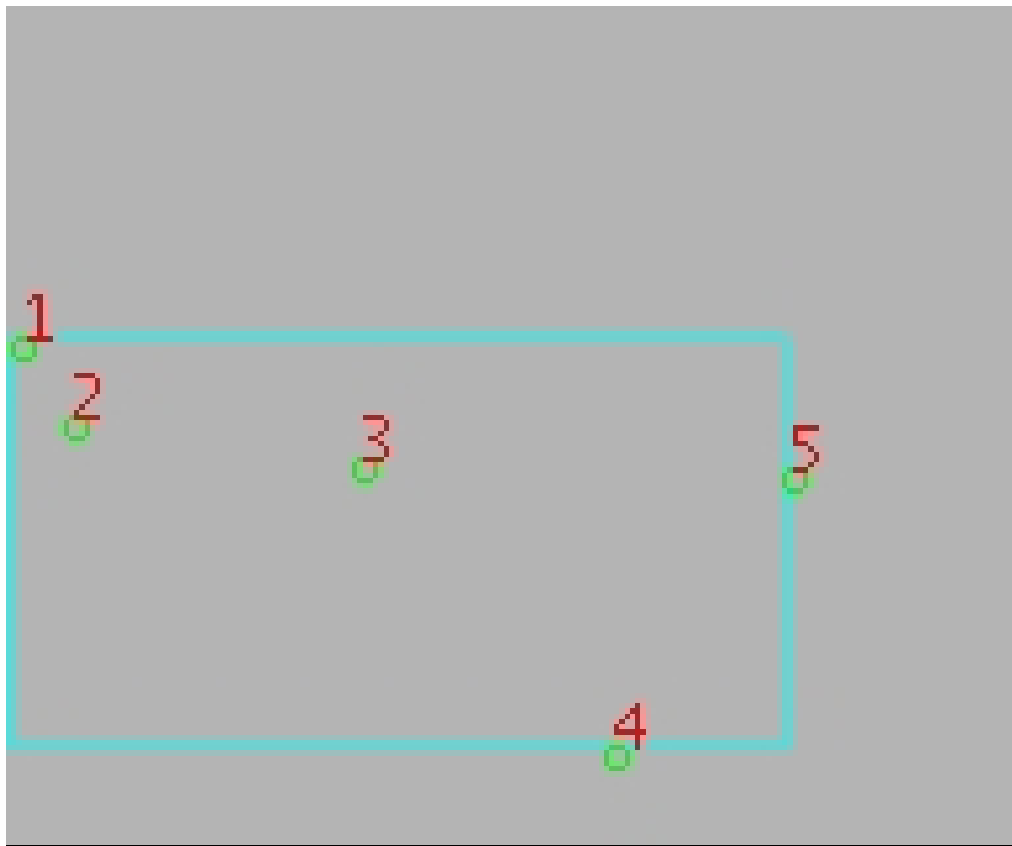


# DQE Report: GDQE - Location parameters for INSAT-3DR-SND STANDARD Product 3RSND\_06JAN2017\_0630

**Satellite** INSAT-3DR    **No Of Bands** 19    **Product Type** STANDARD  
**Sensor** SND    **LvlOfProcess** L1B    **Selected Band** 2-LWIR3  
**DOP/Time** 06-01-17/06:30    **Station ID** BES    **Field View(deg)** 6.136  
**Res(Y,X) [Km]** (10.0,10.0)    **Res(Y,X) [uRad]** (280.0,280.0)

(41.32N,53.068W)

(41.32N,103.097E)



(6.842S,53.068W)

(6.842S,103.097E)

GCP Distribution overview for 3RSND06JAN20170630L1BSA1

**Image Width:** 384    **Image Height:** 320    **No Of GCPs:** 5

**GCP Coverage(%)** 48.98    **(N-S)** 76.43    **(E-W)**

## Location Error(E)

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

## Location Error (Km)

|        | Mean    | Direction | Stddev | RMS    |
|--------|---------|-----------|--------|--------|
| Along  | 13.056  | N         | 7.731  | 15.173 |
| Across | -11.526 | W         | 9.822  | 15.144 |

