International Civil Aviation Organization

THE FOURTH MEETING OF THE ASIA/PACIFIC GBAS/SBAS IMPLEMENTATION TASK FORCE (APAC GBAS/SBAS ITF/4)

(Video conference, 11- 12 May 2022)

Agenda Item 4: Review of Action Item List

IATA Aircraft Equipage and Capability Survey – GNSS Augmentations
(Presented by IATA)

SUMMARY

This paper presents preliminary analysis of airline responses to the GNSS Augmentations section of IATA's Aircraft Equipage and Capability Survey for Asia-Pacific and North Asia conducted in Quarter 1 of 2022.

1. INTRODUCTION

1.1 In recent years there have been multiple queries about fleet capabilities during ICAO meetings and other workshops dealing with CNS requirements and possible mandates. Unfortunately, the most recent and complete information isn't always available, and we have needed to conduct many smaller ad-hoc surveys to meet action items.

1.2 Understanding that a lot has and is still changing throughout and post-COVID, it was identified as an opportune time to conduct a broad and detailed survey in order to build a detailed baseline database for operators in our region.

1.3 As our industry is still in recovery mode from COVID-19, the IATA Aircraft Equipage and Capability Survey asked member and non-member airlines for responses that projected forward in a window of where fleet capabilities will be by the end of the 2022 calendar year.

2. DISCUSSION

The Survey

2.1 The survey specifically asked for aircraft fleet capabilities and operating approvals in the domains of PBCS, PBN, GNSS Augmentations, Mode S and SWIM. The airlines were asked to provide indications on future intentions where current capabilities were planned to be enhanced.

2.2 The survey also asked for information on likely regions or sub-regions where the specifically equipped aircraft are expected to operate. These regions were separated into the two primary IATA regions of ASPAC and NASIA which when combined is almost identical to the ICAO Asia & Pacific (APAC) region.

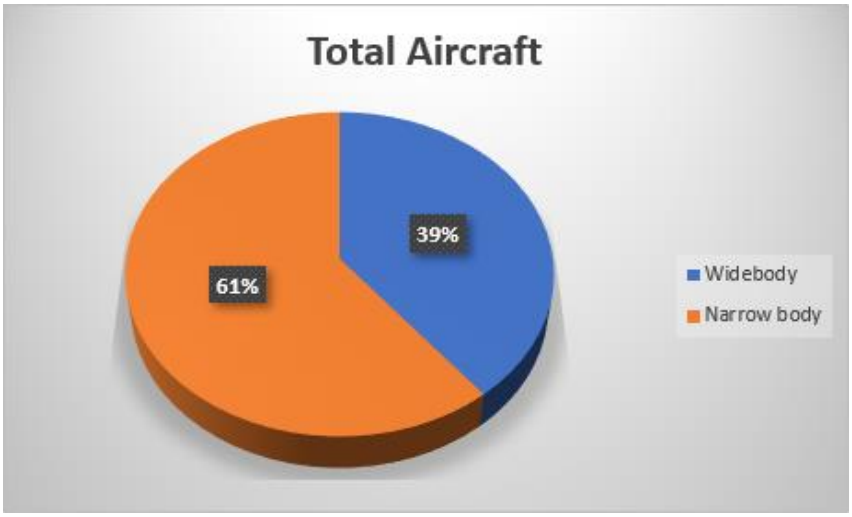
2.3 Sub-regions were listed as India/BoB, ASEAN, SE Asia and South Pacific to permit more

accurate responses from operators that have some concentrated fleet operations within those sub-regions only. The objective of this is to permit future analysis to 'drill-down' in those sub-regions when discussions on CNS capabilities are specific to those areas.

2.4 To date responses have been received from 22 airlines which include most major airlines based in APAC, several that are based in other regions but operate here, and several other airlines from within the region. Responses are still being sought in order to continue building the database which currently records equipage and capability data for approximately 3700 aircraft.

2.5 This paper covers preliminary analysis of the responses received for GNSS Augmentations. It looks at total numbers, wide-body, and narrow-body break-downs for ABAS, GBAS and SBAS capabilities.

