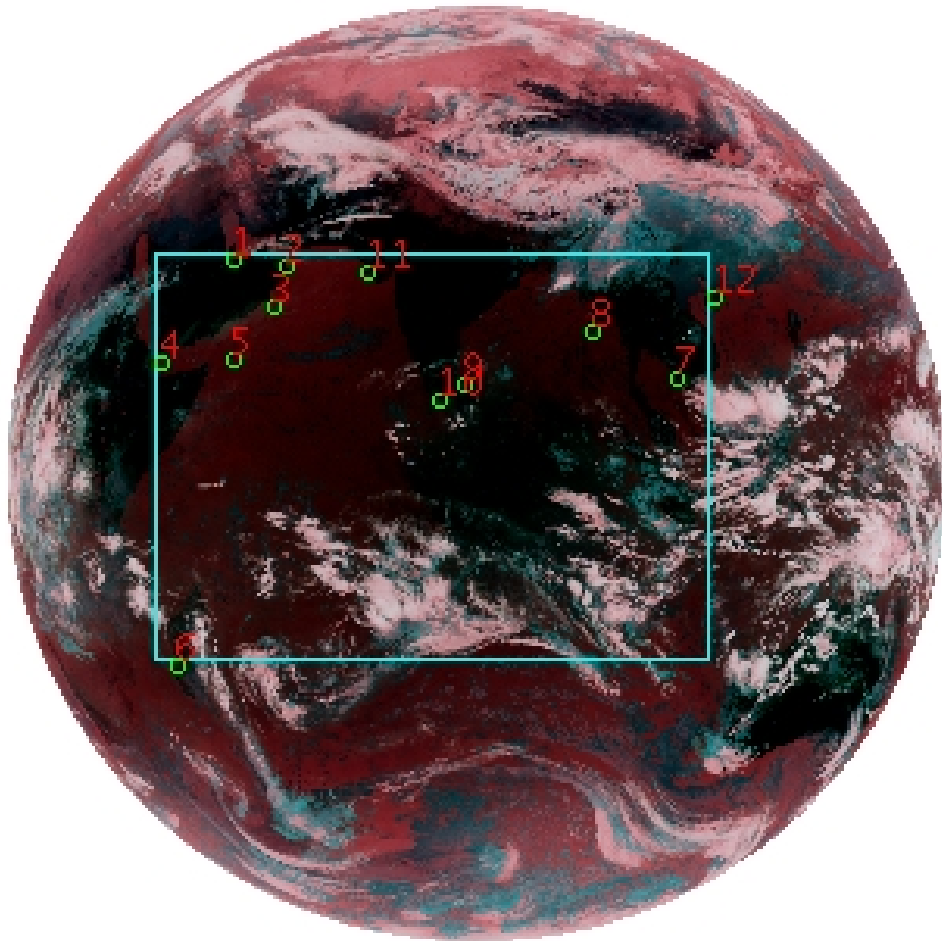


# DQE Report: Location Accuracy of INSAT-3D-IMG STANDARD(FULL DISK) Product 3DIMG\_12MAR2017\_0600

**Satellite** INSAT-3D      **No Of Bands** 6      **Product Type** STANDARD  
**Sensor** IMG      **LvlOfProcess** L1B      **Selected Band** 2-TIR1  
**DOP/Time** 12-03-17/06:00      **Station ID** BES      **Field View(deg)** 17.974  
**Res(Y,X) [Km]** (4.0,4.0)      **Res(Y,X) [uRad]** (112.0,112.0)

(81.042N,0.843W)

(81.042N,163.157E)



(-81.042S,0.843W)

(-81.042S,163.157E)

GCP Distribution overview for 3DIMG12MAR20170600L1BSTD

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

**GCP Coverage(%)**      41.74      **(N-S)** 56.80      **(E-W)**

## Location Error(E)

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

## Location Error (In IR Pixels)

|        | Mean   | Direction | Stddev | RMS   |
|--------|--------|-----------|--------|-------|
| Along  | -0.466 | S         | 1.890  | 1.947 |
| Across | -2.672 | W         | 1.315  | 2.978 |

## Scale (Km)

|         | Pixel Size | Stddev | %variation |
|---------|------------|--------|------------|
| Average | 4.403      | 0.295  | 10.064     |
| Along   | 4.375      | 0.315  | 9.368      |
| Across  | 4.392      | 0.321  | 9.791      |

