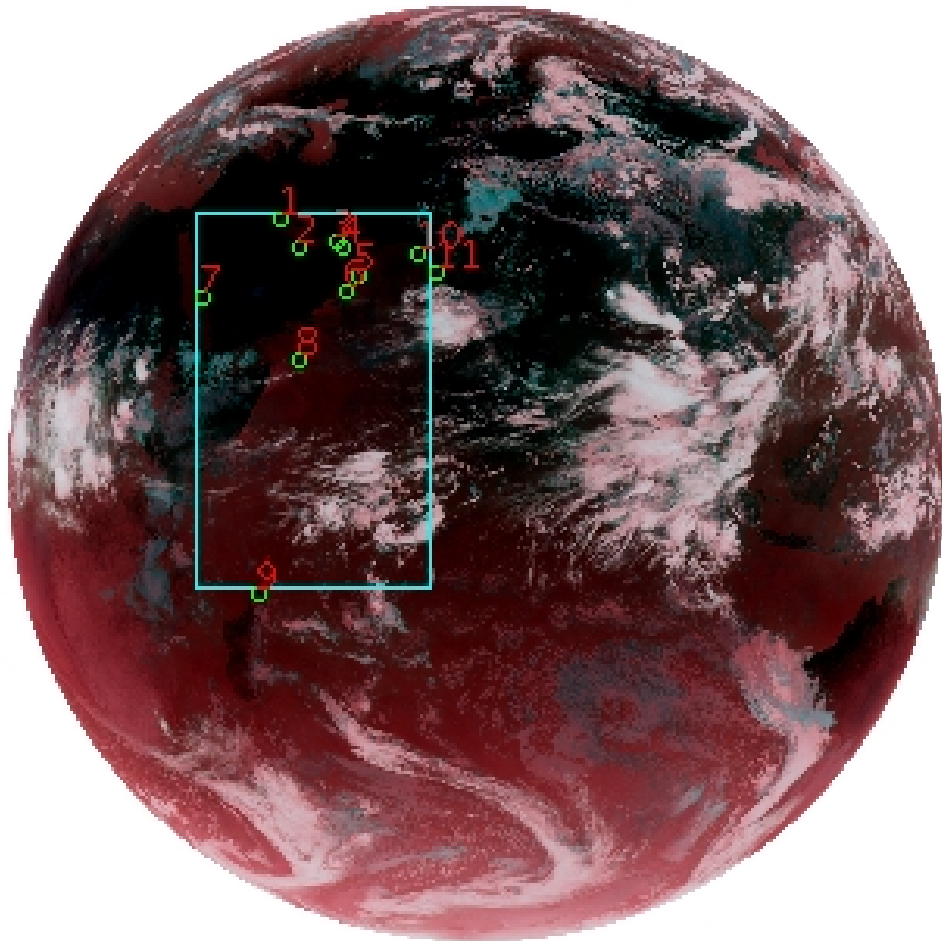


# DQE Report: Location Accuracy of INSAT-3DR-IMG STANDARD (FULL DISK) Product 3RIMG\_18JUN2018\_0615

**Satellite** INSAT-3DR    **No Of Bands** 6    **Product Type** STANDARD  
**Sensor** IMG    **LvlOfProcess** L1B    **Selected Band** 2-TIR1  
**DOP/Time** 18-06-18/06:15    **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 3RIMG18JUN20180615L1BSTD

**Image Width:** 2805    **Image Height:** 2816    **No Of GCPs:** 11

**GCP Coverage(%)** 38.16    **(N-S)** 24.06    **(E-W)**

## Location Error(E)

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

## Location Error (In IR Pixels)

|        | Mean   | Direction | Stddev | RMS   |
|--------|--------|-----------|--------|-------|
| Along  | -0.076 | S         | 1.154  | 1.156 |
| Across | -3.585 | W         | 0.994  | 3.720 |

## Scale (Km)

|         | Pixel Size | Stddev | %variation |
|---------|------------|--------|------------|
| Average | 4.633      | 0.456  | 15.821     |
| Along   | 4.943      | 1.086  | 23.584     |
| Across  | 4.586      | 0.605  | 14.650     |