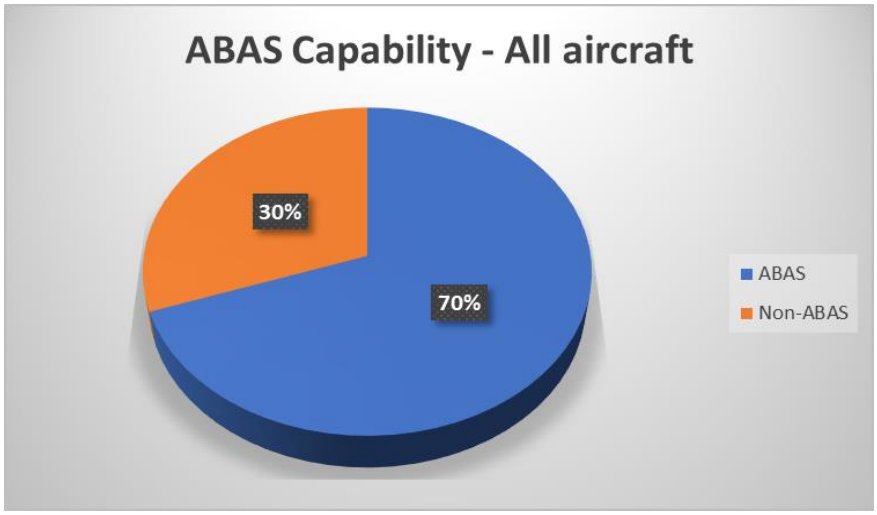
2.6 The current data shows that of the responding airline fleets, the majority are narrow-body aircraft.



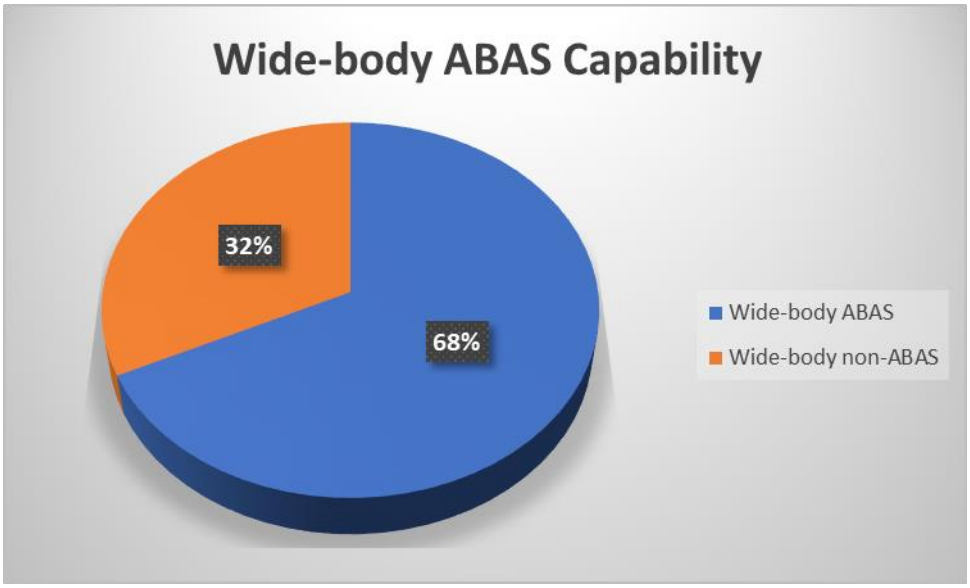
2.7 The analysis looks at the whole ICAO Asia & Pacific region and doesn't present results here for specific sub-regions or individual fleet types, however preliminary reviews indicates it is mostly narrow-body aircraft that add to the numbers for concentrations of fleets within specific sub-regions.

