



**भारतीय विमानपत्तन प्राधिकरण**  
**AIRPORTS AUTHORITY OF INDIA**  
**DIRECTORATE OF AIR TRAFFIC MANAGEMENT**  
**RAJIV GANDHI BHAWAN, NEW DELHI-110003**

GIS Circular – 01/2018

**Sub: Requirement of Survey due to change in airport features**

Lots of request from various airports are received by survey section at CHQ, AAI for survey requirement due to re-location of NAV-Aids or commissioning of new facilities or any change in parking bays at the airport.

Survey section manage OLS survey requirements of all 125 airports operated by AAI and also other RCS airports both under state govt. and private operators as per regulatory directives.

With its limited survey workforce and logistic support, survey section has constraints in taking up the limited survey requirement of airports on priority, due to any change in airport features or facilities.

In view of above, to expedite the surveying process, it is decided that in case of only few urgent point survey requirement of any airport feature, AAI Empanelled survey firms or local survey firms possessing requisite survey equipment may be engaged by the concerned airport following necessary codal procedures.

Survey firm shortlisted by the airport must have following survey equipment with minimum technical specifications as mentioned: -

**1. DGPS RTK GNSS Receiver –**

Accuracy (RMS):

Static & Fast Static: -

Horizontal accuracy – (5 mm ± 0.5 ppm) or better

Vertical accuracy – (10 mm ± 1 ppm) or better

Kinematic, RTK

Horizontal accuracy – (10 mm ± 1 ppm) or better

Vertical accuracy – (20 mm ± 1 ppm) or better



**2. Total station –**

Distance Accuracy:

Prism EDM accuracy –  $\pm (2+2 \times D)$  mm or better

Non-Prism accuracy –  $\pm (3+2 \times D)$  mm or better

Angular Accuracy – 1" or better

As per Annex 15 and DGCA CAR Section 9, there is a requirement that in case survey data at airport is collected by any third party, it must be validated by survey section to ensure quality requirements (accuracy, resolution, integrity and traceability) are met. Hence, following actions are to be followed by the concerned airport for validation requirement of the surveyed data: -

- i) Requirement of survey of limited features of the airport must be coordinated with the survey section, CHQ prior to take up the task with the third party survey firms.
- ii) Private Survey firm must possess survey equipment meeting technical specifications as mentioned above.
- iii) A copy of the work order shall be provided to the survey section after award of the required survey work to the private survey firm.
- iv) While survey of the required airport feature, following actions to be taken by the private survey firm and ensured by the concerned airport operator: -

**For DGPS observation: -**

1. A survey grade dual frequency DGPS observation on the site with a **minimum of 6 hours' observation** at Base station like ARP.
2. Detail of the survey equipment with accuracy specification
3. Copy of Valid calibration certificate of the survey equipment from the equipment manufacturer.
4. There should be at least 4 Photographs of the GNSS observation on site, covering and mentioning all directions with date and time.
5. The data should be produced to AAI in RINEX 2.1 and updated format.
6. The data log sheet has to be provided with the following information
  - a. The starting and ending time of the instrument
  - b. Height of the instrument
  - c. Name and type of the antenna used
  - d. Masking angle (need to be 10° in open-sky location and 15° in built-up areas)
  - e. Rate of observation should not be more than 1mins
7. The AUSPOS/OPUS report of the processed data.
8. The Output coordinate in DMS format containing the seconds information in a precision of 5 decimal degrees
9. Height and Elevation shall be in EGM-08.



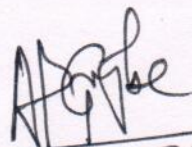
**For Total Station Observations:**

1. A survey grade Total station is required for height/elevation of the structure.
2. Detail of the survey equipment with accuracy specification.
3. Copy of Valid calibration certificate of the survey equipment from the equipment manufacturer.
4. A known reference point must be available for coordinates and elevation transfer.
5. The data log sheet has to be provided with the following information
  - a. Name of the station.
  - b. Height of the instrument
  - c. Angles and distance of the object from reference station. (if required).
6. The measured objects should contain easting, northing and elevation in precision of 3 decimal meters.
7. The surveyed data is required to be provided in Raw as well as Excel/ASCII format.
8. There should be at least 4 Photographs of the GNSS observation on site, covering and mentioning all directions with date and time.

After validation of the surveyed data, Survey section shall issue data quality certificate for the surveyed points to the airport for further action.

Any queries or further guidance required on the contents of this circular should be addressed to:

GM(ATM-Survey),  
Airports Authority of India,  
Rajiv Gandhi Bhawan,  
Safdarjung Airport,  
New Delhi-110003.  
Contact no: - 011-24632950 Extn-2622/2231

  
A.P. Gajbe 25.9.2018  
GM(ATM-Survey)

**Copy to:**

1. ED(ATM)/ED(ATM-TRNG) for information.
2. All RED's, APD, Chennai & Kolkata, AAI for information.
3. OSD to M(ANS), M(OPS) & M(Planning) for information.
4. AAI Website