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SYMPOSIUM ON INTEGRATED APPLICATIONS (B5)
Integrated Applications End-to-End Solutions (2)

Author: Mr. Nickolas Demidovich
Federal Aviation Administration Office of Commercial Space Transportation (FAA/AST), United States,
nickolas.demidovich@faa.gov

AUTOMATIC DEPENDENT SURVEILLANCE – BROADCAST (ADS-B) FLIGHT TEST EXPERIMENTS ON COMMERCIAL SPACE TRANSPORTATION VEHICLES

Abstract

Background

By 2020, aircraft and air traffic controllers will use Global Positioning System (GPS) data to determine aircraft position, instead of the system of radars and transponders used now. The FAA's Next Gen air traffic control system will use equipment known as Automatic Dependent Surveillance – Broadcast, or ADS-B, allowing both controllers and pilots to get an accurate real-time picture of air traffic.

ADS-B has the potential to provide data on more than just aircraft. When a rocket is launched today, the airspace system requires considerable advance notice in order to close the airspace affected by the launch and issue notices to pilots. ADS-B could facilitate a much more seamless integration of air traffic and space launch and re-entry activities. It has the potential to enable launch and re-entry activity to occur in locations and/or times that it cannot currently while minimizing disruption to other users of the national airspace (NAS). These possibilities are being actively investigated. An FAA-sponsored (ADS-B transmitter) payload, originally designed for use on aircraft but upgraded specifically for suborbital flights has been successfully flown as a technology demonstrator . Specifically, it has flown on a commercial suborbital re-usable launch vehicle (sRLV), the Up Aerospace Spaceloft Vehicle and several stratospheric balloon flights.

Scope

The fundamentals of this ADS-B payload and the integration process with the UpAerospace vehicle will be discussed. The flight test results, planned future flight tests and implications for enabling routine operations of Commercial Space Transportation vehicles will also be discussed.