ABAS

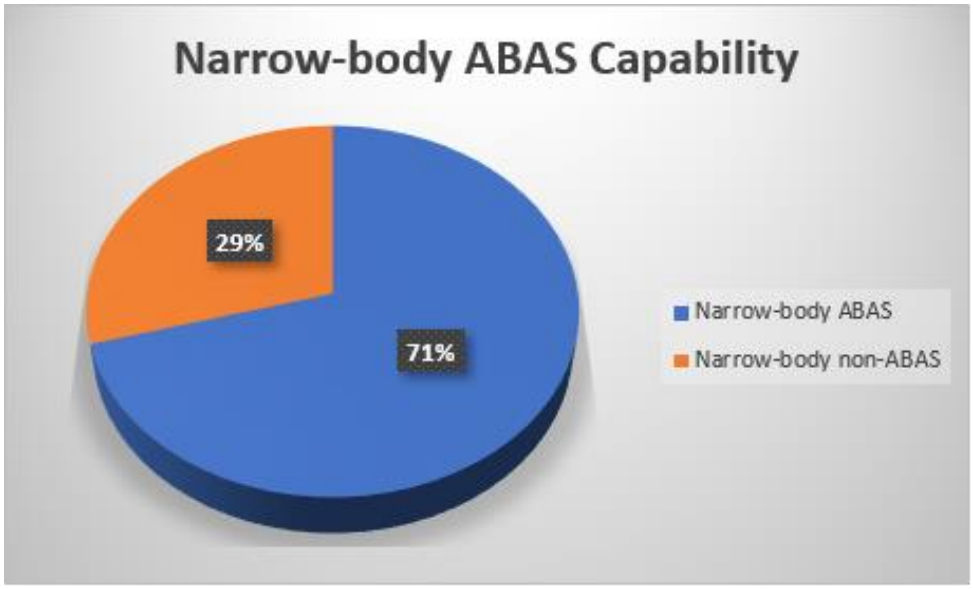
2.8 The data is showing that almost three-quarters of the aircraft in the region are ABAS capable.



2.9 Wide-body ABAS capability is approximately 70% with many of the non-capable aircraft older models with limited remaining lifetime.

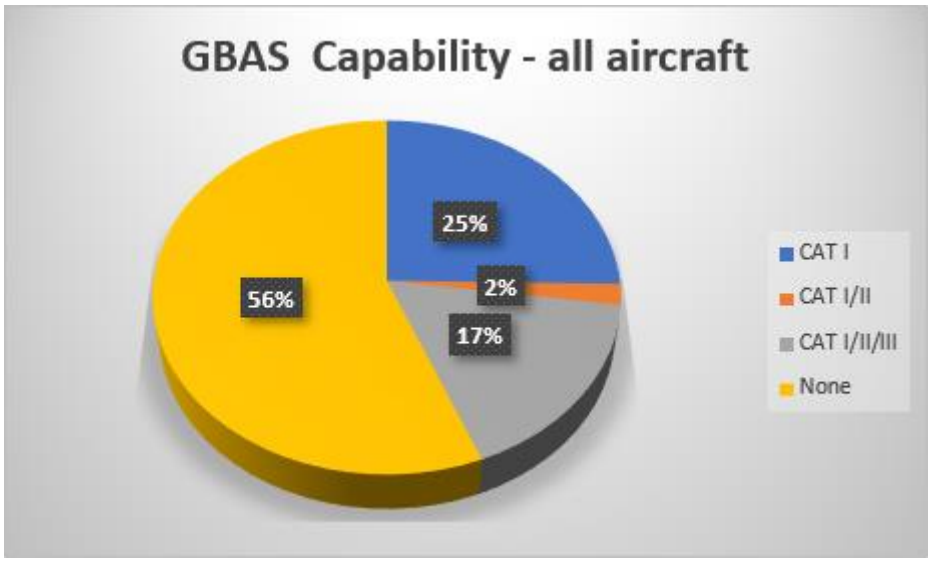


2.10 Narrow-body ABAS capability is also approximately 70% however more of the non-capable aircraft are either older models or those that operate within a smaller sub-region.