## Internal Distortion (in IR Pixels)

|        | PeakToPeak | Mean   | Stddev | RMS   |
|--------|------------|--------|--------|-------|
| Along  | 5.788      | -1.331 | 1.75   | 2.195 |
| Across | 3.592      | -1.539 | 0.96   | 1.813 |

## Attitude Residuals (Deg)

| Pitch    | Roll     | Yaw     |
|----------|----------|---------|
| -0.01516 | -0.00106 | 0.10336 |

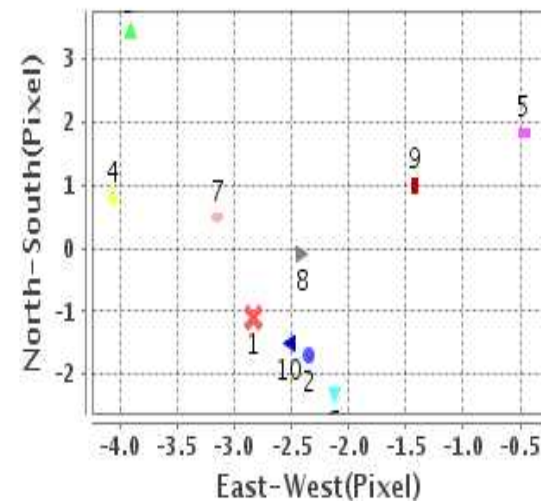
## Reference Used

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

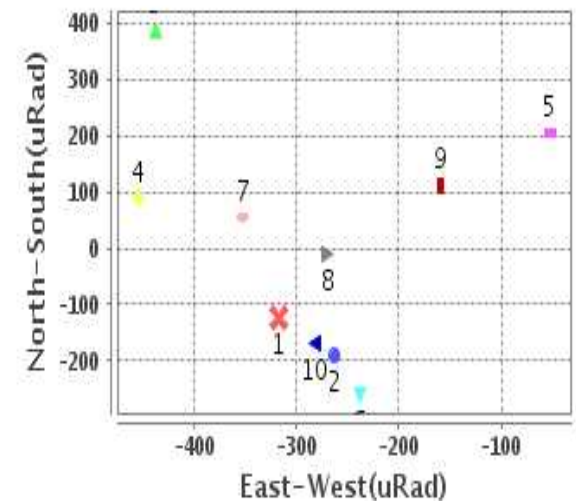
## Radial Error (in IR Pixels)

|             |       |
|-------------|-------|
| <b>Mean</b> | 3.312 |
| <b>Min</b>  | 1.510 |
| <b>Max</b>  | 6.109 |
| <b>CE90</b> | 4.543 |

## Location Error For GCPs(Pixel)



## Location Error For GCPs(uRad)



## Detailed Product Information

### Ancillary Info

|                          |                |                                  |            |
|--------------------------|----------------|----------------------------------|------------|
| <b>Satellite</b>         | INSAT-3D       | <b>Generation Date</b>           | 12-03-17   |
| <b>Sensor</b>            | IMG            | <b>DQE Date</b>                  | 21-03-2017 |
| <b>PassType</b>          | NONE           | <b>Aquisition Date</b>           | 12-03-17   |
| <b>Imaging Mode</b>      | FULL_FRAME     | <b>Aquisition Time(GMT)</b>      | 06:00      |
| <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>   | 82.0       |
| <b>LvlOfProcessing</b>   | STANDARD(FULL) | <b>Predicted Center Lat(deg)</b> | -999.99    |
| <b>DP JobId</b>          | 3DIMG_12MAR2   | <b>Predicted Center Lon(deg)</b> | -999.99    |
| <b>ProductCode</b>       | NONE           |                                  |            |
| <b>Field View(deg)</b>   | 17.974         |                                  |            |

### 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>   | 82.0    |
| <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> | 0.843   |
| <b>SW_Lat(deg)</b> | -81.042 |
| <b>SW_Lon(deg)</b> | 0.843   |
| <b>NE_Lat(deg)</b> | 81.042  |
| <b>NE_Lon(deg)</b> | 163.157 |
| <b>SE_Lat(deg)</b> | -81.042 |
| <b>SE_Lon(deg)</b> | 163.157 |

### 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>                          | 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 : 3DIMG12MAR20170600L1BSTD**

