

	ACTION List GBAS SBAS Implementation TF Last Updated: 2024/9/5						Appendix E
NUME	ACTION ITEM	PRIORITY	OWNER	DUE	STATUS ITF7	NOTES (ICAO Document ref)	Decision by ITF/6
1	Develop awareness and information sharing						
1.1	Organize a workshop with airspace users of the APAC region (expected benefits, comparison with ILS and Baro VNAV, operational concept, coverage of SBAS and GBAS, programmes in the region, fleet readiness, cockpit interface, business case, retrofit, mandates, inviting air operators already using SBAS or GBAS procedures)	HIGH	ICAO/IATA	Early 2023	Planned in Bengaluru India 14-16 oct 2025	ICAO and IATA as main organizers, with the host State. First choice would be to have a face-to-face workshop , in India for example, as Gagan has been put in place. Second choice is to organize a small webinar. To be decided in Dec 2020.	If no host before next ITF meeting, then ICAO to host in Beijing/Bangkok
1.2	Organize a specific meeting with APAC regulators interested in GBAS SBAS (update of regulation, certification of provider, certify pilot training and standard operating procedures., approval of procedures,...)	HIGH	ICAO and some States to conduct a survey first		??	Australia is supporting	Regulators to be urged in SL to join next meeting to get updated.
1.3	Create a brochure to summarize main aspects of GBAS and SBAS systems	HIGH	1) ICAO to collect information already available and put on the website 2)See whether we do need a	S1 2021	Closed	With input from other actions, may be combined with 1.4 Brochure in a second stage	
1.4	Make reference to existing information about benefits of GBAS and SBAS vs ILS and APV Baro	MEDIUM	ICAO	2020/12/31	Closed	What is already available from ICAO or from other regions ? From FAA : https://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/techops/navservices/gnss/ https://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/techops/navservices/gnss/library/factsheets/media/RNAV_QFacts_final_06122012.pdf From ICAO EUR/NAT https://www.icao.int/EURNAT/EUR%20and%20NAT%20Documents/EUR%20Documents/EUR%20Documents/025%20-%20EUR%20RNP%20APCH%20Guidance%20Material/EUD%20Doc%20025%20RNP%20APCH.pdf	

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1.5	Develop a list of GBAS and/or SBAS focal points in each APAC State	HIGH	ICAO / Action of the GBAS SBAS ITF/2 for ICAO RO to send a State Letter	9/30/2020- for dispatch of SL	Closed	Information to be put on the website	
1.6	Develop a synthetic list of the on going development of GBAS SBAS systems in the APAC region (coverage, date of entry into service)	HIGH	ICAO / Information to put on the website / Action Focal point to provide GBAS SBAS programme information to ICAO	2020/12/31	Closed	Reuse the format of the information presented at the workshop in Republic of Korea in 2019	
1.7	Develop a synthetic list of GBAS and SBAS fleet readiness	MEDIUM	ICAO/IATA/Eurocontrol	End of Q1 2021	Closed	Public information from IGWG and aircraft manufacturers. (https://ext.eurocontrol.int/analytics/saw.dll?Dashboard) The IGWG information is available at the EUROCONTROL's One Sky Team website (registration required).	
1.8	Develop a list/map of published GBAS and SBAS procedures in the APAC region	MEDIUM	ICAO with input from focal points	Next meeting	Closed	The flygls.net website (Airbus/Eurocontrol) lists the GBAS stations worldwide SBAS : FAA LPV approaches: https://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/techops/navservices/gnss/approaches/media/LPVs.xlsx EGNOS LPV https://egnos-user-support.essp-sas.eu/new_egnos_ops/resources-tools/lpv-procedures-map Europe through Eurocontrol access https://www.eurocontrol.int/platform/performance-based-navigation-map-tool	
1.9	Develop a list of APAC States' mandates (existing and planned) related to GBAS and SBAS	MEDIUM	ICAO with input from focal points	On going	??		States to report to ICAO
2	Experience sharing						
2.1	Organize a discussion and a visit if possible of States/Airports who have already implemented Gbas or Sbas systems (all subjects including siting,performance demonstration, safety assessment..)	HIGH	ICAO / When possible	To be discussed in the next meetings	Closed	Could be done in : - Australia as Melbourne and Sydney have published procedures on GBAS stations. - Japan : a GBAS operational trial procedure has been published at Tokyo Haneda and is applicable from 16 July 2020.	