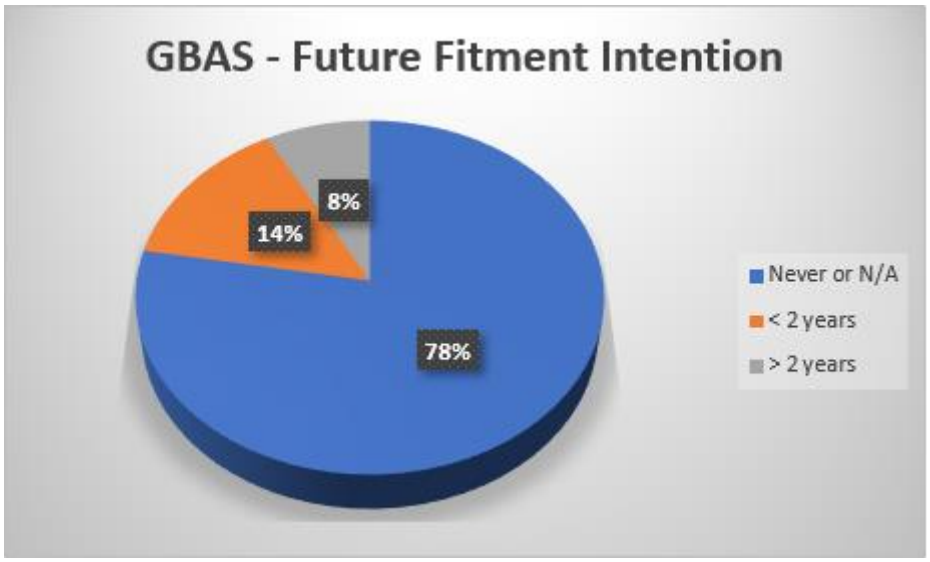

Narrow-body ABAS Capability
29%
71%
Narrow-body ABAS
Narrow-body non-ABAS

GBAS

2.11 Responses are showing that over half of the surveyed fleets are not GBAS capable which in part is a reflection on number of locations with the infrastructure or alternative navigation infrastructure. Equipped aircraft are primarily equally divided between CAT I capability and CAT I/II/III with only a few just CAT I/II.

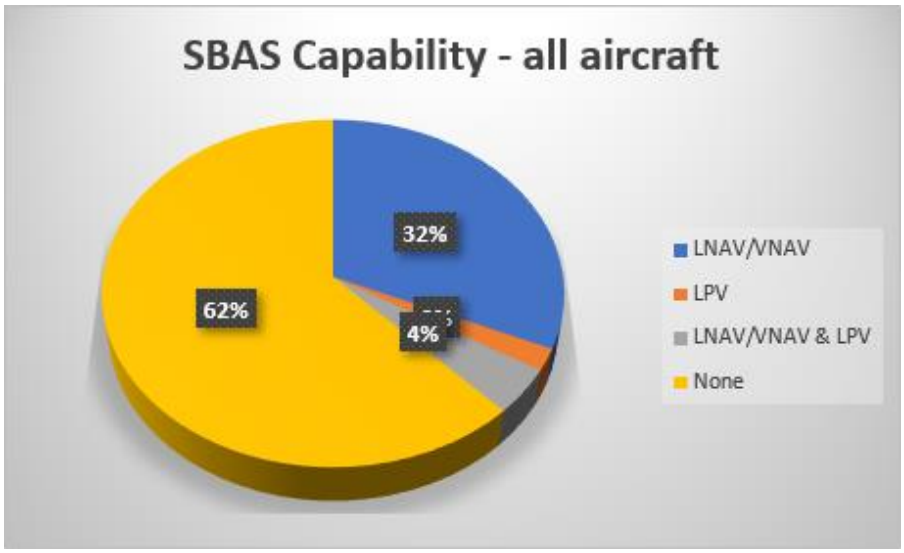


2.12 Of those not GBAS capable, over three-quarters of responses indicated no intention of future fitment or deemed it N/A which is treated as the same. Of those that do intend to fit in the future, more intend to adopt the capability in the shorter term rather than the medium-long term.

