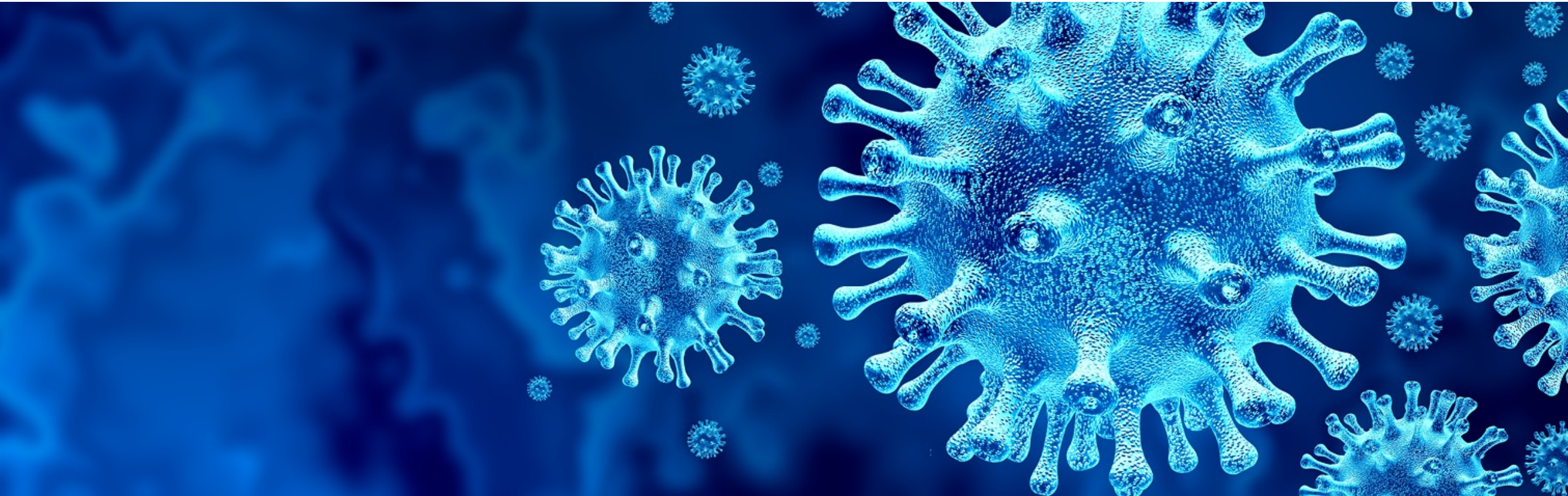




ICAO MID

1-3 December 2020

CNS SG/10 Meeting

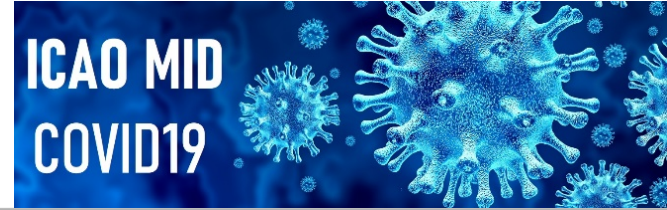




Agenda Item 2

Surveillance Matters

- Review the MID Region Surveillance Plan
- Surveillance implementation Monitoring matrix
- Mode S IC allocation for Military



MSG/7 (1-3 September 2020)