(-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

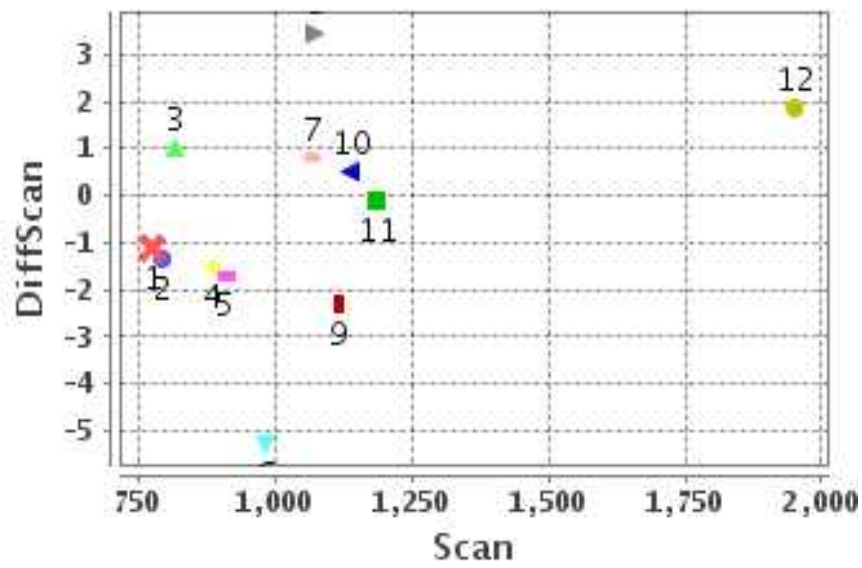
Image Width (pixels) : 2805      Image Height (pixels) : 2816      No of GCPs : 12

|                 | Mean   | StdDev | Min   | Max     | Coverage(in %) |
|-----------------|--------|--------|-------|---------|----------------|
| <b>GCP Scan</b> | 1058.5 | 301.0  | 775.2 | 1950.75 | 41.74 (N-S)    |
| <b>GCP Pix</b>  | 1124.7 | 531.1  | 480.0 | 2073.25 | 56.80 (E-W)    |

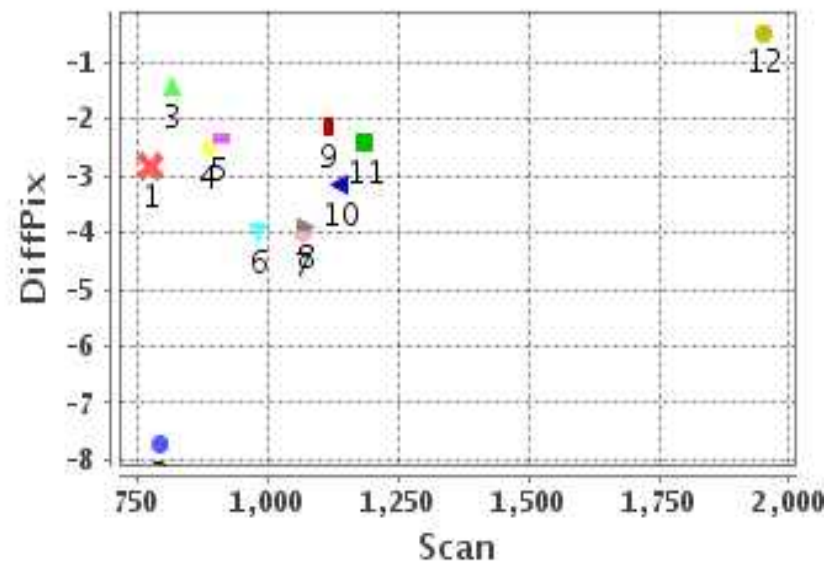
### Identified Control Point details : ( Differences are Reference - Product )

