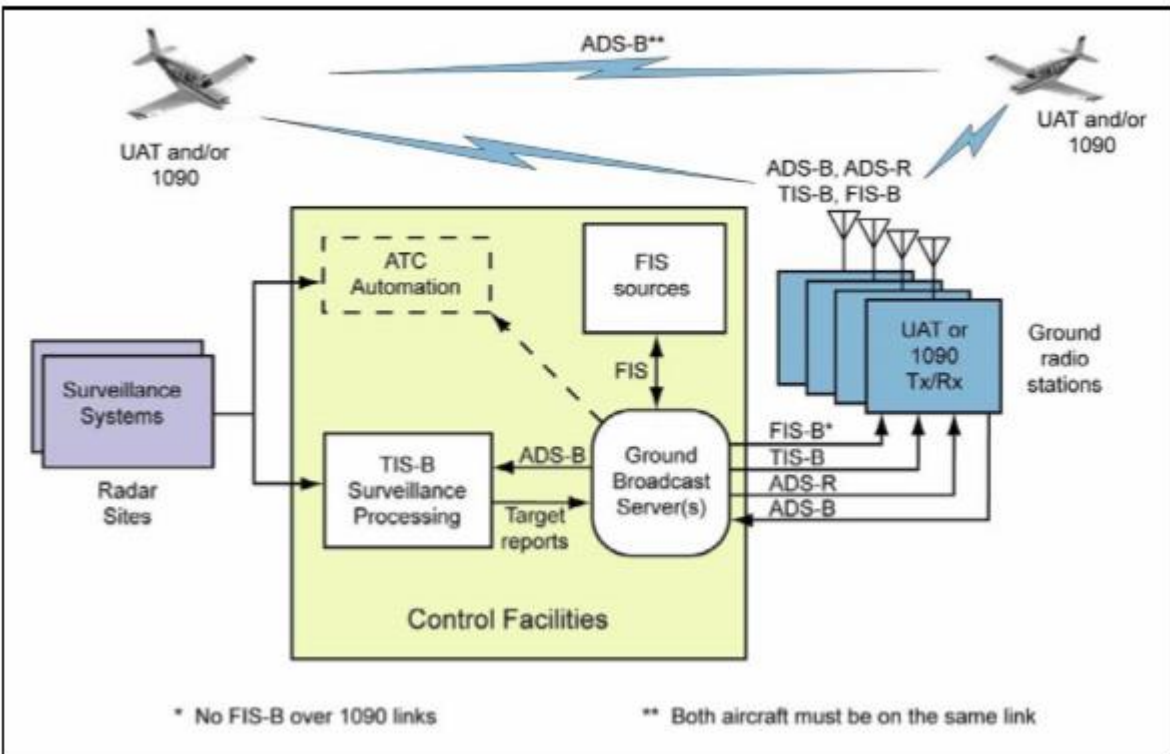
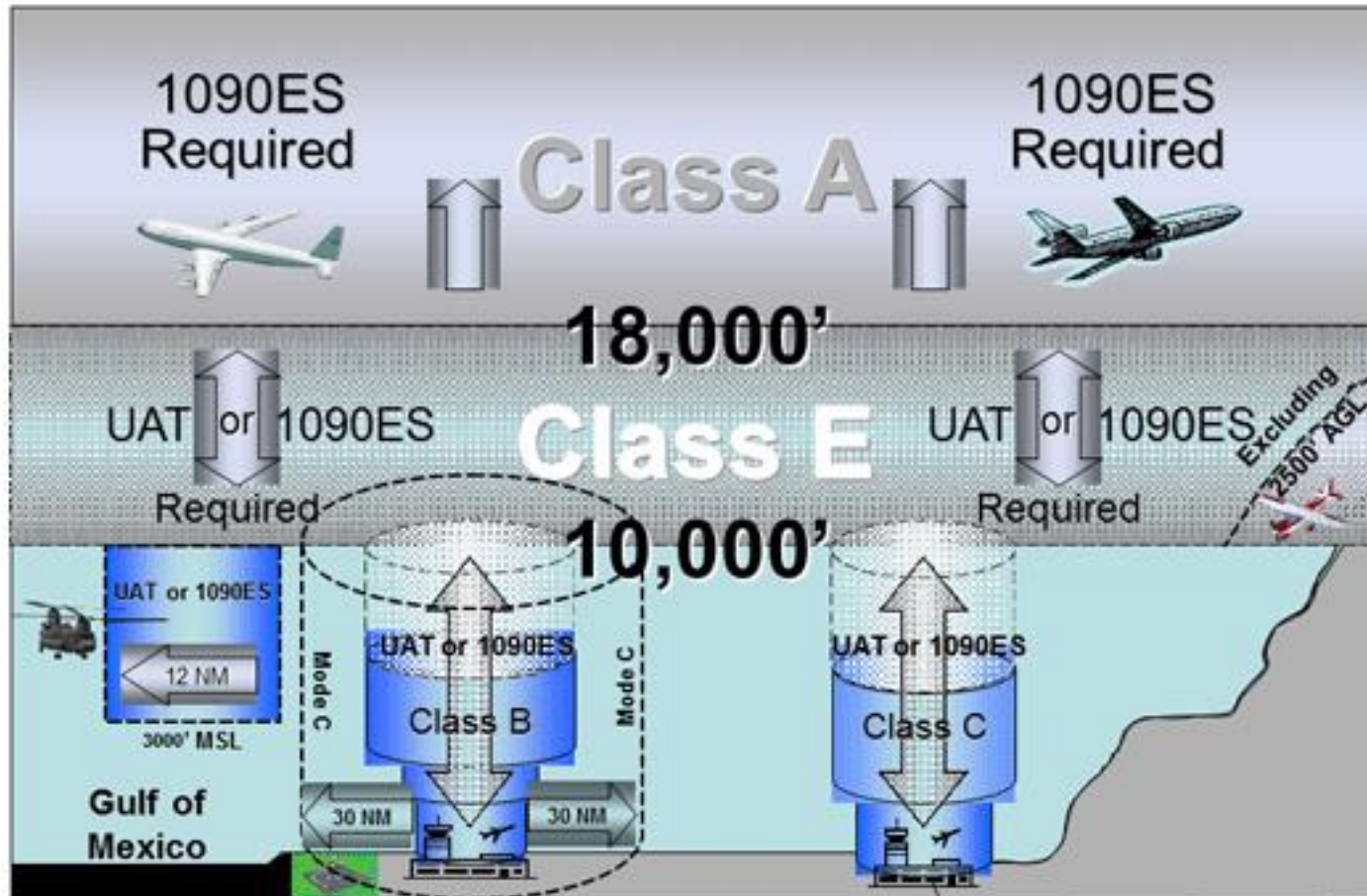