MSG CONCLUSION 7/6: UPDATE OF MID REGION AIR NAVIGATION STRATEGY

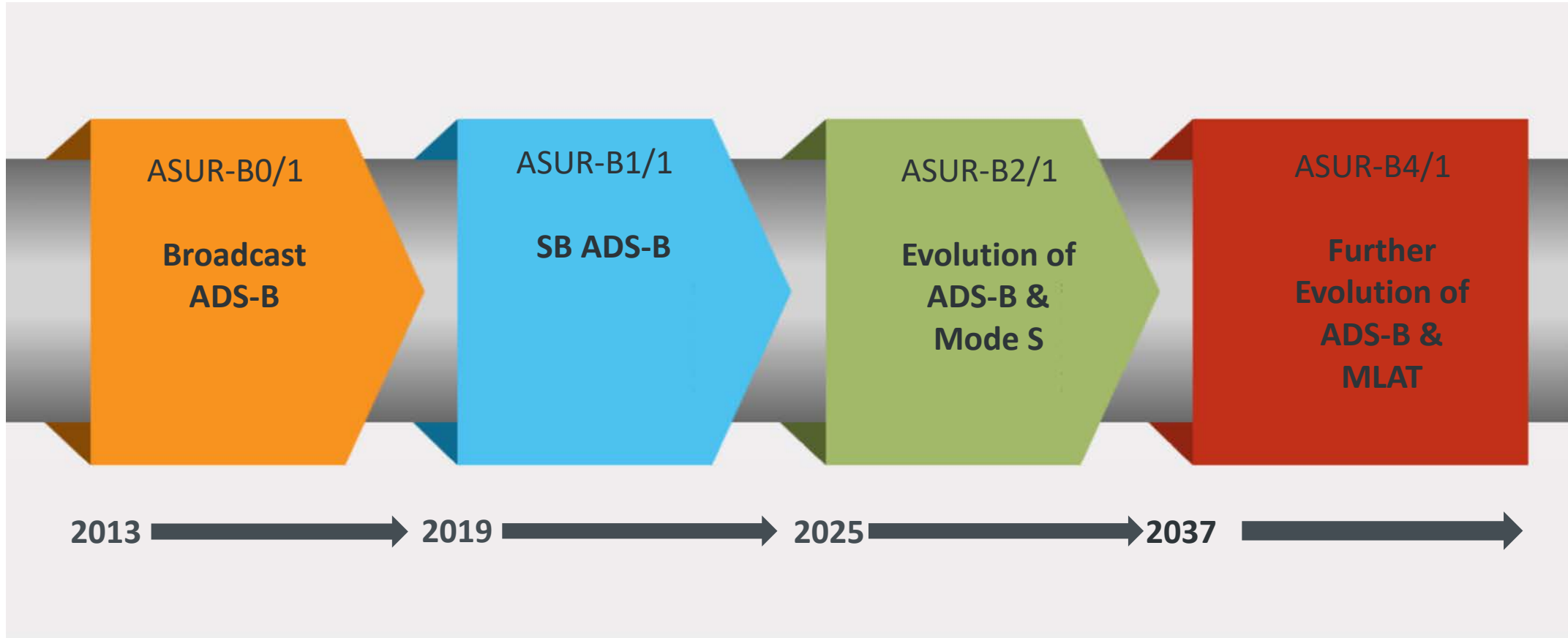
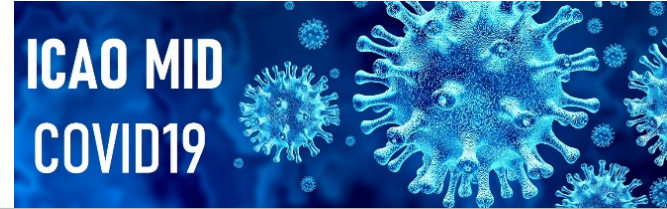
That, in order to improve the Initial Draft of the revised MID Region Air Navigation Strategy at Appendix 5.1A, with States and stakeholders inputs:

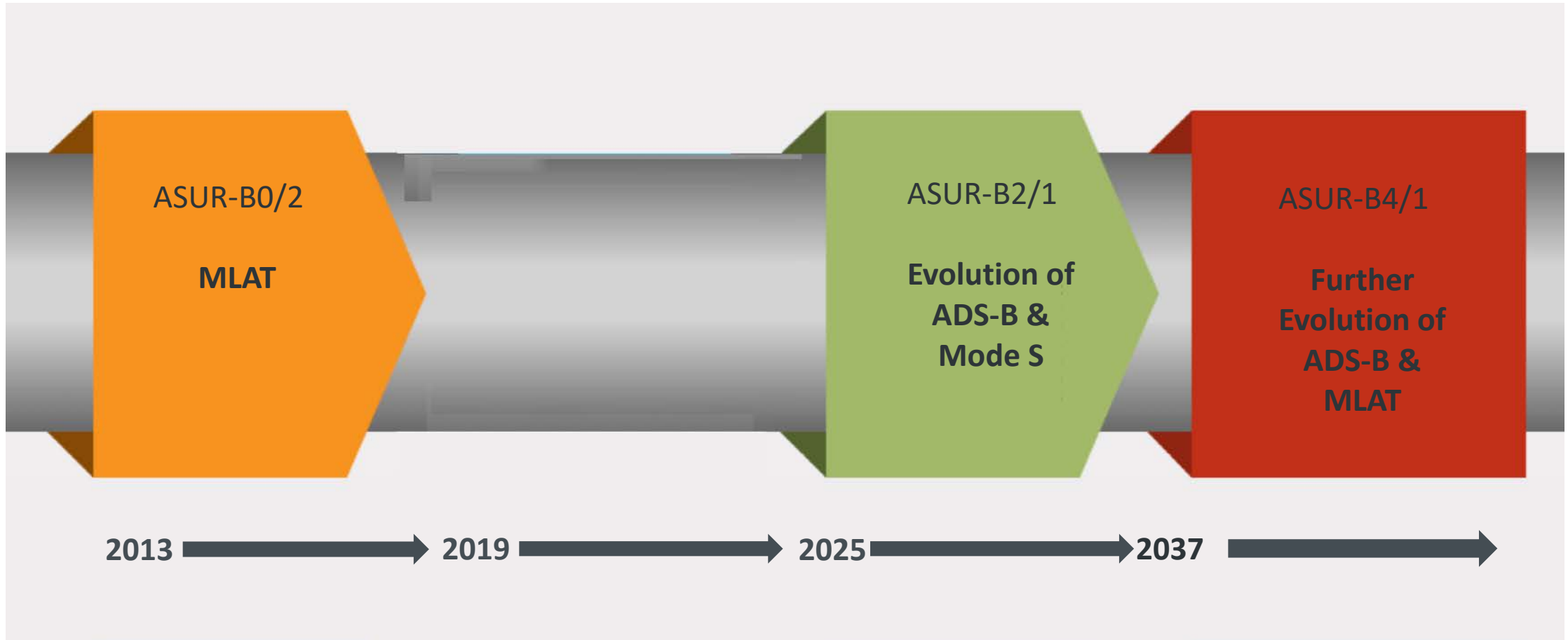
- a) States be invited to provide the MID Office by 15 October 2020 with their Air Navigation priorities and updated National Plan considering the provisions of the 6th Edition of the GANP endorsed by the 40th Session of the General Assembly (A40);*
- b) MIDANPIRG Sub-Groups provide proposals of amendment of the MID Region Air Navigation Strategy, considering the 6th Edition of the GANP, the inputs of States and Stakeholders, and agreed priorities, before 15 Dec 2020; and*
- c) the joint ACAO/ICAO ASBU Symposium review the inputs of States, Stakeholders and MIDANPIRG Sub-Groups for consolidation of the revised version of the MID Region Air Navigation Strategy to be presented to MIDANPIRG for endorsement.*

