

Chapter 23

Drones in the U.S. National Airspace System

David Stuckenberg

United States Air Force (USAF), USA

Stephen Maddox

United States Air Force (USAF), USA

ABSTRACT

In 2012, the U.S. Congress passed the FAA Revitalization and Reform Act, which among other provisions called for the integration of drones into the U.S. national airspace by September 2015. While the statutory provision was an attempt to meet emerging industry needs which includes the defense sector, Congress inadvertently failed to examine many of the potential problems relating to domestic drone integration. In spite of industry and government efforts to mitigate these problems, four primary issues exist for UAS integration: the FAA is behind schedule, inadequate rule making, inadequate threat analyses, and an incomplete drone categorization system. Each problem is discussed in detail along with proposed solutions.

INTRODUCTION

The National Airspace System (NAS) is a highly integrated and complex network designed to provide safe and reliable air transportation over the contiguous and non-contiguous U.S. territories and waters. Although the regulatory scheme governing the NAS is intricate, it is sound. As a result, U.S. air operations are the safest in the world (Federal Aviation Administration [FAA], 2014d, subtitle). On average, the NAS handles more than 50,000 (manned) flights a day (Jones & Takemoto, 2011, para. 5). In 2014, domestic airlines transported in just one month more than 66.4 million passengers, or one-fifth of the U.S. population (FAA, 2014b). According to Federal Aviation Administration (FAA) estimates, the amount of air traffic will increase one percent per year for the next 20 years (Price, 2014, section IV).

In spite of this modest growth projection, Congress passed the FAA Modernization and Reform Act of 2012 (henceforth the Reform Act) as a measure to “improve aviation safety and capacity” (House of Representatives, 2012, p. 1). While such reforms are laudable, nested within the Reform Act’s 300 pages is a statutory order that raises significant concerns. The Act stipulates, “The Secretary of Transportation ... shall develop a comprehensive plan to safely accelerate the integration of civil unmanned aircraft systems [UAS, also called unmanned aerial vehicles (UAVs) or remotely piloted aircraft (RPA)] into the national airspace system” (House of Representatives, 2012, p. 64). In addition, the Reform Act requires integration by September 30, 2015 (House of Representatives, 2012, p. 64).

However, there is a standing impediment to the drone industry. Drone operations in the NAS are restricted to below 400 feet above ground level (AGL) or Special Use Airspaces (SUAs) used by the government for testing and training. Access to airspace or flight corridors outside SUAs is granted only through a special FAA permit called a Certificate of Authorization (COA; FAA, 2014e). These operational restrictions exist because of the hazards drones pose to manned aircraft and the public.

As a consequence, the Association of Unmanned Vehicle Systems International (AUVSI), a leading robotics industry lobby, published a report in 2010 called “Unmanned Aerial Vehicle Integration in the National Air Space System: An Assessment of the Impact of Job Creation in the Aerospace Industry” (AUVSI, 2014; House of Representatives, 2013). The message of the report and other lobby efforts was predictable considering AUVSI’s primary legislative goal: “To ensure that obstacles to advancing and fielding unmanned systems and robotics are removed” from airspace access (AUVSI, 2014, para. 1). In fact, the assessment clearly stated the U.S. economy would benefit enormously if drones had access to the NAS. Conversely, AUVSI warned a failure to integrate UAS would impede military readiness, limit the Department of Defense’s (DOD) ability to stay at the forefront of new technology, and negatively impact jobs and the aviation industry for many years (House of Representatives, 2013).

In 2012, persuaded by industry efforts and a desire to ensure the viability of America’s military capabilities, Congress supported the industry’s drive for integration by incorporating statutory language into the Reform Act that ordered the FAA to include drones by 2015 (House of Representatives, 2012, p. 64). However, in passing the measure, Congress inadvertently failed to examine many of the problems involved in the use of domestic UAS.

Our government has made extensive investments to safeguard our most cherished monuments, critical infrastructure, and key government installations; unfortunately, much of it is easily bypassed with readily available small aircraft. In a Capitol Hill hearing about drones and national security, Congressman McCaul (2012) stated, “Now is the time to ensure these vulnerabilities are mitigated to protect our aviation system as the use of unmanned aerial systems continues to grow” (p. 3). Four primary problems exist for UAS integration: the FAA is behind schedule, inadequate rule making, inadequate threat analyses, and an incomplete drone categorization system. Each problem is discussed in detail along with proposed solutions.

THE FAA IS BEHIND SCHEDULE

Every generation encounters growing pains associated with new technology. Each leap forward in transportation and telecommunication technology came with its own set of problems and UAS are no exception. UAS technology presents both risks and benefits. Since 9/11, drones have become a tremendously

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