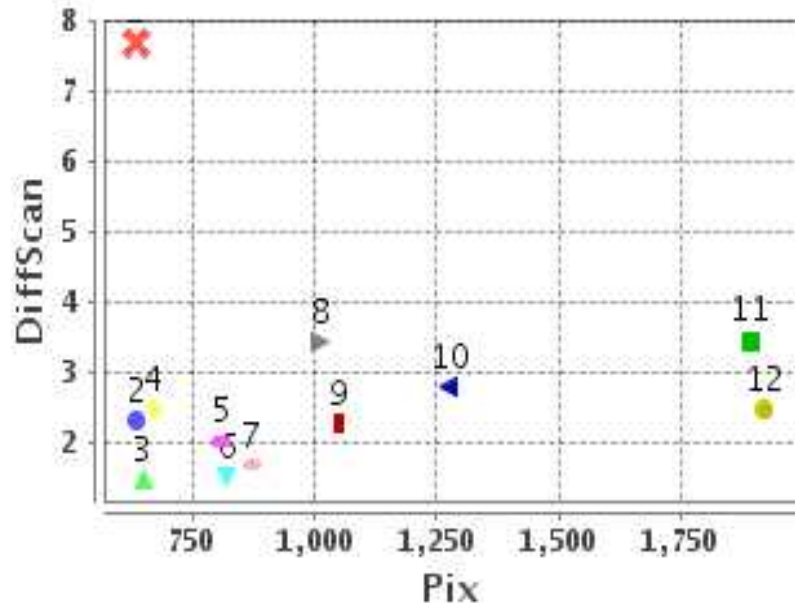
#### Number Of Points

|       |    |
|-------|----|
| North | 0  |
| South | 11 |
| East  | 11 |
| West  | 0  |

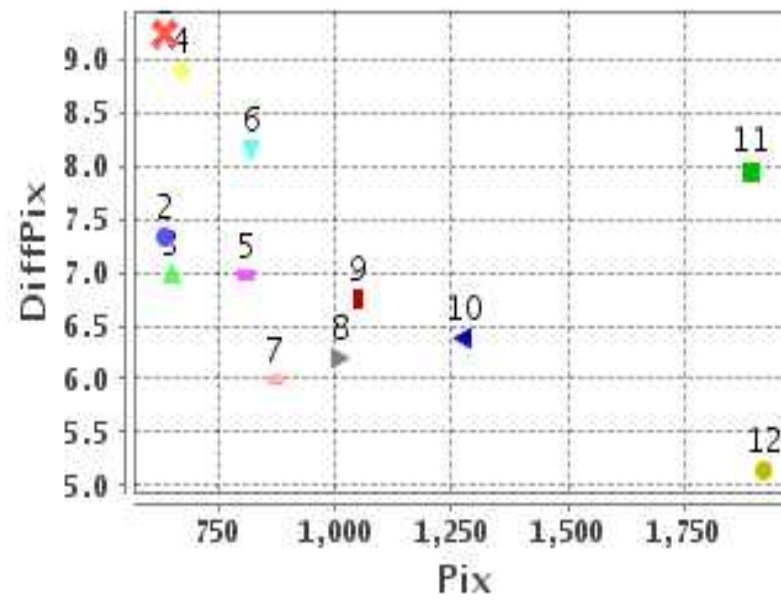
#### Radial Error ( Km )

|      |        |
|------|--------|
| Mean | 9.636  |
| Min  | 6.603  |
| Max  | 13.269 |
| CE90 | 10.493 |

### Error(Pixels) Vs. GCPPix



### Error(Pixels) Vs. GCPPix



#### Location Accuracy

|               | Mean   | StdDev | RMS   | Dir | * MinRMS | * MaxRMS |
|---------------|--------|--------|-------|-----|----------|----------|
| Along( Km )   | -3.303 | 0.674  | 3.371 | S   | 3.243    | 3.469    |
| Across ( Km ) | 9.005  | 1.774  | 9.178 | E   | 8.740    | 9.444    |

## Block-Wise Geo location Error Statistics

### Location Accuracy,Scale,ID

|  |        |       |  |
|--|--------|-------|--|
| <b>Scan Range-0-937; Pix Range-0-934</b> |        |       |  |
| Number of GCPs                           | 2      |       |  |
| <b>Location Error(Km)</b>                |        |       |  |
| Along(Mean,Dir)                          | -13.95 | S     |  |
| Across(Mean,Dir)                         | 42.56  | E     |  |
| <b>Scale(Km)</b>                         |        |       |  |
| Average Scale (Mean,%Variation)          | 5.99   | 49.76 |  |
| <b>Internal Distortion(Pixel)</b>        |        |       |  |
| Along(Mean,Stddev)                       | -0.18  | 0.00  |  |
| Across(Mean,Stddev)                      | 2.16   | 0.00  |  |

|   |          |      |  |
|---|----------|------|--|
| <b>Scan Range-0-937; Pix Range-934-1869</b> |          |      |  |
| Number of GCPs                              | 3        |      |  |
| <b>Location Error(Km)</b>                   |          |      |  |
| Along(Mean,Dir)                             | -15.0833 | S    |  |
| Across(Mean,Dir)                            | 32.20    | E    |  |
| <b>Scale(Km)</b>                            |          |      |  |
| Average Scale (Mean,%Variation)             | 4.30     | 7.52 |  |
| <b>Internal Distortion(Pixel)</b>           |          |      |  |
| Along(Mean,Stddev)                          | -0.83    | 0.32 |  |
| Across(Mean,Stddev)                         | -0.38    | 0.18 |  |

|  |         |         |  |
|--|---------|---------|--|
| <b>Scan Range-0-937; Pix Range-1869-2805</b> |         |         |  |
| Number of GCPs                               | 1       |         |  |
| <b>Location Error(Km)</b>                    |         |         |  |
| Along(Mean,Dir)                              | -17.82  | S       |  |
| Across(Mean,Dir)                             | 34.91   | E       |  |
| <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)                             | -10.5975 | S     |  |
| Across(Mean,Dir)                            | 39.01    | E     |  |
| <b>Scale(Km)</b>                            |          |       |  |
| Average Scale (Mean,%Variation)             | 4.68     | 16.96 |  |
| <b>Internal Distortion(Pixel)</b>           |          |       |  |
| Along(Mean,Stddev)                          | -0.78    | 0.18  |  |
| Across(Mean,Stddev)                         | -0.28    | 0.91  |  |

|  |         |          |  |
|--|---------|----------|--|
| <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                                  | 1       |         |  |
| <b>Location Error(Km)</b>                       |         |         |  |
| Along(Mean,Dir)                                 | -11.98  | S       |  |
| Across(Mean,Dir)                                | 23.53   | E       |  |
| <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