



Automatic Dependent Surveillance-Broadcast

ADS-B

Automatic Dependent Surveillance-Broadcast ADS-B

ADS-B IS AN:

AIR TRAFFIC CONTROL and SAFETY TOOL

- FAA Air Traffic Control provides service to more than 45,000 flights and 2.9 million airline passengers traveling across more than 29 million square miles each day
- ADS-B is the primary component of the Next Generation Air Transportation System (NEXGEN)
- ADS-B is newest means for controlling air traffic within the National Airspace System (NAS)

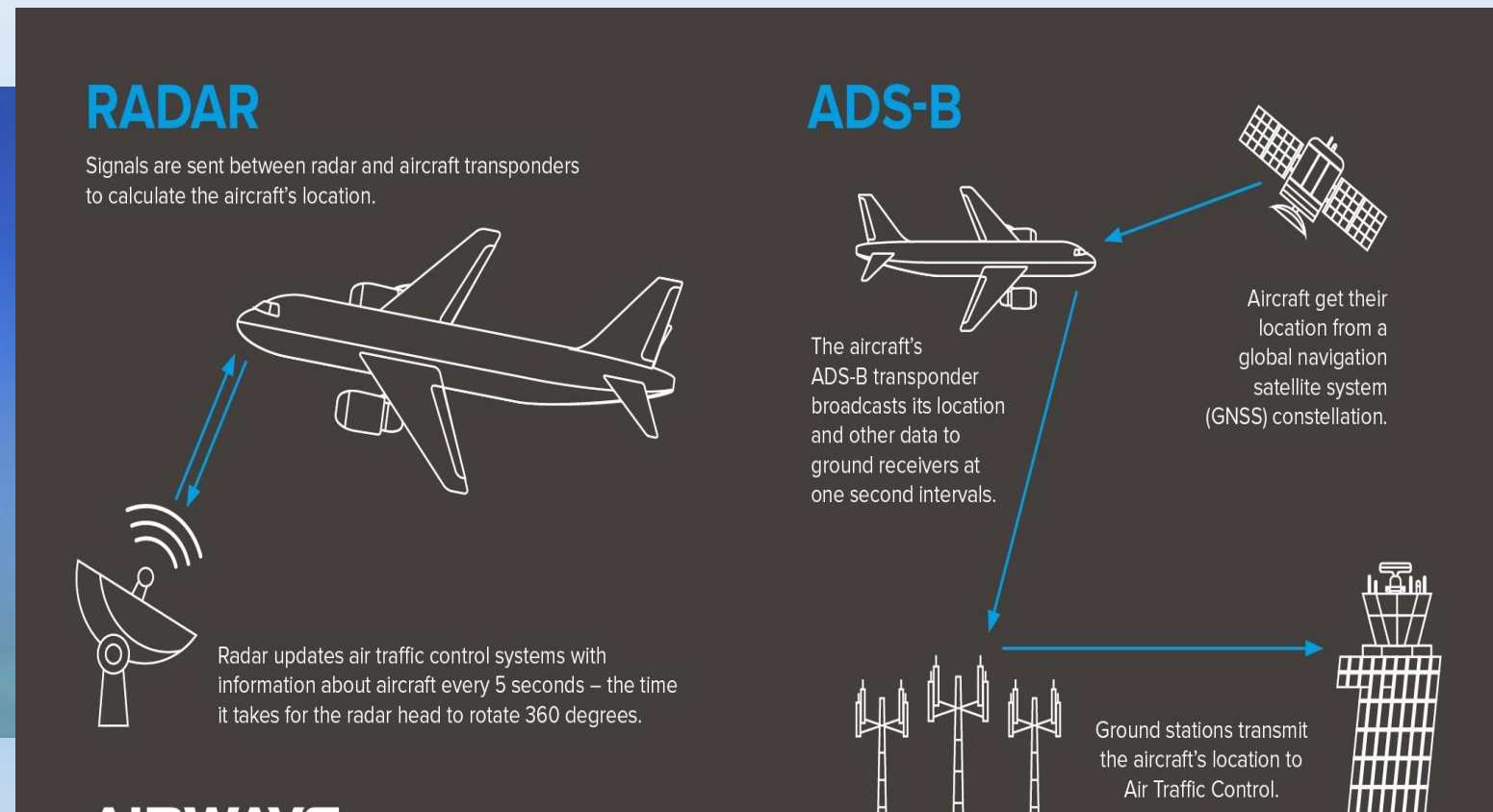
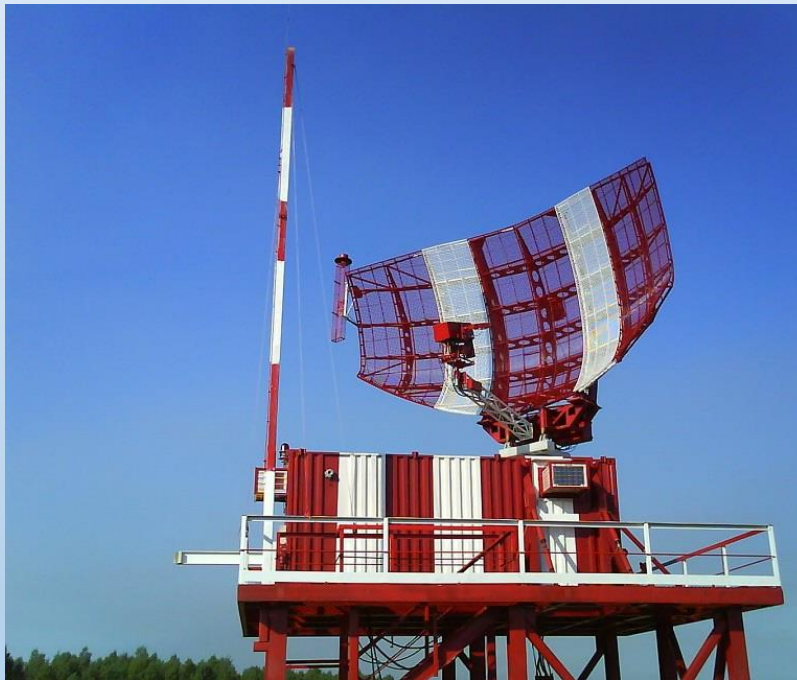
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ADS-B Benefits:

- ADS-B offers increased safety, efficiency and awareness for pilots and air traffic controllers at a lower overall cost than the current radar system.
- ADS-B makes radar based ATC obsolete, moving the U.S. to a satellite derived aircraft location and control system
- ADS-B provides air traffic controllers ability to more accurately and reliably monitor aircraft position
- ADS-B allows controllers to guide aircraft safely into and out of crowded airspace with smaller separation standards than previously possible

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Automatic Dependent Surveillance-Broadcast (ADS-B) is the primary technology which shifts aircraft separation and air traffic control from ground-based radar to satellite-derived positions.



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ADS-B Control / Governance / Regulation

- ADS-B is regulated and controlled exclusively by the Federal Aviation Administration (FAA) within the auspices of the U.S. Department of Transportation

- **14 CFR §91.225**

Automatic Dependent Surveillance-Broadcast (ADS-B) Out equipment and use

- **14 CFR §91.227**

Automatic Dependent Surveillance-Broadcast (ADS-B) Out equipment performance requirements

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ADS-B Aircraft Functions

ADS-B Out—required in the ADS-B rule airspace defined by FAR 91.225

- Broadcasts GPS position to ground stations and directly to equipped aircraft.

ADS-B In—optional

- Transmission of weather and traffic information from ground stations into the cockpit, where it can be displayed on panel-mounted avionics or a tablet, such as an iPad.

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January 2, 2020

In the continental United States, ADS-B Out has been required for flight in:

- Class A, B, and C airspace
- Class E airspace at or above 10,000 feet msl, excluding airspace at and below 2,500 feet agl
- Within 30 nautical miles of a Class B primary airport (the Mode C veil)
- Above the ceiling and within the lateral boundaries of Class B or Class C airspace up to 10,000 feet (note that ADS-B is not required below a Class B or Class C airspace shelf, if it is outside of a Mode C veil)
- Class E airspace over the Gulf of Mexico, at and above 3,000 feet msl, within 12 nm of the U.S. coast
- Without ADS-B Out, an aircraft can fly in any airspace except the ADS-B rule airspace defined by FAR 91.225. Note that ADS-B is not required in Class D airspace, or under a Class B or Class C airspace shelf, unless it lies within a Mode C veil.

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PRIVACY

There are two paths to ADS-B compliance, 978UAT or 1090ES, which are simply different datalink options to transmit aircraft, flight and performance data.

14 CFR §91.227(d)(8)

- Most 978UAT ADS-B transponders have an Anonymous mode that can be used any time the flight is not on an IFR flight plan or receiving air traffic services and are transmitting a 1200 transponder code. A pilot can file and activate a VFR flight plan under this provision.
- The FAA's Privacy ICAO Address (PIA) program provides operators of 1090ES-equipped aircraft with an alternate, temporary ICAO aircraft address not associated with the owner in the Civil Aviation Registry, increasing privacy of their operations. A third-party call sign is required and can be obtained for a subscription or fee.

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SECURITY

- Because the content of ADS-B messages is not encrypted, it can be read by anybody
- Security concerns associated with ADS-B Out is with the proliferation and wide availability of new inexpensive ADS-B ground receivers and applications than can track ADS-B equipped flights for up to 100 to 300 miles
- ADS-B has no defense against interference via hoaxed ADS-B messages because they may be neither encoded nor valid. The lack of any authentication makes it mandatory to validate any received data by use of primary radar
- The FAA is unable to disclose the mitigation measures for this situation because they are classified

Automatic Dependent Surveillance-Broadcast ADS-B GLOBAL FLIGHT TRACKING SITES

Examples:

- Flightradar24
- ADS-B Exchange
- FlightAware

- Use “Feeders” to collect ADS-B data – an antenna that receives and decodes ADS-B transponder signals, usually provided free to individuals/companies to expand the site’s application coverage

- Sites allege “real time” data but numerous providers estimate and/or interpolate aircraft data

- Most sites are commercial enterprises and rely upon subscriptions, advertising or other means of funding

- Not an accurate or legal source of aircraft data

- Not used by the FAA as source material for air traffic control, oversight or enforcement

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**ADS-B
IS NOT:**

A FAA RULE COMPLIANCE OR ENFORCEMENT TOOL

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ADS-B IS NOT:

- FAA pilot deviation compliance tool
- FAA National Policy Effective Date: 01/24/2020
“Single Acts of Misconduct Generally Warranting Revocation. Some acts of misconduct are, by their very nature, so egregious or significant as to demonstrate that the certificate holder does not possess the care, judgment, or responsibility to hold a certificate. These acts include, but are not limited to, those listed in Figure 9-5.”
Figure 9-5 on page 9-14 (#30) lists *“Operating an aircraft without activated transponder or ADS-B Out transmission (except as provided in 14 C.F.R. § 91.225(f)) for purposes of evading detection.”*
- FAA air traffic deviation compliance tool



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