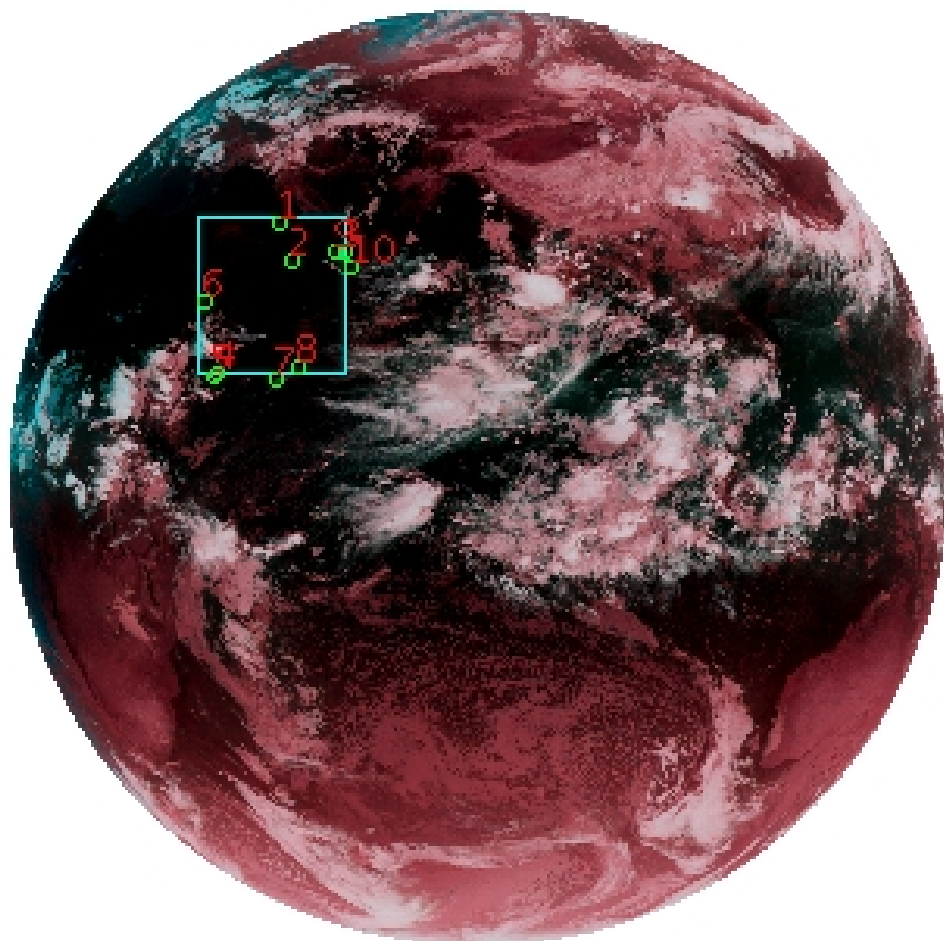


# DQE Report: Location Accuracy of INSAT-3DR-IMG STANDARD (FULL DISK) Product 3RIMG\_21JUN2020\_1545

|               |                |                 |               |                 |          |
|---------------|----------------|-----------------|---------------|-----------------|----------|
| Satellite     | INSAT-3DR      | No Of Bands     | 6             | Product Type    | STANDARD |
| Sensor        | IMG            | LvlOfProcess    | L1B           | Selected Band   | 2-TIR1   |
| DOP/Time      | 21-06-20/15:45 | Station ID      | BES           | Field View(deg) | 17.99    |
| 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 3RIMG21JUN20201545L1BSTD

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

GCP Coverage(%) 15.86 (N-S) 15.19 (E-W)

Location Error(E)

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

## Location Error (In IR Pixels)

|        | Mean   | Direction | Stddev | RMS   |
|--------|--------|-----------|--------|-------|
| Along  | 0.230  | N         | 1.108  | 1.131 |
| Across | -1.717 | W         | 1.723  | 2.433 |

## Scale (Km)

|         | Pixel Size | Stddev | %variation |
|---------|------------|--------|------------|
| Average | 4.598      | 0.416  | 14.957     |
| Along   | 4.701      | 0.268  | 17.533     |
| Across  | 4.824      | 0.136  | 20.594     |

## Internal Distortion (in IR Pixels)

|        | PeakToPeak | Mean   | Stddev | RMS   |
|--------|------------|--------|--------|-------|
| Along  | 3.134      | -0.601 | 1.05   | 1.208 |
| Across | 4.970      | 0.763  | 1.40   | 1.594 |

## Attitude Residuals (Deg)

| Pitch    | Roll     | Yaw     |
|----------|----------|---------|
| -0.03408 | -0.02082 | 0.27305 |