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3	Technical issues						
3.1	Review of the previous ionosphere studies published in 2016 (also look at how to use SBAS coverage for GBAS)	HIGH	Expert Subgroup 3-1	2022/12/1	Closed	Coordination/harmonization with the ad hoc group of ICAO NSP GWG (GBAS Working Group) working on iono guidance for GBAS in low latitude regions.	
3.2	Management of SBAS Channel	MEDIUM	States to contact ICAO to get the SBAS channel numbers as per SL 2019/87		Closed	Handled by ICAO HQ SL 2019/87 from ICAO to States to nominate contact point and then can access the ICAO tool	
3.3	VDB frequency assignment and coordination in APAC	HIGH	Hong Kong China to coordinate with other States and ICAO	Next meeting	Closed	ICAO Doc 9718 is under revision to include VDB frequency compatibility criteria. To coordinate with Spectrum Review WG and Navigation System Panel (NSP). Mr Susumu Saito offered to help in coordination with NSP	
3.4	ATC interface and NOTAM matters (both for GBAS and SBAS) (Ref essential navigation means in Annex 10 ??)	MEDIUM	ICAO/ WP and discussion for a future meeting	Next meetings in Dec2022	To be discussed in SBAS GBAS workshop in India and at next meeting in 2026	Based from ICAO provision and experience of other regions	Some experience sharing done through WP/IP. More needed
3.5	SBAS coverage extension to neighboring States (simulation, adding ground station and associated costs, certification,Service Level Agreement)	HIGH	States operating SBAS should present WP	Next meetings	Closed	India / USA are willing to contribute to this WP	
3.6	GBAS and SBAS safety assessment	HIGH	States to share their experience	Next meetings	Closed	Presented by Australia on GBAS in ITF/3	Japan and ROK were requested to share in next meeting
3.7	GBAS SBAS performance demonstration (acc,int,avail,cont,time to alarm, data collection, simulation,...)	HIGH	States to share their experience	Next meetings	Next meeting in 2026	Also addressed in IGWG	States to consider sharing
3.8	GNSS signal monitoring (legal recording,...)	MEDIUM	States to share their experience	Next meetings	Closed	Ref ICAO GNSS Manual	
3.9	GBAS siting criteria	MEDIUM			Closed	EUROCAE ED114B and FAA Order 6884.1 (http://www.faa.gov/documentLibrary/media/Order/6884_1.pdf)	
3.10-	Information to be provided in the flight plan and information into AIP	MEDIUM			Closed	ICAO DOC 4444	
3.11	Final Approach Segment Data Block : 1) Tool to elaborate the FAS DB ; 2) How to validate FAS DB during the ground and flight inspection	MEDIUM	States to share their experience	Next meetings	Closed	Same for SBAS and GBAS? Ref Eurocontrol tool to create FAS DB : EUROCAE ED114B for GBAS	

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3.12	Phraseology	LOW			Closed	ICAO DOC 4444	
3.13	Lack of PRN numbers for SBAS Geo Satellites	MEDIUM	Mainly for new SBAS providers		Closed	Annex 10 / NSP and receiver standards RTCA DO229F	
3.14	Interference management (but this is not only specific to GBAS SBAS)	MEDIUM	States to share their experience		Closed		
4	Quick guides and references						
4.1	ICAO and others document review (Top Down)	HIGH	ICAO / Website		Closed	Source : ICAO presentation given at the first workshop in ROK in 2019	
4.2	Develop High Level guide on Implementation Process for GBAS and SBAS	HIGH	Expert Sub group 3-2	1st draft to be presented at the next meeting in March 2023	GBAS doc completed, SBAS doc needs to be finalized in May 2025.	What is already available from ICAO or from other regions ? Ref- GBAS Guide- ICAO SAM Region	Guidance document for GBAS implementation was completed in GBAS/SBAS ITF/6. It is planned to complete the guidance document for SBAS implementation in GBAS/SBAS ITF/7.
4.3	Technical support for system certification and operation certification	TBD		Next meeting in Dec2022	??	To be decided after meeting with regulators Linked with 1.2 and 3.6 above.	To see in the next meeting
4.4	Complement the "PBN in a page"	LOW	ICAO to assess what could be done		Closed	https://www.icao.int/APAC/Documents/edocs/PBN-in-a-page%20V2.pdf GBAS is not part of PBN but rather comparable with ILS	
5	Training						
5.1	To share syllabus for ATCOs	MEDIUM	To be confirmed	Next meeting	Next meeting in 2026		States to share
5.2	Develop one day/two day training workshop for ATCOs (Use of GBAS/SBAS for approach and landing : mixity of traffic, ATC interface, Notam,...)	MEDIUM	To be confirmed		Closed		
5.3	Deliver a training module on GBAS and SBAS instrument flight procedure design	MEDIUM	ICAO TCB Flight Procedure Programme (FPP)		Closed	Training conducted by FPP on 13-17 July 2020	