



International Civil Aviation Organization

The Fourth Meeting of the South Asia/Indian Ocean ATM Coordination Group (SAIOACG/4) and the Twenty first Meeting of the South East Asian ATM Coordination Group (SEACG/21)

Hong Kong, China, 24 – 28 February 2014

Agenda Item 4: Implementation of CNS/ATM Systems

MUTUAL COLLABORATION FOR REGIONAL SBAS

(Presented by Airports Authority of India)

SUMMARY

On 14th February 2014, GAGAN Space Based Augmentation System (SBAS) signal-in-space was made available for providing Operational service capable of meeting RNP0.1 service levels to en-route flights within the entire Indian Flight Information Region covering both Bay of Bengal and Arabian Sea Regions. The final objective of achieving APV1 certification will be realized by end of 2014. The APV1 will enable SBAS vertical guidance to selected runway ends within Indian land mass. India welcomes active collaboration with all APAC states for extension of GAGAN services within their area of jurisdiction.

GAGAN also provides applications of GNSS performance monitoring and recording that is vital for provision of PBN services and will be a key enabler of PBN implementation and a first step towards GNSS transition.

1. INTRODUCTION

1.1 The ICAO 12th Air Navigation Conference held at Montreal from 19 to 30 November 2012, provided recommendation 6/5 – ICAO work programme to support global navigation satellite system evolution & recommendation 6/10 – Rationalization of terrestrial navigation aids by implementation of GNSS based services.

1.2 GAGAN was certified for RNP 0.1 operations over Indian Flight Information Region on 30th December 2013 and from 14th February 2014, GAGAN signal-in-space was made available to aviation for providing Operational service capable of meeting RNP0.1 service levels to en-route flights within the entire Indian Flight Information Region.

1.3 The final objective of achieving APV1 certification will be realized by end of 2014. The APV1 will enable SBAS vertical guidance to selected runway ends within Indian land mass.

1.4 GAGAN also provides applications of GNSS performance monitoring and recording that is vital for provision of PBN services and will be a key enabler of PBN implementation and a first step towards GNSS transition.

1.5 India welcomes active collaboration with all APAC states for extension of GAGAN services within their area of jurisdiction in line with ICAO work programme to support global navigation satellite system evolution.

1.6 APANPIRG 24 also acknowledged the need for cooperation for GNSS among states that have implemented SBAS and others who could utilize the same. India had urged APANPIRG to provide state letter in this regard.

2. DISCUSSION

2.1 During the BOBASIO/03 meeting held in India many states have provided point of contact for collaboration with regard to expansion of GAGAN service.

2.2 Due to the proximity of states like Myanmar, Nepal, Bhutan, Bangladesh, Srilanka, Afghanistan, Thailand etc. GAGAN operational benefits can easily be achieved for aviation through minimal infrastructure development in respective states.

2.3 India has published the AIP Supplement 48 of 2013 and Civil Aviation requirements for GNSS including SBAS (GAGAN) and GBAS.

2.4 India is also implementing the pilot project for establishing a certified GBAS at Chennai airport.

2.5 ICAO APAC states are collaborating for development of a regional ionospheric model through the Ionospheric Study Task Force (ISTF). India hosted the 4th ISTF meeting in conjunction with the 26th Interoperability Working Group (IWG) meeting from 5th to 7th February 2014. Both the meetings acknowledged the GAGAN would benefit the states in the Asia Pacific Region for GNSS transition planning and development as dual frequency operations is still a decade away.

2.6 India is planning to collaborate with regional airlines and helicopter corporation to develop RNP AR routes, low level helicopter routes, point in space approaches so that benefits of GAGAN can be quantified.

2.7 India encourages the states to evolve a joint project to study the cost benefits of implementing GAGAN.

2.8 The GAGAN systems is capable of integrating data from 45 reference stations (presently 15 channels are utilized) through OFC/VSAT C-band links with 2 master control centres (third one is also planned to be established in Delhi) and uplink using the three redundant uplink stations to both operational GEOs (GSAT-8 & GSAT-10).

2.9 States may consider establishing one or more reference stations along with performance monitoring and recording capability.

3. ACTION BY THE MEETING

The meeting is invited to:

- a) note the operationalization of GAGAN for RNP 0.1 service over Indian Flight Information Region.
- b) urge the member states in the sub-region to actively participate in exploring the feasibility for establishing the GAGAN based services to enable GNSS evolution in the region for seamless navigation.
- c) Discuss any relevant point.

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