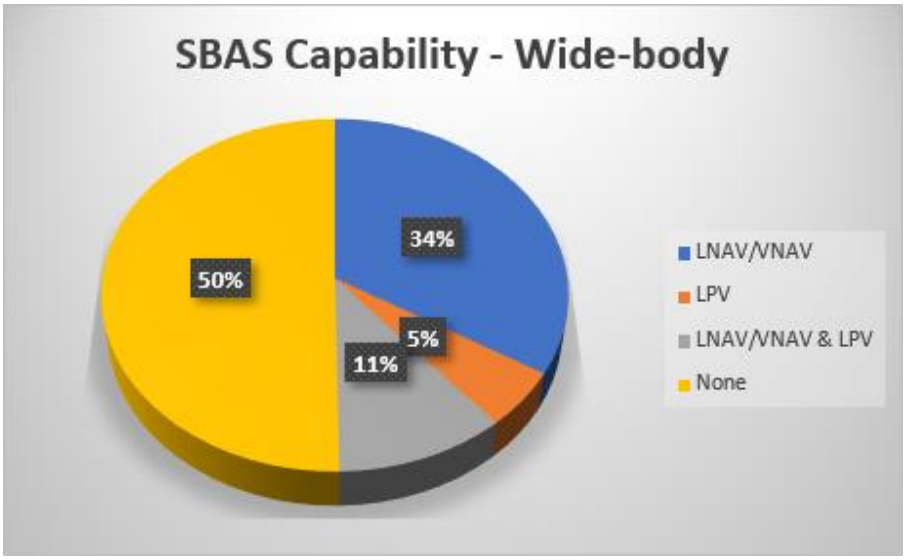


SBAS

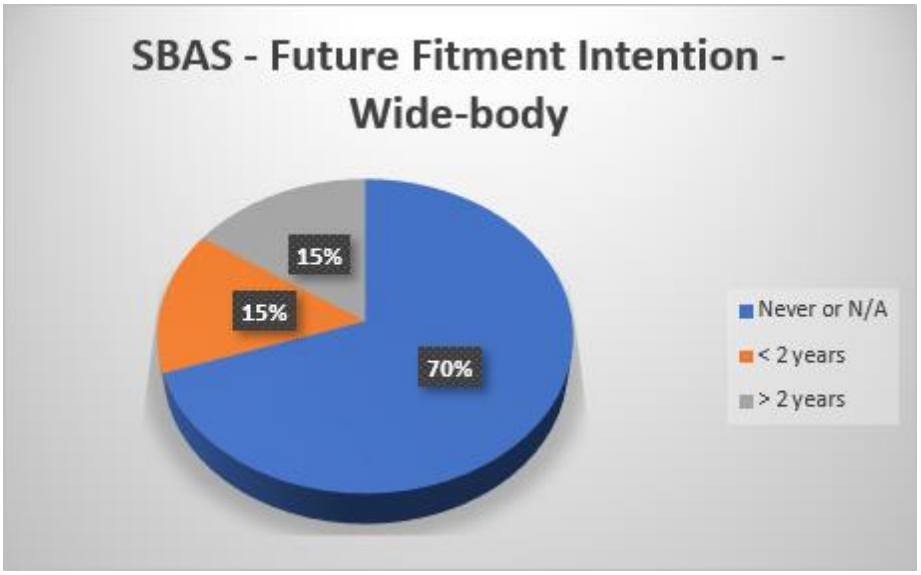
2.13 Like GBAS, the majority of aircraft in the responses are not SBAS equipped which is likely a reflection of its current areas of application or alternative navigation infrastructure meaning further cost of investment is not justified. The majority that are equipped are LNAV/VNAV capable.