ADS-B, ADS-R, TIS-B and FIS-B Broadcast Architecture



- Operating on 1090 mhz (1090ES) or 978 mhz (UAT) frequencies.
- ADS-R rebroadcasts data from 1090ES users to UAT users and vice-versa.

ADS-B Airspace



Fixed Wing Aircraft Must Be ADS-B Compliant In:

- Class A - above 18,000 MSL
- Class B - If within Mode C veil (30 nm) at all Class B locations from the surface up to 10,000 feet MSL
- Class C - from surface up to 4,000ft MSL including the airspace above the lateral boundary up to 10,000ft MS

GTX 345 Features

- Transmits on 1090 mhz with extended squitter (1090ES)
- ADS-B IN and ADS-B OUT capability
- Dual band (1090 and 975 mhz) ADS-B In traffic display and alert (TIS-B)
- Flight Information Service (FIS-B) display
- Bluetooth interface
- Altitude deviation alert
- Count-up and Count-down, flight and trip timers
- Density and pressure altitude display
- Designed to operate in ALT mode on ground and in the air



ON Powers on, disables altitude reporting.

ALT Powers on, enables altitude reporting.

VFR Changes to the preprogrammed squawk code for VFR.

OFF Powers off.

SBY Powers on or changes into standby mode.

IDNT Activates the Ident function.