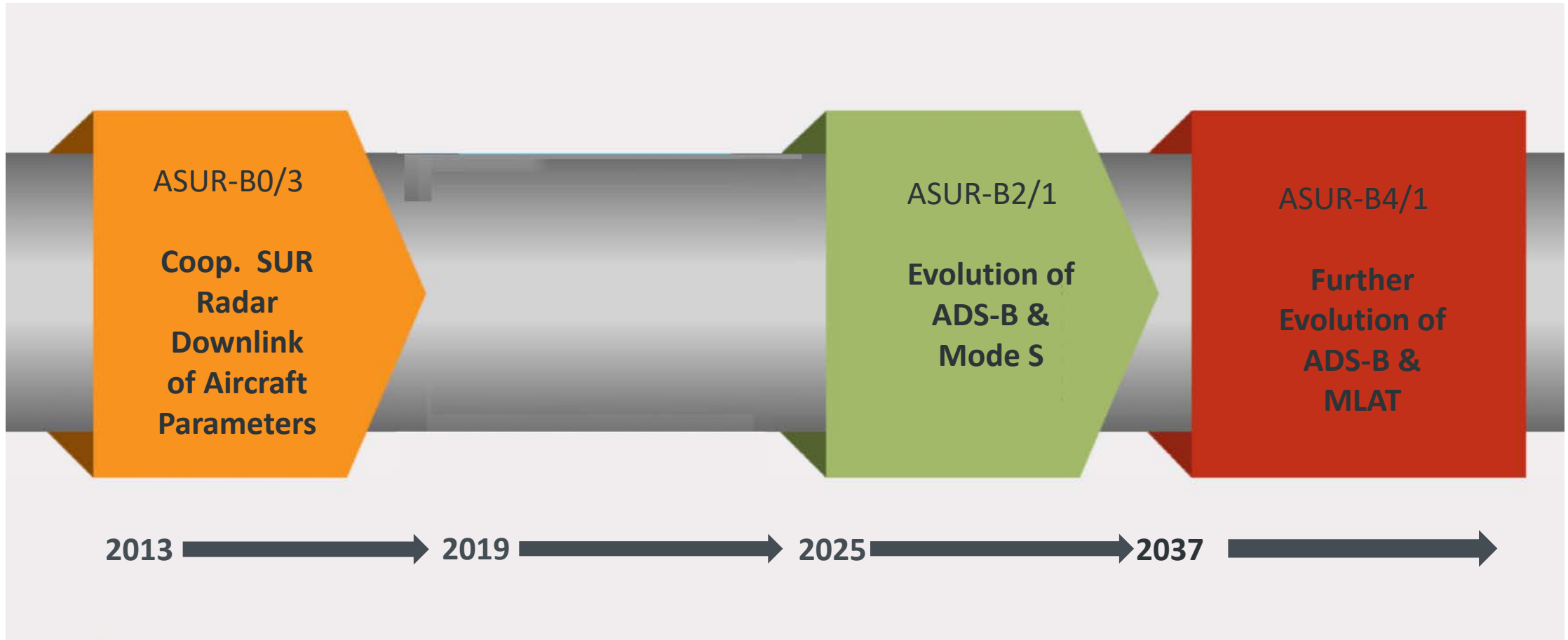


1) ASUR: Alternative Surveillance

ASUR-B0/1	Automatic Dependent Surveillance – Broadcast (ADS-B)	Technology			
ASUR-B0/2	Multilateration cooperative surveillance systems (MLAT)	Technology			
ASUR-B0/3	Cooperative Surveillance Radar Downlink of Aircraft Parameters (SSR-DAPS)	Technology			
ASUR-B1/1	Reception of aircraft ADS-B signals from space (SB ADS-B)	Technology			
ASUR-B2/1	Evolution of ADS-B and Mode S	Technology			
ASUR-B2/2	New community based surveillance system for airborne aircraft (low and higher airspace)	Technology			
ASUR-B3/1	New non-cooperative surveillance system for airborne aircraft (medium altitudes)	Technology			
ASUR-B4/1	Further evolution of ADS-B and MLAT	Technology			





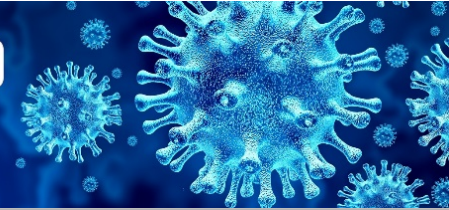




MID Region Surveillance Plan (MID DOC 013)

Short Term (2018 – 2020)

- *Make full use of SSR Mode 'S' capabilities, reduce reliance on 4-digit octal code.*
- *States to consider emerging dependent Surveillance technologies (ADS-B and MLAT) in their National Surveillance Plans.*
- *Non-cooperative Surveillance radars maybe retained for Airports and approach services based on States operational needs (detection drones, non-equipped vehicle,...,etc).*
- *ADS-B/Out Implementation:*
 - *Prioritize ADS-B/Out implementation in areas where there is no radar coverage surveillance.*
 - *State shall conduct safety assessment for ADS-B/ MLAT implementation as per Reference [5].*
 - *The proportions of equipped aircraft are critical for the ADS-B deployment, therefore, States should early involve Users, communicate the change, the rationale and the impact.*
 - *States are encouraged to use INCENTIVE strategy with stakeholders to accelerate ADS-B equipage; incentive approach might be financial or operational incentive or combined (e.g. Most Capable Best Served principle, waive fees).*
- *MLAT/SMR to be implemented at Aerodrome to enable A-SGMCS*
- **Radar Data sharing can be implemented to complement Radar coverage in areas that require procedural separation due to the unavailability of surveillance**



MID Region Surveillance Plan (MID DOC 013)

Mid Term (2021-2024)

- *ADS-B/Out Implementation (High proportion of ADS-B equipage is anticipated):*
- *ADS-B to be implemented for Area and approach Control Services, where implementation would bring capacity and operational efficiencies;*
- *Relocate, as appropriate, WAM Sensors to work as ADS-B receivers.*
- *States to share Radar/ADS-B data to improve boundary coverage and enhance the surveillance availability.*
- *Retain SSR Mode S Radar as backup to ADS-B*
- *MLAT/SMR/Camera to be implemented at Aerodrome for Ground/ Surface Management service.*
- *Surveillance Camera can be used to operate Remote Control Tower (B1-RTAS).*

Long Term (2025 Onward)

- *ADS-B is foreseen to be main Surveillance technology. The existence of Multi-constellation GNSS (GPS, Galileo, GLONASS, ..., etc.) reduces the likelihood of ADS-B outage.*
- *Implementation of Airborne Collision Avoidance System (ACAS) adapted to trajectory-based operations with improved surveillance function supported by ADS-B aimed at reducing nuisance alerts and deviations.*
- *Airlines to upgrade ADS-B/Out Avionic to ADS-B in/out.*



IATA's proposed changes to the MID REGION SURVEILLANCE PLAN Document:

Item : 7. **BASELINE IN THE MID REGION (20/3/2019)**

All MID State uses SSR/MSSR, some States Uses PSR for Security and Safety purposes. Any user charges associated with existing PAR installations should be eliminated.