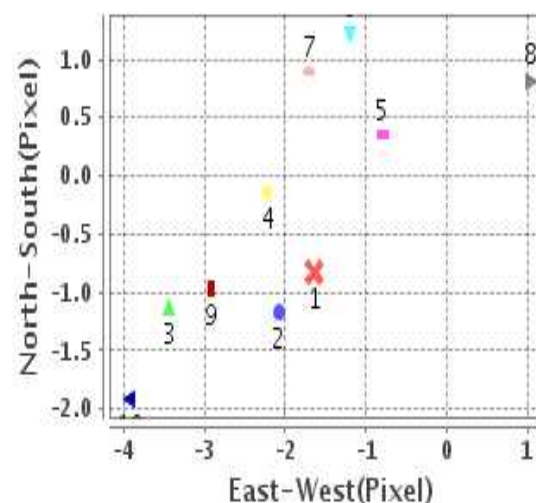
## Reference Used

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

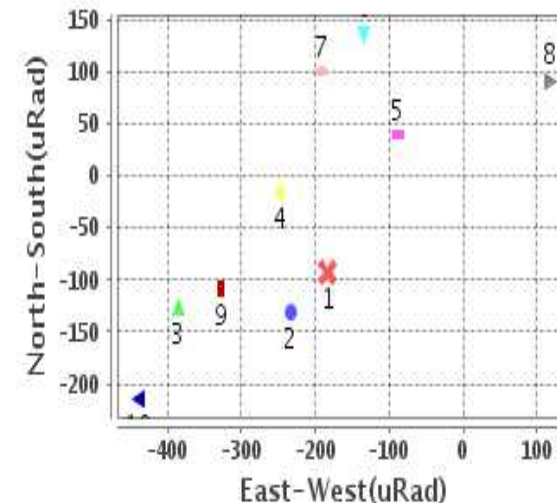
## Radial Error (in IR Pixels)

|      |       |
|------|-------|
| Mean | 2.363 |
| Min  | .712  |
| Max  | 4.806 |
| CE90 | 3.992 |

## Location Error For GCPs(Pixel)



## Location Error For GCPs(uRad)



Detailed Product Information

Ancillary Info

|                   |               |                           |            |
|-------------------|---------------|---------------------------|------------|
| Satellite         | INSAT-3DR     | Generation Date           | 21-06-20   |
| Sensor            | IMG           | DQE Date                  | 22-06-2020 |
| PassType          | NONE          | Aquisition Date           | 21-06-20   |
| Imaging Mode      | FULL_FRAME    | Aquisition Time(GMT)      | 15:45      |
| 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_21JUN20 | Predicted Center Lon(deg) | -999.99    |
| ProductCode       | NONE          |                           |            |
| Field View(deg)   | 17.99         |                           |            |

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                          | meters | Standardparallel1(deg) | 17.0       |                     |           |
| Zone       | Not Applicable |                               |        | Standardparallel2(deg) | 17.0       |                     |           |

\* -999.99 : Not Applicable/Not Available

## References

**JobId : 3RIMG21JUN20201545L1BSTD**

(-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

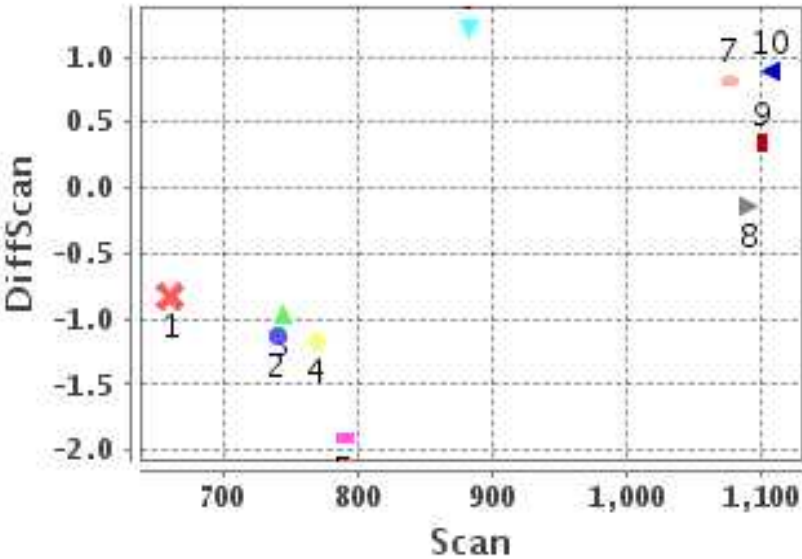
Image Width (pixels) : 2805      Image Height (pixels) : 2816      No of GCPs : 10

|          | Mean  | StdDev | Min   | Max     | Coverage(in %) |
|----------|-------|--------|-------|---------|----------------|
| GCP Scan | 895.8 | 169.4  | 660.5 | 1107.00 | 15.86 (N-S)    |
| GCP Pix  | 821.0 | 150.1  | 598.5 | 1024.50 | 15.19 (E-W)    |