## Scale (Km)

|         | Pixel Size | Stddev | %variation |
|---------|------------|--------|------------|
| Average | 10.918     | 0.671  | 9.180      |
| Along   | 11.254     | 1.332  | 12.535     |
| Across  | 10.768     | 0.357  | 7.684      |

## Internal Distortion (in Pixels)

|        | PeakToPeak | Mean   | Stddev | RMS   |
|--------|------------|--------|--------|-------|
| Along  | 1.745      | -0.213 | 0.66   | 0.691 |
| Across | 1.950      | 0.891  | 0.71   | 1.141 |

## Attitude Residuals (Deg)

| Pitch    | Roll     | Yaw     |
|----------|----------|---------|
| -0.01170 | -0.02483 | 0.19234 |

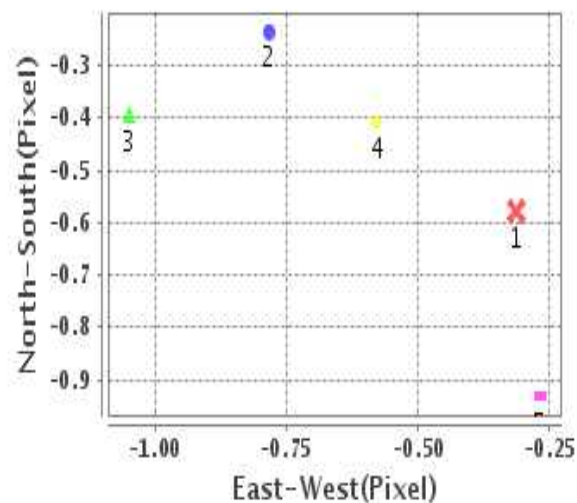
## Reference Used

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

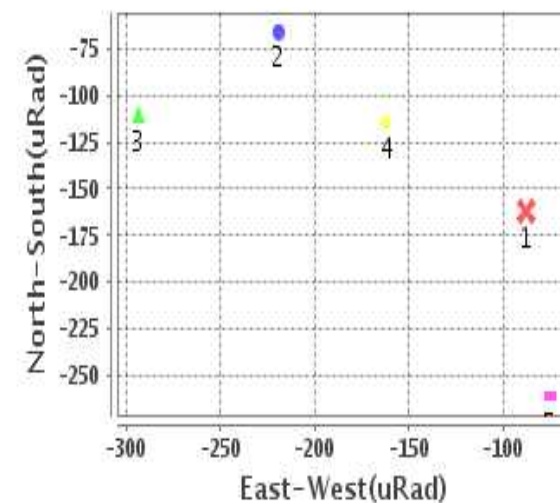
## Radial Error (Km)

| Mean | 20.782 |
|------|--------|
| Min  | 12.054 |
| Max  | 27.396 |
| CE90 | 23.351 |

## Location Error For GCPs(Pixel)



## Location Error For GCPs(uRad)



## Detailed Product Information

### Ancillary Info

|                          |               |                                  |            |
|--------------------------|---------------|----------------------------------|------------|
| <b>Satellite</b>         | INSAT-3DR     | <b>Generation Date</b>           | 06-01-17   |
| <b>Sensor</b>            | SND           | <b>DQE Date</b>                  | 09-01-2017 |
| <b>PassType</b>          | NONE          | <b>Aquisition Date</b>           | 06-01-17   |
| <b>Imaging Mode</b>      | FULL_FRAME    | <b>Aquisition Time(GMT)</b>      | 06:30      |
| <b>Sat Altitude(m)</b>   | 3.6E7         | <b>Nominal Altitude(Km)</b>      | 3.6E7      |
| <b>Station</b>           | BES           | <b>Predicted Altitude(Km)</b>    | -1000.0    |
| <b>Sat Location(deg)</b> | 0.0 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> | 0.0        |
| <b>DP JobId</b>          | 3RSND_06JAN20 | <b>Predicted Center Lon(deg)</b> | 0.0        |
| <b>ProductCode</b>       | NONE          |                                  |            |
| <b>Field View(deg)</b>   | 6.136         |                                  |            |