| No | Scan   | Pix    | DiffScan (line) | DiffPix (pixel) | DifLat (Km) | Dir | DifLon (Km) | Dir | Status   |
|----|--------|--------|-----------------|-----------------|-------------|-----|-------------|-----|----------|
| 1  | 775.2  | 686.0  | -1.1            | -2.83           | 4.797       | N   | 17.529      | W   | Accepted |
| 2  | 795.2  | 845.8  | -1.4            | -7.72           | 7.155       | N   | 34.600      | W   | Rejected |
| 3  | 909.0  | 802.5  | -1.7            | -2.35           | 7.653       | N   | 10.132      | W   | Accepted |
| 4  | 1073.2 | 480.0  | 3.5             | -3.91           | 15.622      | S   | 18.793      | W   | Accepted |
| 5  | 1069.2 | 687.5  | 0.8             | -4.06           | 4.049       | S   | 16.496      | W   | Accepted |
| 6  | 1950.8 | 523.5  | 1.8             | -0.47           | 13.032      | S   | 3.930       | W   | Accepted |
| 7  | 1116.8 | 1963.8 | -2.3            | -2.13           | 6.473       | N   | 5.289       | W   | Accepted |
| 8  | 982.2  | 1723.2 | -5.3            | -4.00           | 21.036      | N   | 14.178      | W   | Rejected |
| 9  | 1138.5 | 1356.0 | 0.5             | -3.15           | 3.709       | S   | 12.337      | W   | Accepted |
| 10 | 1186.2 | 1280.2 | -0.1            | -2.41           | 0.672       | S   | 8.137       | W   | Accepted |
| 11 | 818.0  | 1074.5 | 1.0             | -1.43           | 4.603       | S   | 3.910       | W   | Accepted |
| 12 | 887.5  | 2073.2 | -1.5            | -2.52           | 4.139       | N   | 10.335      | W   | Accepted |

### Error(Pixels) Vs. GCPScan



### Error(Pixels) Vs. GCPScan



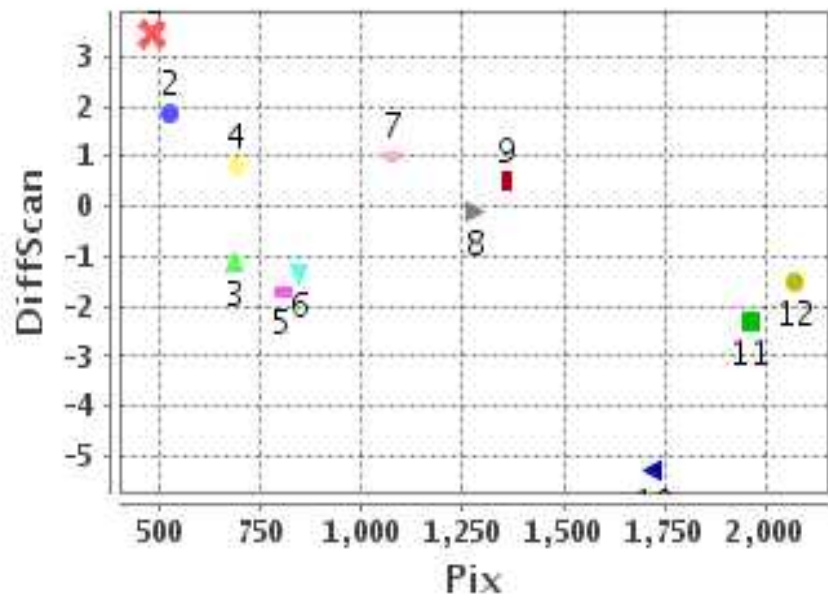
#### Number Of Points

|       |    |
|-------|----|
| North | 4  |
| South | 6  |
| East  | 0  |
| West  | 10 |

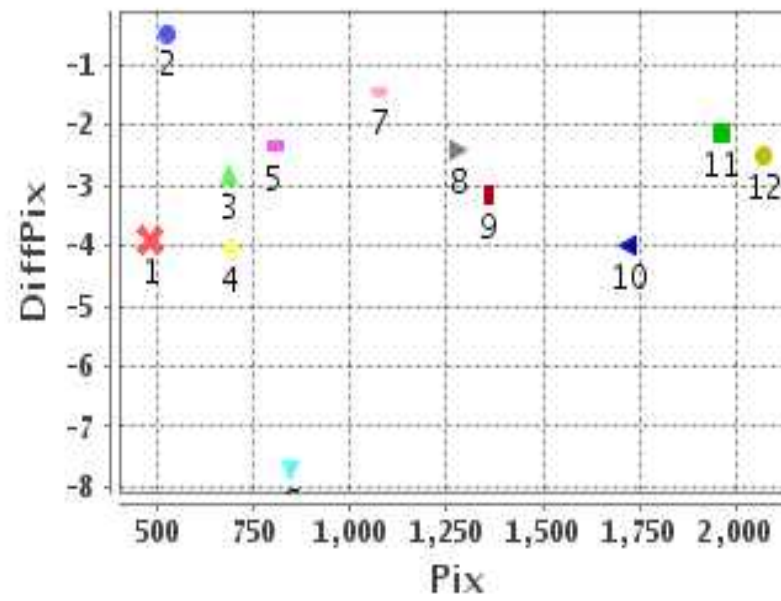
#### Radial Error ( Km )

|      |       |
|------|-------|
| Mean | 3.312 |
| Min  | 1.510 |
| Max  | 6.109 |
| CE90 | 4.543 |

