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AIR NAVIGATION SERVICES

COMMUNICATION

**ADS-B AND MODE S 1090 MHZ "EXTENDED SQUITTER" AIRCRAFT TRANSPONDER
REQUIREMENTS IN SOUTH AFRICA**

- ☞ Indicates changes.
- ☞ This AIC replaces AIC 005/2023 dated 13 JUL 2023 in toto.

1. Purpose

The purpose of this AIC is to communicate the ADS-B and Mode S 1090 ES (Extended Squitter) transponder requirements to the South African Air Traffic Management (ATM) community. The AIC will also provide clarification of the identified designated airspace within which the ADS-B OUT will be required.

The ADS-B OUT performance requirement mandate within South African domestic airspace will enable achievement of the safety and efficiency objectives and improve Air Traffic Surveillance service. It also serves to emphasise the airspace safety benefits enabled by ADS-B and encourage collaboration by all affected members of the ATM community to ensure awareness of the implementation of this additional surveillance capability.

To enable ATNS and other Air Navigation Service Providers (ANSP's) to ensure that adequate conflict management and applicable navigational assistance is provided as mandated by the State and regulated by the appropriate CAA (Civil Aviation Authority), it is necessary to continuously review and appropriately update the enabling technologies that allow for improved Air Traffic Management Service Delivery (ATM SD), in line with Global, Regional and National plans.

In the Republic of South Africa, transponder equipage while in CLASS A and CLASS C airspace is mandated according to SA-CAR 91.05.1 sub paragraph 4, of the Civil Aviation regulations, 2011. Furthermore, Regulation 91.05.5 read together with the SA-CATS 91.05.5; provides further clarity and support to this transponder mandate.

2. General

The South African ADS-B OUT performance requirement mandate implementation is planned to be implemented through a phased approach beginning with upper airspace. Starting on the 12th of June 2025 (AIRAC), aircraft operating within RVSM and Class A airspace will be required to be suitably equipped in accordance with the SA-CATS 91.05.5.

Implementation of ADS-B OUT performance requirement mandate in Class C airspace will be done in a phased approach and it is not anticipated to occur before 2027. The approach and timing for implementation in Class C airspace will be determined pending further assessments, industry and ATM community engagement supported through National Airspace Committee (NASCOM) process.

Current radar systems are supplemented incrementally as a matter of improvement and will eventually replace certain of the current elements which may become obsolete or irrelevant in future. Automatic Dependent Surveillance-Broadcast (ADS-B) has been identified as such a technology. In addition, due to the increased traffic volumes, especially in complex terminal areas, the requirement of Mode Select (Mode S) Extended Squitter transponders will also be introduced in a phased approach to ensure effective operational performance of the surveillance sensors.

ADS-B and Mode S enhanced surveillance enables the automatic provision of essential information fed to the automated Air Traffic Management (ATM) system required to meet the challenges posed by the global concepts and resultant plans.

It is recommended that all new transponder installations consist of an ADS-B / Mode S 1090 MHz Extended Squitter. It is envisaged that all aircraft required to carry transponders will need to upgrade in accordance with a schedule, consistent with Regional and National plans as defined.

3. Conclusion

The South African ADS-B regulation 91.05.5 of the Civil Aviation Regulations, 2011 (CAR 2011) together with the technical standards SA-CATS 91.05.5 were developed collaboratively through industry and ATM community consultations.

Implementation progression and installations carried out on South African registered aircraft will need to meet the specifications as laid down in the SA-CATS 91.05.5 in accordance with the schedule as defined by the SA-CARS 91.05.5.

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