Item : 8- **SURVEILLANCE PLAN**

ADS-B/Out Implementation:

- Prioritize ADS-B/Out implementation in areas where there is no radar coverage surveillance.
- State shall conduct safety assessment for ADS-B/ MLAT implementation as per *Reference [5]*. Where there is a lack of ADS-B avionics equipage, MLAT can be an alternative mean to meet specific surveillance requirements

Long Term (2025 Onward)

Add the following paragraph:

"Airlines to upgrade ADS-B/Out Avionic to ADS-B in/out. Provided a global agreement is reached on the avionics requirements and standards; there is a harmonized and clear definition of roles, responsibilities, and liabilities of pilots and air traffic controllers; and a cost and benefit analysis is conducted that presents a positive business case for airlines and ATS providers.



ASUR		Priority	Applicability	Performance Indicator*
B0/1	ADS-B	1	TBD	Indicator: % of States that have implemented ADS-B to supplement surveillance coverage
B0/2	MLAT	1	TBD	Indicator: % of States that have implemented Multilateration as required
B0/3	SSR-DAPS	1	TBD	Indicator: % of States that have enabled the downlink of the aircraft parameter (DAPS)
B1/1	SB ADS-B	2	-	-

**The performance indicator/ supporting metric, target and timeline for each element will be discussed during the CNS SG/10*



Food for thoughts

- Have your States implemented/planned implementation of any of the alternative Surveillance technologies(ADS-B, MLAT, SB ADS-B, mode S)?
- Do you have SUR GAP areas in your States? If yes, how do you plan to improve SUR coverage there?
- Where do you use MLAT?
- Do you use ADS-B as main SUR technology or backup means?
- Have your state issued ADS-B carriage mandate?
- Do you intend/use ADS-B to improve capacity “reduced separation”?
- Do your State intend to use primary Radar for civil purpose?
- How do you encourage user to accelerate ADS-B equipage?



Action by the meeting:

The meeting is invited to review the MID Region Surveillance Plan and update as appropriate (part 6, 7, and 8)



Surveillance Implementation Monitoring

- In order to monitor the Surveillance Implementation in the MID Region; MIDANPIRG/17 meeting reviewed and agreed to add the Surveillance Implementation Monitoring Table to the MID ANP Vol III, and agreed to the following MIDANPIRG Conclusion:

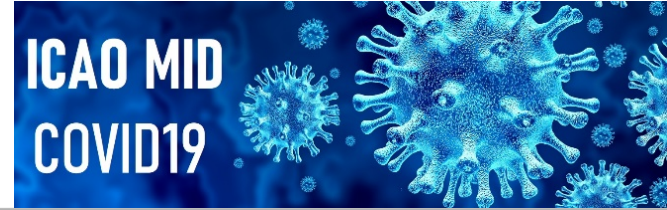
MIDANPIRG CONCLUSION 17/37: MONITORING THE SURVEILLANCE IMPLEMENTATION

*That, the Table at **Appendix 6.2W** be added to the MID eANP Vol III for the monitoring of Surveillance implementation in the MID Region.*



Action by the meeting:

The meeting is invited to populate their data in the Surveillance Implementation monitoring matrix.



Mode S IC allocation for Military

- An Interrogator Code (IC) is either:
 - Interrogator Identifier code (II code), or
 - Surveillance Identifier code (SI code)
- 16 II codes are available: II code 0 to II code 15
 - 16 II codes was very limited
- 63 SI codes added in 1997: SI code 1 to SI code 63
- II code 15 is reserved for NATO management in the ICAO EUR region .
- SI codes matching II code 15 (SI 15, SI 31, SI 47 and SI 63) are reserved for military operations in the ICAO EUR region.
 - Non-fixed deployable military radars
 - The management of these codes is the responsibility of NATO.



Mode S IC allocation for Military

- According to MID Region IC allocation process, version 1.04 - April 2019 (approved by MIDANPIRG/17)

In the ICAO MID region, II code 15 and matching SI codes (SI 15, SI 31, SI 47, SI 63) are reserved for military operations.

- The meeting is invited to note the above mentioned info about IC allocation for military in the MID Region.



Thank you for your Attention