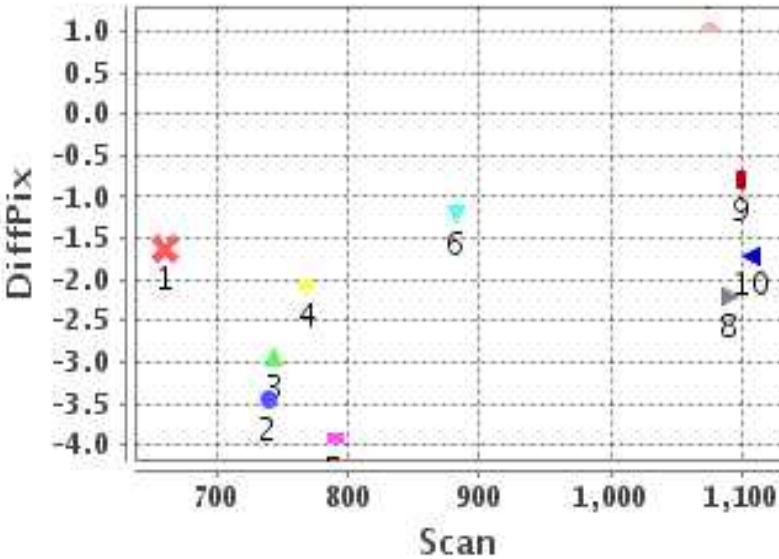
### Identified Control Point details : ( Differences are Reference - Product )

| No | Scan   | Pix    | DiffScan (line) | DiffPix (pixel) | DifLat (Km) | Dir | DifLon (Km) | Dir | Status   |
|----|--------|--------|-----------------|-----------------|-------------|-----|-------------|-----|----------|
| 1  | 660.5  | 818.5  | -0.8            | -1.64           | 2.248       | N   | 6.049       | W   | Accepted |
| 2  | 768.2  | 850.8  | -1.2            | -2.08           | 4.311       | N   | 8.078       | W   | Accepted |
| 3  | 739.5  | 1003.2 | -1.1            | -3.44           | 3.325       | N   | 15.620      | W   | Accepted |
| 4  | 1090.2 | 633.8  | -0.1            | -2.22           | 0.481       | S   | 7.211       | W   | Accepted |
| 5  | 1100.0 | 626.2  | 0.4             | -0.79           | 1.517       | S   | 2.413       | W   | Accepted |
| 6  | 882.2  | 598.5  | 1.2             | -1.20           | 6.290       | S   | 1.436       | W   | Accepted |
| 7  | 1107.0 | 807.8  | 0.9             | -1.71           | 3.359       | S   | 3.606       | W   | Accepted |
| 8  | 1076.0 | 867.5  | 0.8             | 1.04            | 3.187       | S   | 6.665       | E   | Accepted |
| 9  | 744.0  | 979.2  | -1.0            | -2.93           | 5.325       | N   | 13.863      | W   | Accepted |
| 10 | 790.2  | 1024.5 | -1.9            | -3.93           | 8.841       | N   | 17.073      | W   | Accepted |

Error(Pixels) Vs. GCPScan



Error(Pixels) Vs. GCPScan



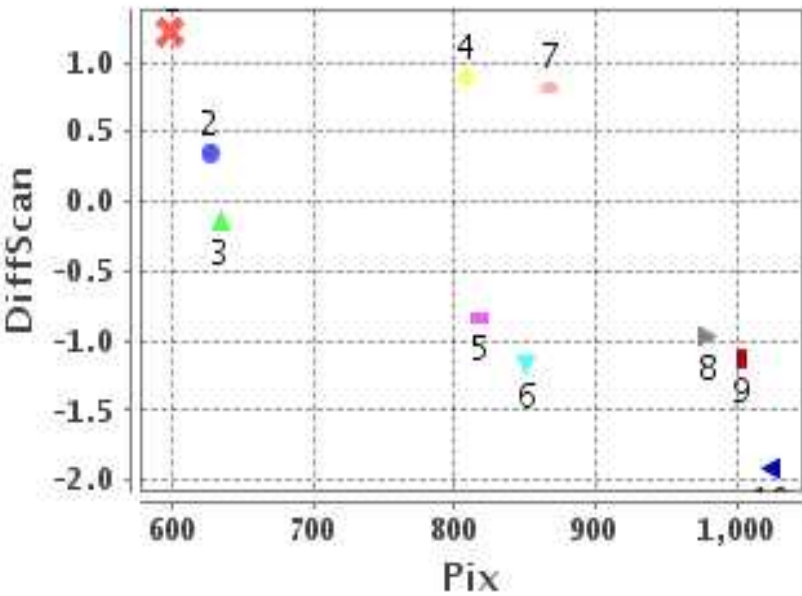
Number Of Points

|       |   |
|-------|---|
| North | 5 |
| South | 5 |
| East  | 1 |
| West  | 9 |