## Internal Distortion (in IR Pixels)

|        | PeakToPeak | Mean  | Stddev | RMS   |
|--------|------------|-------|--------|-------|
| Along  | 2.609      | 0.546 | 1.03   | 1.161 |
| Across | 3.712      | 0.263 | 0.97   | 1.006 |

## Attitude Residuals (Deg)

| Pitch    | Roll     | Yaw     |
|----------|----------|---------|
| -0.02144 | -0.00453 | 0.09113 |

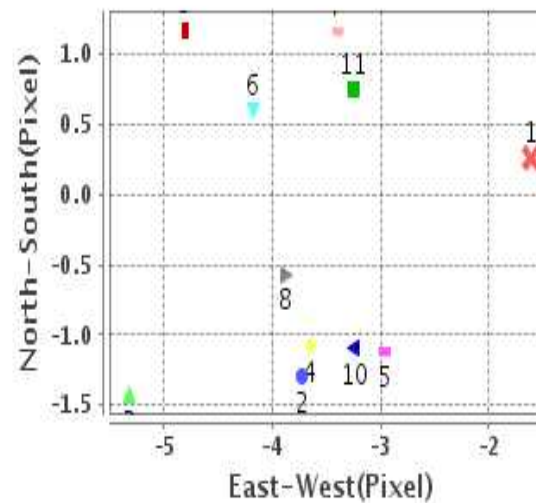
## Reference Used

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

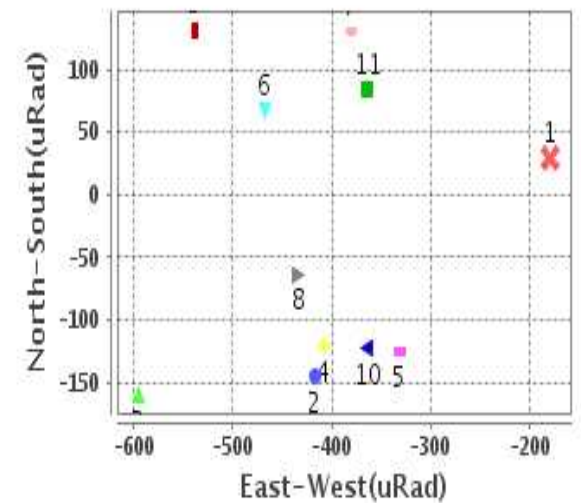
## Radial Error (in IR Pixels)

|             |       |
|-------------|-------|
| <b>Mean</b> | 3.775 |
| <b>Min</b>  | 2.009 |
| <b>Max</b>  | 5.732 |
| <b>CE90</b> | 3.941 |

## Location Error For GCPs(Pixel)



## Location Error For GCPs(uRad)



## Detailed Product Information

### Ancillary Info

|                          |               |                                  |            |
|--------------------------|---------------|----------------------------------|------------|
| <b>Satellite</b>         | INSAT-3DR     | <b>Generation Date</b>           | 18-06-18   |
| <b>Sensor</b>            | IMG           | <b>DQE Date</b>                  | 22-06-2018 |
| <b>PassType</b>          | NONE          | <b>Aquisition Date</b>           | 18-06-18   |
| <b>Imaging Mode</b>      | FULL_FRAME    | <b>Aquisition Time(GMT)</b>      | 06:15      |
| <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      | <b>Predicted Center Lat(deg)</b> | -999.99    |
| <b>DP JobId</b>          | 3RIMG_18JUN20 | <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>   | 0.0     |
| <b>Center Lon(deg)</b>   | 74.0    |
| <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> | 81.042  |
| <b>NW_Lon(deg)</b> | -7.157  |
| <b>SW_Lat(deg)</b> | -81.042 |
| <b>SW_Lon(deg)</b> | -7.157  |
| <b>NE_Lat(deg)</b> | 81.042  |
| <b>NE_Lon(deg)</b> | 155.157 |
| <b>SE_Lat(deg)</b> | -81.042 |
| <b>SE_Lon(deg)</b> | 155.157 |