Valley Fliers - Things To Know:

- Reading the GTX 345 Pilot Guide is recommended.
- Big Mother is here. ATC knows who you are and where you live.
- OK to fly in Canada or other international destinations.
- Ground radio station inoperative or out of range but ADS-B transponder operating normally: ATC may not see you or may not get required ADS-B information. Transponder may not receive traffic (TIS-B) or flight (FIS-B) information.
- Most aircraft with transponder problems (non-performing emitters) will be treated as airworthiness issues instead of a pilot deviation, and the FAA ADS-B Focus Team will resolve them directly with the owner.
- Problem with GNS 430 position processing means a problem with ADS-B transmission.
- A good display is needed to fully realize benefits (e.g. GNS 500/600/700, Foreflight with iPad).
- Keep transponder in the ALT mode on ground and in the air.
- VFR or IFR flight plans: Aircraft identification (N number) must exactly match the transponder Flight ID. Prior to taxi, check that the Flight ID matches exactly the aircraft ID entered on the flight plan.
- Compassion flights (e.g. Angle Flight): If using compassion flight call-sign, then the GTX 345 Flight ID must be changed to the compassion flight call-sign. Valley Fliers configuration does not allow the pilot to change the Flight ID so all flight plans should use the aircraft N number.
- ADS-B equipped aircraft: FAA prefers use of the ICAO flight plan but as of 12/2018 use of a Domestic flight plan is acceptable.
 - For Valley Fliers if an ICAO flight plan is used: Aircraft Equipment code is SG; Surveillance Equipment code is B2.

GTX 345 Transponder Error Messages



Figure 7-1 ADS-B 1090 Failed Screen

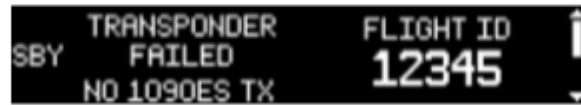


Figure 7-2 ADS-B 1090 and Transponder Failed Screen

No Fly Error Messages

- NO 1090ES TX: ADS-B not transmitting and aircraft may not be in compliant with 14 CFR 91.225.
- TRANSPONDER FAILED: ADS-B and transponder not operating; aircraft may not be in compliant with 14 CFR 91.215 and 14 CFR 91.225.

Transponder System Messages

- System error messages generally mean that the transponder is not compliant with 14 CFR 91.215 or 14 CFR 91.225 (Source: Garmin ADS-B Help) and should be treated as a No Fly error message.
- Displayed on the lower left hand corner of the screen either as a flashing or solid MSG text. To view the message, press the FUNC key until SYS group; press CRSR key then the ENT key.
- Pilot Guide, Table 7-1 Trouble Shooting, describes system error messages.
- If transponder fails on ground or in-flight when away from S50, contact ATC and request to continue flight to final destination.

TIS-B Traffic Alert (AIM 4-5-8)

- Advisory only. Does not relieve pilot of responsibility to see and avoid. Does not give traffic collision guidance. Avoidance maneuvers are not authorized as a response only to the TIS-B display unless the pilot declares an emergency. ATC violations may occur in the event that a pilot deviates from assigned instructions.
- Must be within range of a ground station to receive alerts.
- Provides alerts for traffic within a 30nm radius and plus or minus 3500 feet.
- Not intended as a collision avoidance system.
- May not display all aircraft because of non-complying aircraft or proximity to ground radio station.
- Update interval 3 -13 seconds

FIS-B Broadcast (AIM 4-5-9)

- Provides display of weather and aeronautical information.
- Does not replace weather briefing from an authorized source or in-flight updates from a FSS or ATC.
- Update interval 5 minutes - 12 hours

References

- Advisory Circular 90-114A, change 1, Automatic Dependent Surveillance-Broadcast Operations.
- Aeronautical Information Manual - Automatic Dependent Surveillance Broadcast (ADS_B) Services.
- 14 CFR 91.215 ATC transponder and altitude reporting equipment and use.
- 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.
- <https://www.faa.gov/nextgen/equipadsb/>
- GTX 345 Pilot Guide
- FAA Flight Plan Filing guide
(https://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/air_traffic_services/flight_plan_filing/)
- Instructional Video on ICAO Flight Plans
(https://www.youtube.com/embed/HICFU9_DaMM?rel=0&vq=hd720&autoplay=1)