



## DISCUSSION

In the U.S., ADS-B-equipped aircraft and vehicles exchange information on one of two frequencies: 1090 or 978 MHz.

ADS-B enables ATC to identify and track your aircraft. An ADS-B transceiver operating on either link does essentially everything a standard transponder does, plus a lot more. While a Mode C transponder provides ATC with your position (as detected by radar) and pressure altitude transmitted by your transponder and encoder, an ADS-B transceiver also emits other data about your flight, including your aircraft's type, velocity, and "geometric altitude," which is used to develop a more accurate indication of position.

The 1090 MHz link is already used by Mode A/C and S transponders and Traffic Collision and Avoidance System (TCAS) equipment. ADS-B extends the message elements of Mode S with additional information about the aircraft and its position. This is known as the "Extended Squitter" and is referred to as 1090ES.

In an international committee report published in 2001, 1090ES was identified as the ADS-B link to be supported by the international aviation community moving forward, with 1090ES being the preferred link for international operations and U.S.A. domestic operations above 18,000' MSL. The 978MHz/UAT link is a U.S. regional link mainly used for Flight Information System-Broadcast (FIS-B) services for use below 18,000' MSL.

Universal Access Transceiver (UAT) equipment operates on 978 MHz.

## REFERENCES:

- § 91.225 Automatic Dependent Surveillance-Broadcast (ADS-B) Out equipment and use.
- § 91.227 Automatic Dependent Surveillance-Broadcast (ADS-B) Out equipment performance requirements.
- [www.faa.gov/nextgen/implementation/programs/adsb/](http://www.faa.gov/nextgen/implementation/programs/adsb/)
- [www.aea.net/ads-b/](http://www.aea.net/ads-b/)

## IN A SNAPSHOT

### ► ADS-B OUT EQUIPMENT REQUIREMENTS:

WAAS GPS or other performance-compliant navigator – stand-alone (blind), integral to a single-box ADS-B system or a panel-mounted navigator.

ADS-B Out Transmitter, either a 978 MHz ADS-B stand-alone transmitter or UAT; or 1090ES Unit, stand-alone or an ADS-B Capable Mode S Transponder and an antenna.

### ► ADS-B IN OPTIONAL EQUIPMENT:

*(in addition to Out hardware)*

While not currently a regulatory requirement, should the operator choose to install ADS-B In, equipment requirements – in addition to ADS-B Out hardware – include one of two options: a 978 MHz ADS-B Receiver to receive the Out signals of other aircraft, as well as FIS-B and TIS-B data transmissions; or 1090ES also able to receive TIS-B. In addition, the aircraft will need a display screen of some type to show FIS-B and TIS-B images and text.