### 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>                          | meters | <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 : 3RIMG18JUN20180615L1BSTD**

(-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

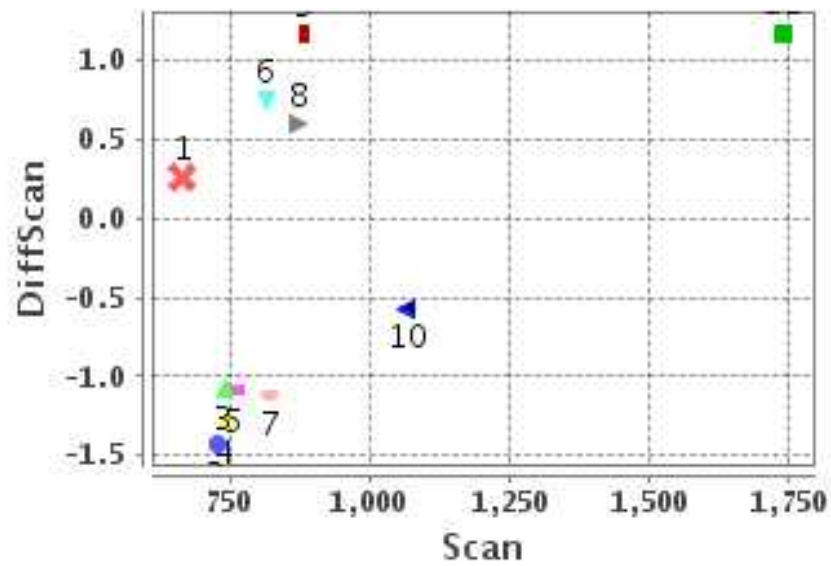
Image Width (pixels) : 2805      Image Height (pixels) : 2816      No of GCPs : 11

|                 | Mean  | StdDev | Min   | Max     | Coverage(in %) |
|-----------------|-------|--------|-------|---------|----------------|
| <b>GCP Scan</b> | 893.2 | 286.5  | 664.5 | 1739.00 | 38.16 (N-S)    |
| <b>GCP Pix</b>  | 952.7 | 187.1  | 600.8 | 1275.50 | 24.06 (E-W)    |

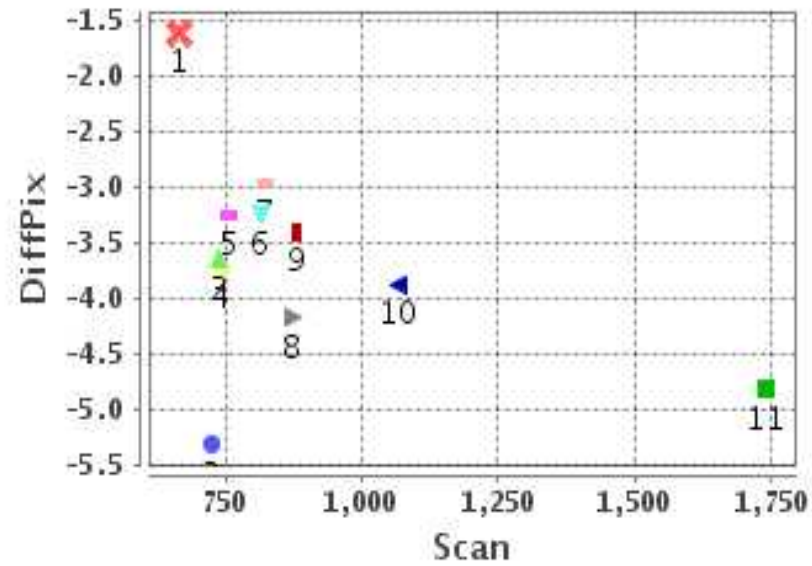
### Identified Control Point details : ( Differences are Reference - Product )