### 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>   | 24.081  |
| <b>Center Lon(deg)</b>   | 78.082  |
| <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> | 41.32   |
| <b>NW_Lon(deg)</b> | 53.068  |
| <b>SW_Lat(deg)</b> | 6.842   |
| <b>SW_Lon(deg)</b> | 53.068  |
| <b>NE_Lat(deg)</b> | 41.32   |
| <b>NE_Lon(deg)</b> | 103.097 |
| <b>SE_Lat(deg)</b> | 6.842   |
| <b>SE_Lon(deg)</b> | 103.097 |

### Band Wise Details

|              | Res_AL(Km) | Res_AX(Km) | Image Height | Image Width |
|--------------|------------|------------|--------------|-------------|
| <b>LWIR1</b> | 10.0       | 10.0       | 320          | 384         |
| <b>LWIR2</b> | 10.0       | 10.0       | 320          | 384         |
| <b>LWIR3</b> | 10.0       | 10.0       | 320          | 384         |
| <b>LWIR4</b> | 10.0       | 10.0       | 320          | 384         |
| <b>LWIR5</b> | 10.0       | 10.0       | 320          | 384         |
| <b>LWIR6</b> | 10.0       | 10.0       | 320          | 384         |

## 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 : 3RSND06JAN20170630L1BSA1**

(-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

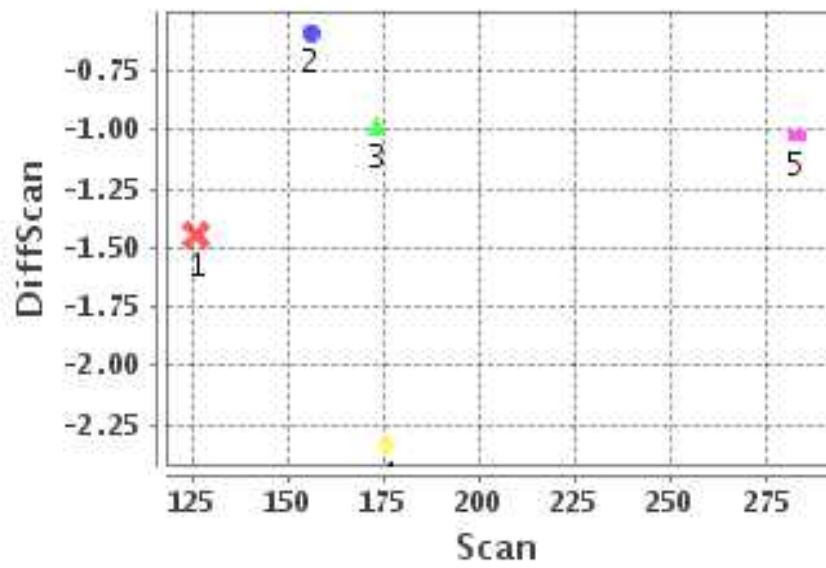
Image Width (pixels) : 384      Image Height (pixels) : 320      No of GCPs : 5

|                 | Mean  | StdDev | Min   | Max    | Coverage(in %) |
|-----------------|-------|--------|-------|--------|----------------|
| <b>GCP Scan</b> | 183.0 | 53.1   | 126.2 | 283.00 | 48.98 (N-S)    |
| <b>GCP Pix</b>  | 137.0 | 113.9  | 3.2   | 296.75 | 76.43 (E-W)    |