### Error(Pixels) Vs. GCPPix



### Error(Pixels) Vs. GCPPix



#### Location Accuracy

|               | Mean   | StdDev | RMS   | Dir | * MinRMS | * MaxRMS |
|---------------|--------|--------|-------|-----|----------|----------|
| Along( Km )   | -0.466 | 1.890  | 1.947 | S   | 1.586    | 2.051    |
| Across ( Km ) | -2.672 | 1.315  | 2.978 | W   | 2.721    | 3.122    |

## 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)                          | 6.225  | N     |  |
| Across(Mean,Dir)                         | -13.83 | W     |  |
| <b>Scale(Km)</b>                         |        |       |  |
| Average Scale (Mean,%Variation)          | 5.60   | 39.89 |  |
| <b>Internal Distortion(Pixel)</b>        |        |       |  |
| Along(Mean,Stddev)                       | 0.60   | 0.00  |  |
| Across(Mean,Stddev)                      | -0.49  | 0.00  |  |

|   |         |         |  |
|---|---------|---------|--|
| <b>Scan Range-0-937; Pix Range-934-1869</b> |         |         |  |
| Number of GCPs                              | 1       |         |  |
| <b>Location Error(Km)</b>                   |         |         |  |
| Along(Mean,Dir)                             | -4.61   | S       |  |
| Across(Mean,Dir)                            | -3.91   | 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                               | 1       |         |  |
| <b>Location Error(Km)</b>                    |         |         |  |
| Along(Mean,Dir)                              | 4.14    | N       |  |
| Across(Mean,Dir)                             | -10.34  | 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-937-1876; Pix Range-0-934</b> |        |       |  |
| Number of GCPs                              | 2      |       |  |
| <b>Location Error(Km)</b>                   |        |       |  |
| Along(Mean,Dir)                             | -9.84  | S     |  |
| Across(Mean,Dir)                            | -17.64 | W     |  |
| <b>Scale(Km)</b>                            |        |       |  |
| Average Scale (Mean,%Variation)             | 5.23   | 30.86 |  |
| <b>Internal Distortion(Pixel)</b>           |        |       |  |
| Along(Mean,Stddev)                          | -2.64  | 0.00  |  |
| Across(Mean,Stddev)                         | 0.15   | 0.00  |  |

|  |        |      |  |
|--|--------|------|--|
| <b>Scan Range-937-1876; Pix Range-934-1869</b> |        |      |  |
| Number of GCPs                                 | 2      |      |  |
| <b>Location Error(Km)</b>                      |        |      |  |
| Along(Mean,Dir)                                | -2.191 | S    |  |
| Across(Mean,Dir)                               | -10.24 | W    |  |
| <b>Scale(Km)</b>                               |        |      |  |
| Average Scale (Mean,%Variation)                | 3.86   | 3.55 |  |
| <b>Internal Distortion(Pixel)</b>              |        |      |  |
| Along(Mean,Stddev)                             | 0.58   | 0.00 |  |
| Across(Mean,Stddev)                            | 0.74   | 0.00 |  |

|   |         |         |  |
|---|---------|---------|--|
| <b>Scan Range-937-1876; Pix Range-1869-2805</b> |         |         |  |
| Number of GCPs                                  | 1       |         |  |
| <b>Location Error(Km)</b>                       |         |         |  |
| Along(Mean,Dir)                                 | 6.47    | N       |  |
| Across(Mean,Dir)                                | -5.29   | 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-1876-2816; Pix Range-0-934</b> |         |         |  |
| Number of GCPs                               | 1       |         |  |
| <b>Location Error(Km)</b>                    |         |         |  |
| Along(Mean,Dir)                              | -13.03  | S       |  |
| Across(Mean,Dir)                             | -3.93   | 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-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