| No | Scan   | Pix    | DiffScan (line) | DiffPix (pixel) | DifLat (Km) | Dir | DifLon (Km) | Dir | Status   |
|----|--------|--------|-----------------|-----------------|-------------|-----|-------------|-----|----------|
| 1  | 664.5  | 819.0  | 0.3             | -1.61           | 3.279       | S   | 7.338       | W   | Accepted |
| 2  | 740.5  | 874.8  | -1.3            | -3.73           | 4.213       | N   | 15.109      | W   | Accepted |
| 3  | 726.5  | 985.8  | -1.4            | -5.32           | 5.709       | N   | 22.205      | W   | Accepted |
| 4  | 739.5  | 1003.5 | -1.1            | -3.65           | 3.080       | N   | 15.398      | W   | Accepted |
| 5  | 822.0  | 1049.5 | -1.1            | -2.96           | 6.123       | N   | 11.073      | W   | Accepted |
| 6  | 872.5  | 1015.5 | 0.6             | -4.18           | 4.594       | S   | 15.078      | W   | Accepted |
| 7  | 882.2  | 600.8  | 1.2             | -3.40           | 6.055       | S   | 12.928      | W   | Accepted |
| 8  | 1066.8 | 873.5  | -0.6            | -3.87           | 0.795       | S   | 14.810      | W   | Accepted |
| 9  | 1739.0 | 759.5  | 1.2             | -4.81           | 5.118       | S   | 20.048      | W   | Accepted |
| 10 | 757.5  | 1222.2 | -1.1            | -3.25           | 3.100       | N   | 13.077      | W   | Accepted |
| 11 | 814.5  | 1275.5 | 0.8             | -3.25           | 5.750       | S   | 10.654      | W   | Accepted |

### Error(Pixels) Vs. GCPScan



### Error(Pixels) Vs. GCPScan



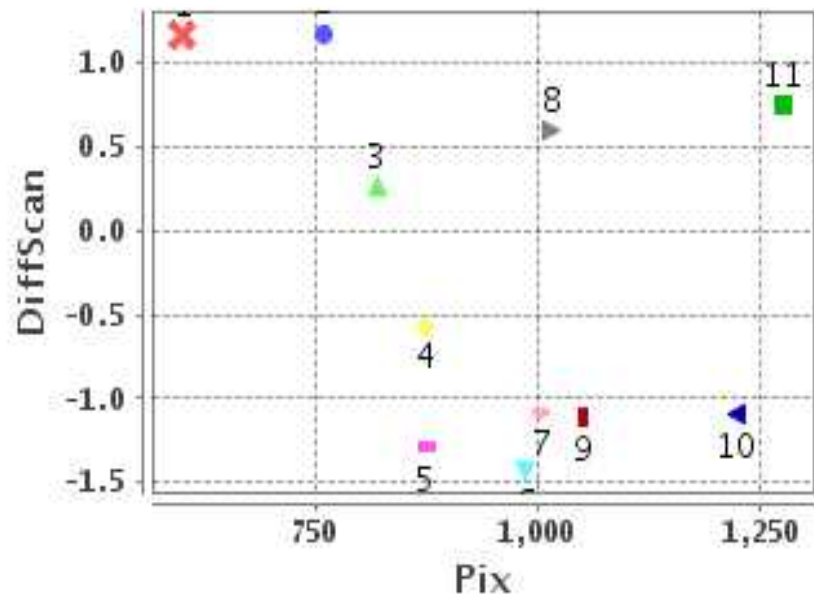
#### Number Of Points

|       |    |
|-------|----|
| North | 5  |
| South | 6  |
| East  | 0  |
| West  | 11 |

