

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS (D2)
Commercial Human Spaceflight Safety (9)

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COMMERCIAL HUMAN SPACE FLIGHT SAFETY REGULATIONS: FEDERAL AVIATION
ADMINISTRATION PERSPECTIVE

Abstract

The prospect of commercially operated space transportation systems that carry people gets closer each year. Yet the needs and goals of a commercial space enterprise may be quite different from those of a government space program. A commercial operator flying space tourists or carrying cargo or people in support of a government entity will likely have different approaches on how to achieve success as compared to a government program office. In either case, the government retains the responsibility of ensuring public safety.

In the United States, a balance has been struck between the development needs of a fledgling commercial space transportation industry and that of public safety. Unlike the origins of aviation, the birth of a commercial human space flight industry is occurring with a strong foundation of safety regulations already in place. However, much remains to be learned when regular space flights occur and as the industry expands. This paper will describe the foundation currently in place and look at some of the key issues to be faced in regulating commercial human spaceflight.

In 2004, the U.S. Congress passed the Commercial Space Launch Amendments Act (CSLAA) of 2004. In response to the CSLAA, the Federal Aviation Administration (part of the U.S. Department of Transportation) issued new regulations which became effective in 2007. These regulations established requirements for crew and space flight participants in private human space flight as part of a phased approach to regulating an industry that will grow and evolve over time.

Some commercial companies today are designing suborbital vehicles for space tourism or scientific research, while others are developing vehicles for orbital missions. A key market for orbital vehicles involves support for the International Space Station through cargo resupply and return or crew transfer. For all of these missions, different vehicle designs and destinations provide challenges to government regulators. For example, standards that are appropriate for suborbital flights may not meet the more demanding environment encountered during orbital space flights.

Among the safety aspects being examined by the FAA are crew training and the use of environmental control and life support systems. People onboard (who are not the crew) are not considered “passengers” by the FAA but rather “space flight participants.” This is because the level of risk and the training required will be different on commercial space vehicles as compared with flying on a commercial airliner.