

3.0 Installed Equipment Performance

This section states the minimum acceptable level of performance for the equipment when installed in the aircraft. Installed performance requirements are the same as contained in section 2.2, which are verified through bench and environmental testing. Some system attributes and performance aspects may be affected by the physical installation (e.g. antenna patterns can affect system transmit and receive performance). System integrators might have several options when connecting to aircraft sensors or data sources. Some sources might lack the necessary range, resolution or accuracy to support the desired applications. This section identifies system attributes which installation techniques and choices might affect, beyond the equipment manufacturer's ability to compensate.

Note: Installation of non-transponder based 1090 MHz ADS-B equipment in airplanes equipped with Mode-S transponders is prohibited. The transmission of squitters in addition to TCAS interrogation responses contributes unnecessary RF energy to the spectral environment. TCAS systems (in other airplanes) cannot take advantage of hybrid surveillance on the ADS-B data, since the non-transponder data cannot be validated by TCAS interrogation. ADS-B data is not directly available to ground interrogators as when read from transponder registers.

3.1 Installed Equipment Considerations

A complete ADS-B system consists of five (5) functional elements:

1. Data sources for aircraft position, velocity, flight plan, status, etc.
2. ADS-B transmitter
3. ADS-B receiver
4. Report Generator
5. Applications

Each of these elements must meet the minimum requirements for an application in order for operational approval to be granted for that application. Table 3-1 is an example of a system which meets the minimum requirements for 3 generic applications. Additional guidance for determining requirements is contained in following paragraphs.

Table 3-1: Example System

Application	Data Source	ADS-B Equipment Class
VFR (e.g. Aid to Visual Acquisition)	VFR GPS (AC20-138 Compliant)	B1/Type 1 (see Note)
IFR (e.g. Aid to Terminal Separation and Sequencing)	TSO C129a, Class A2 GPS Receiver	A2/Type 1 (see Note)
Special IFR (e.g. Closely Spaced Parallel Approaches)	TSO C129a, Class A1 GPS Receiver	A3/Type 2 (see Note)