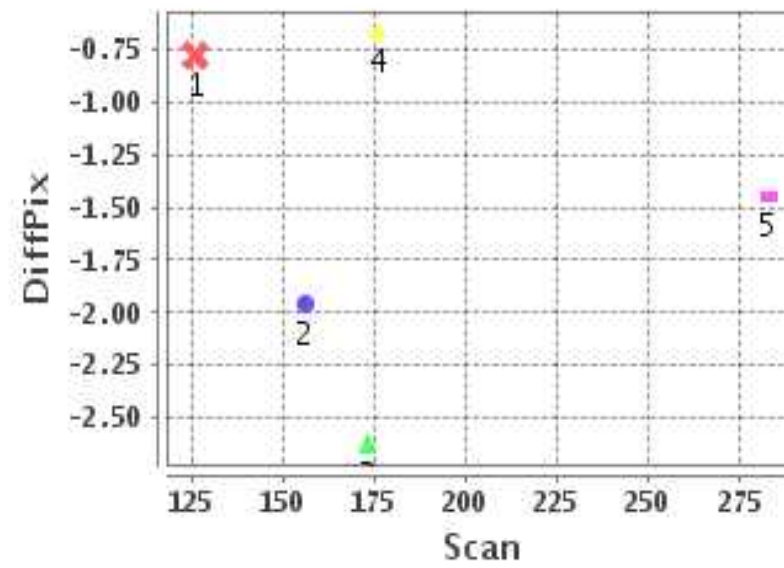
### Identified Control Point details : ( Differences are Reference - Product )

| No | Scan  | Pix   | DiffScan (line) | DiffPix (pixel) | DifLat (Km) | Dir | DifLon (Km) | Dir | Status   |
|----|-------|-------|-----------------|-----------------|-------------|-----|-------------|-----|----------|
| 1  | 126.2 | 3.2   | -1.4            | -0.78           | 15.079      | N   | 10.074      | W   | Accepted |
| 2  | 156.0 | 23.0  | -0.6            | -1.96           | 7.617       | N   | 21.676      | W   | Accepted |
| 3  | 173.5 | 133.5 | -1.0            | -2.62           | 5.530       | N   | 22.686      | W   | Accepted |
| 4  | 283.0 | 228.8 | -1.0            | -1.45           | 9.904       | N   | 6.870       | W   | Accepted |
| 5  | 176.0 | 296.8 | -2.3            | -0.67           | 27.149      | N   | 3.673       | E   | Accepted |

### Error(Pixels) Vs. GCPScan



### Error(Pixels) Vs. GCPScan



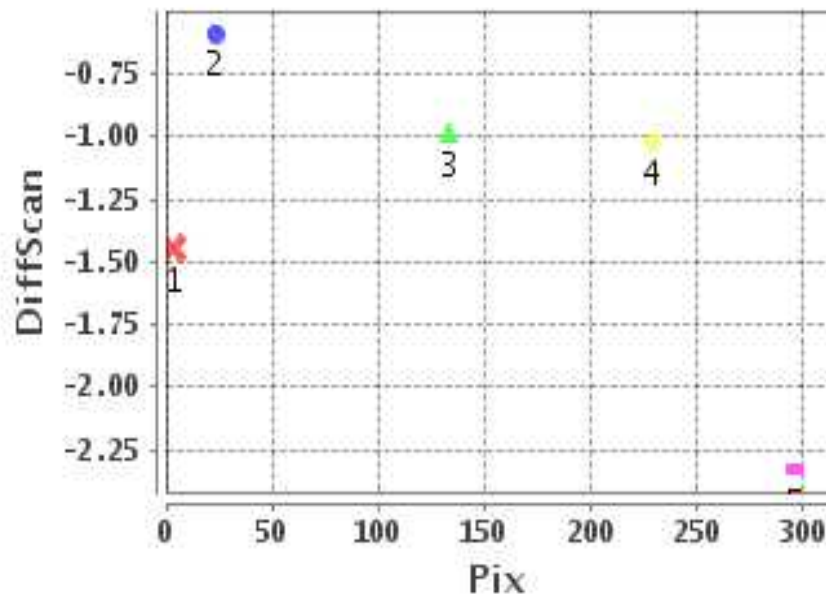
#### Number Of Points

|       |   |
|-------|---|
| North | 5 |
| South | 0 |
| East  | 1 |
| West  | 4 |