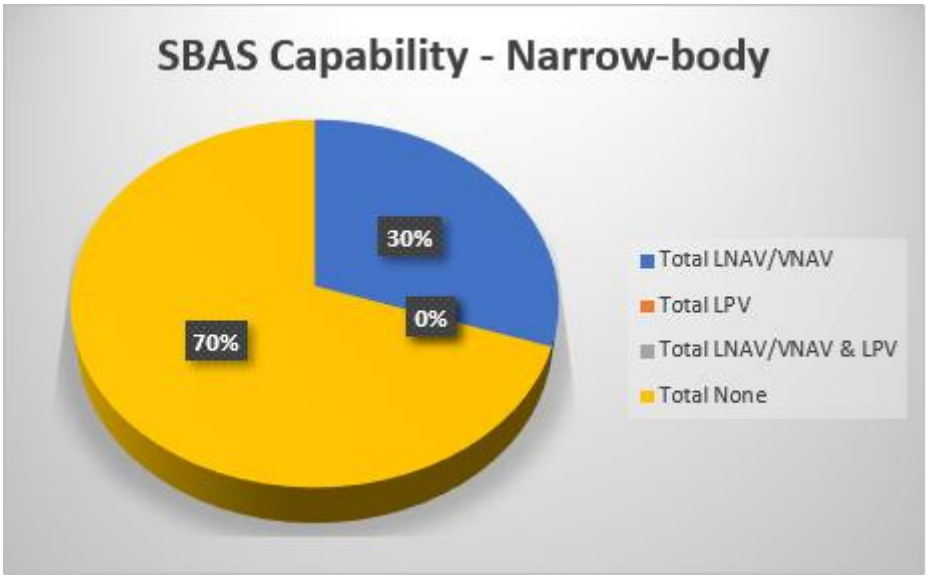
2.14 For the wide-body fleets, SBAS capability is slightly higher than the total numbers with most having LNAV/VNAV but more having both LNAV/VNAV and LPV than the total ratios.



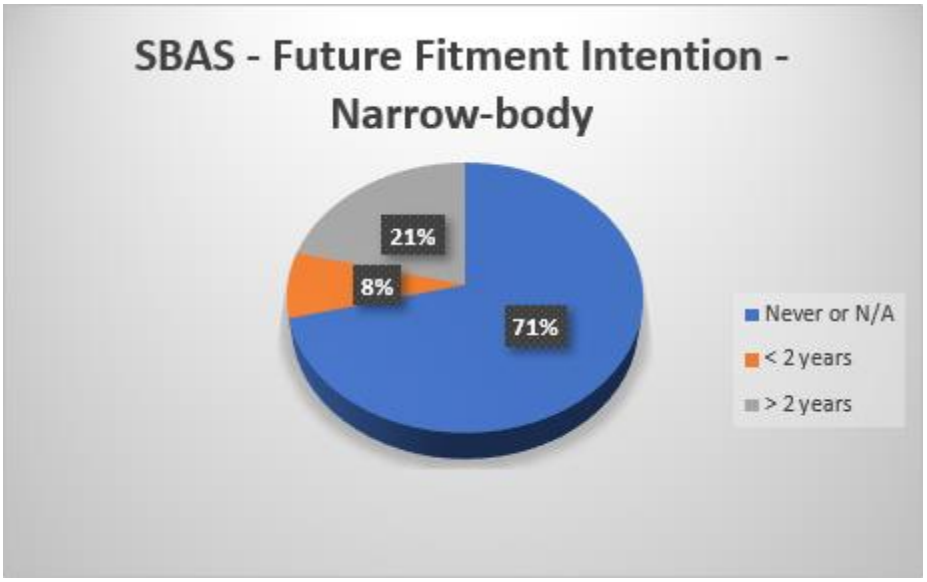
2.15 The large majority responses indicated no plans to fit for SBAS capability on wide-body aircraft. Again, this is likely a reflection of its current areas of application or alternative navigation infrastructure meaning further cost of investment is not justified. Airlines who are equipping with SBAS are doing so based upon their individual operational requirements and business case.



2.16 The non-capable ratio for SBAS is much higher in narrow-body aircraft than wide-body aircraft. Again, this is likely a reflection of its current areas of application or alternative navigation infrastructure, and in some cases potentially due to the limited geographical area of operations for the fleet.



2.17 Similar to the wide-body fleet, a large majority of responses for narrow-bodies indicated no plans to fit for SBAS capability. Airlines who are equipping with SBAS are doing so based upon their individual operational requirements and business case. Of those that do intend to fit in the future, only about a quarter intend to do so in the next two years.



Conclusion

2.18 IATA will continue to collect data from the survey and produce summaries that can support and inform future discussions within ICAO and other forums. More specific analyses will be conducted once all data is fully filtered and collated and will be based on specific discussions that will benefit from the outputs from the database.

3. ACTION REQUIRED BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper; and
b) discuss any relevant matters as appropriate.

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