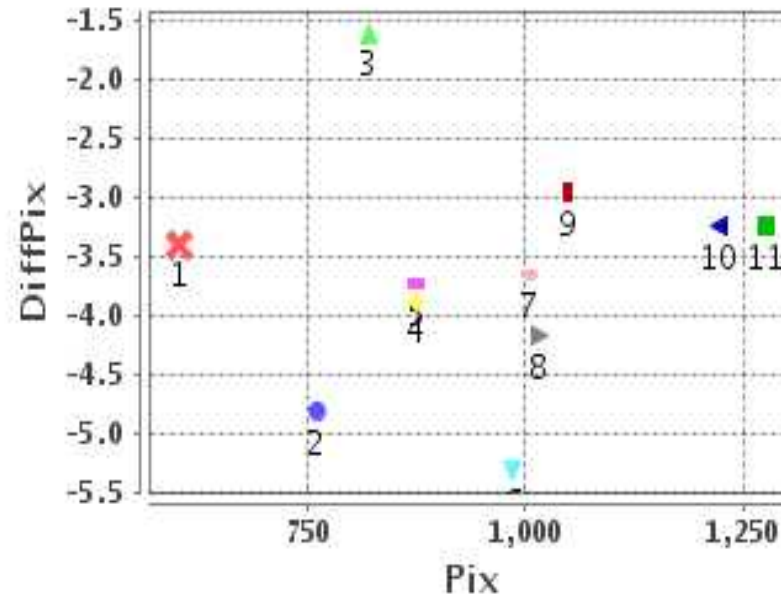
#### Radial Error ( Km )

|      |       |
|------|-------|
| Mean | 3.775 |
| Min  | 2.009 |
| Max  | 5.732 |
| CE90 | 3.941 |

### Error(Pixels) Vs. GCPPix



### Error(Pixels) Vs. GCPPix



#### Location Accuracy

|               | Mean   | StdDev | RMS   | Dir | * MinRMS | * MaxRMS |
|---------------|--------|--------|-------|-----|----------|----------|
| Along( Km )   | -0.076 | 1.154  | 1.156 | S   | 1.112    | 1.211    |
| Across ( Km ) | -3.585 | 0.994  | 3.720 | W   | 3.484    | 3.858    |

## Block-Wise Geo location Error Statistics

### Location Accuracy,Scale,ID

|  |             |       |
|--|-------------|-------|
| <b>Scan Range-0-937; Pix Range-0-934</b> |             |       |
| Number of GCPs                           | 3           |       |
| <b>Location Error(Km)</b>                |             |       |
| Along(Mean,Dir)                          | -1.70667000 | S     |
| Across(Mean,Dir)                         | -11.79      | W     |
| <b>Scale(Km)</b>                         |             |       |
| Average Scale (Mean,%Variation)          | 4.96        | 24.03 |
| <b>Internal Distortion(Pixel)</b>        |             |       |
| Along(Mean,Stddev)                       | 0.32        | 1.23  |
| Across(Mean,Stddev)                      | -0.73       | 1.06  |

|   |        |       |
|---|--------|-------|
| <b>Scan Range-0-937; Pix Range-934-1869</b> |        |       |
| Number of GCPs                              | 6      |       |
| <b>Location Error(Km)</b>                   |        |       |
| Along(Mean,Dir)                             | 1.28   | N     |
| Across(Mean,Dir)                            | -14.58 | W     |
| <b>Scale(Km)</b>                            |        |       |
| Average Scale (Mean,%Variation)             | 4.72   | 17.93 |
| <b>Internal Distortion(Pixel)</b>           |        |       |
| Along(Mean,Stddev)                          | -1.04  | 0.87  |
| Across(Mean,Stddev)                         | -1.86  | 0.42  |

|  |         |          |
|--|---------|----------|
| <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                              | 2      |      |
| <b>Location Error(Km)</b>                   |        |      |
| Along(Mean,Dir)                             | -2.96  | S    |
| Across(Mean,Dir)                            | -17.42 | W    |
| <b>Scale(Km)</b>                            |        |      |
| Average Scale (Mean,%Variation)             | 4.00   | 0.00 |
| <b>Internal Distortion(Pixel)</b>           |        |      |
| Along(Mean,Stddev)                          | -1.75  | 0.00 |
| Across(Mean,Stddev)                         | -0.93  | 0.00 |

|  |         |          |
|--|---------|----------|
| <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