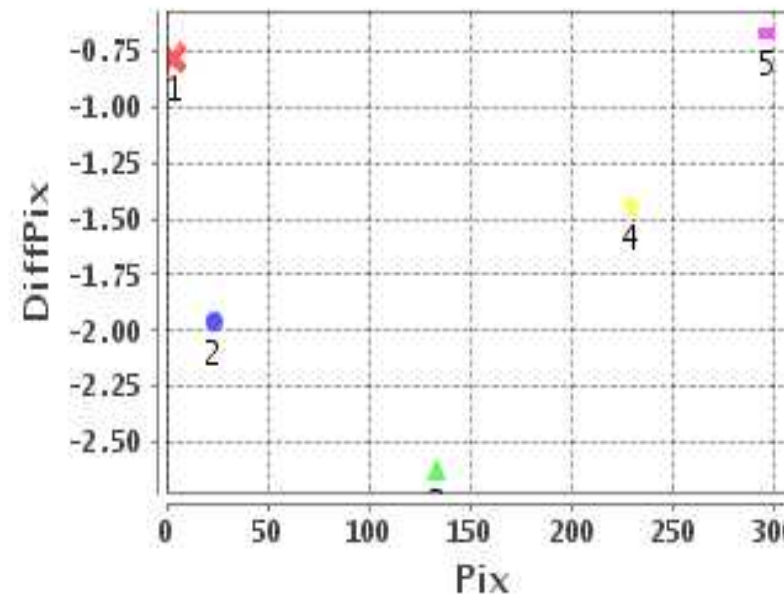
#### Radial Error ( Km )

|      |        |
|------|--------|
| Mean | 20.782 |
| Min  | 12.054 |
| Max  | 27.396 |
| CE90 | 23.351 |

### Error(Pixels) Vs. GCPPix



### Error(Pixels) Vs. GCPPix



#### Location Accuracy

|               | Mean    | StdDev | RMS    | Dir | * MinRMS | * MaxRMS |
|---------------|---------|--------|--------|-----|----------|----------|
| Along( Km )   | 13.056  | 7.731  | 15.173 | N   | 10.174   | 16.737   |
| Across ( Km ) | -11.526 | 9.822  | 15.144 | W   | 12.570   | 16.832   |

## Block-Wise Geo location Error Statistics

### Location Accuracy,Scale,ID

|  |         |          |
|--|---------|----------|
| <b>Scan Range-0-105; Pix Range-0-127</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-0-105; Pix Range-127-255</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-0-105; Pix Range-255-384</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-105-212; Pix Range-0-127</b> |        |       |
| Number of GCPs                             | 2      |       |
| <b>Location Error(Km)</b>                  |        |       |
| Along(Mean,Dir)                            | 11.35  | N     |
| Across(Mean,Dir)                           | -15.87 | W     |
| <b>Scale(Km)</b>                           |        |       |
| Average Scale (Mean,%Variation)            | 12.81  | 28.08 |
| <b>Internal Distortion(Pixel)</b>          |        |       |
| Along(Mean,Stddev)                         | -0.86  | 0.00  |
| Across(Mean,Stddev)                        | 1.17   | 0.00  |

|  |         |         |
|--|---------|---------|
| <b>Scan Range-105-212; Pix Range-127-255</b> |         |         |
| Number of GCPs                               | 1       |         |
| <b>Location Error(Km)</b>                    |         |         |
| Along(Mean,Dir)                              | 5.53    | N       |
| Across(Mean,Dir)                             | -22.69  | 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-105-212; Pix Range-255-384</b> |         |         |
| Number of GCPs                               | 1       |         |
| <b>Location Error(Km)</b>                    |         |         |
| Along(Mean,Dir)                              | 27.14   | N       |
| Across(Mean,Dir)                             | 3.67    | 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-212-320; Pix Range-0-127</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-212-320; Pix Range-105-255</b> |         |         |
| Number of GCPs                               | 1       |         |
| <b>Location Error(Km)</b>                    |         |         |
| Along(Mean,Dir)                              | 9.91    | N       |
| Across(Mean,Dir)                             | -6.87   | 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-212-320; Pix Range-255-384</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