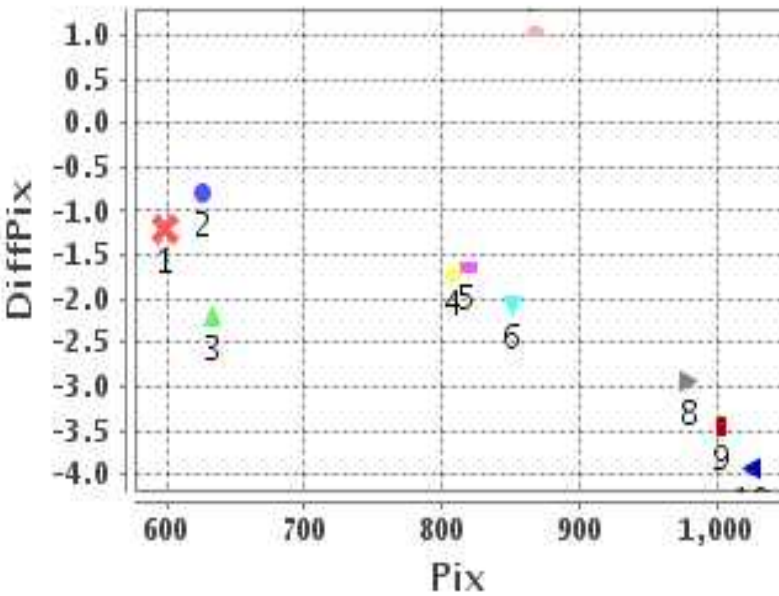
Radial Error ( Km )

|      |       |
|------|-------|
| Mean | 2.363 |
| Min  | .712  |
| Max  | 4.806 |
| CE90 | 3.992 |

Error(Pixels) Vs. GCPPix



Error(Pixels) Vs. GCPPix



Location Accuracy

|               | Mean   | StdDev | RMS   | Dir | * MinRMS | * MaxRMS |
|---------------|--------|--------|-------|-----|----------|----------|
| Along( Km )   | 0.230  | 1.108  | 1.131 | N   | 0.938    | 1.192    |
| Across ( Km ) | -1.717 | 1.723  | 2.433 | W   | 2.133    | 2.561    |

Block-Wise Geo location Error Statistics

Location Accuracy,Scale,ID

|                                   |           |       |
|-----------------------------------|-----------|-------|
| Scan Range-0-937; Pix Range-0-934 |           |       |
| Number of GCPs                    | 3         |       |
| Location Error(Km)                |           |       |
| Along(Mean,Dir)                   | 0.0866667 | N     |
| Across(Mean,Dir)                  | -5.19     | W     |
| Scale(Km)                         |           |       |
| Average Scale (Mean,%Variation)   | 4.94      | 23.58 |
| Internal Distortion(Pixel)        |           |       |
| Along(Mean,Stddev)                | -0.85     | 1.20  |
| Across(Mean,Stddev)               | 0.66      | 0.22  |

|                                      |        |       |
|--------------------------------------|--------|-------|
| Scan Range-0-937; Pix Range-934-1869 |        |       |
| Number of GCPs                       | 3      |       |
| Location Error(Km)                   |        |       |
| Along(Mean,Dir)                      | 5.83   | N     |
| Across(Mean,Dir)                     | -15.52 | W     |
| Scale(Km)                            |        |       |
| Average Scale (Mean,%Variation)      | 4.87   | 21.69 |
| Internal Distortion(Pixel)           |        |       |
| Along(Mean,Stddev)                   | 0.31   | 0.47  |
| Across(Mean,Stddev)                  | 0.76   | 0.24  |

|                                       |         |          |
|---------------------------------------|---------|----------|
| 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                       | 4       |       |
| Location Error(Km)                   |         |       |
| Along(Mean,Dir)                      | -2.1375 | S     |
| Across(Mean,Dir)                     | -1.64   | W     |
| Scale(Km)                            |         |       |
| Average Scale (Mean,%Variation)      | 4.51    | 12.66 |
| Internal Distortion(Pixel)           |         |       |
| Along(Mean,Stddev)                   | 0.45    | 0.42  |
| Across(Mean,Stddev)                  | 0.17    | 1.43  |

|                                         |         |          |
|-----------------------------------------|---------|----------|
| 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