

SYMPOSIUM ON COMMERCIAL SPACEFLIGHT SAFETY ISSUES (D6)
Commercial Point-to-Point Safety & Insurance Issues (2-D2.9)

Author: Dr. Francesco Santoro
Altec S.p.A., Italy

Dr. Alessandro Bellomo
Altec S.p.A., Italy

Dr. Alberto DEL Bianco
Altec S.p.A., Italy

Dr. Roberto Vittori

ESA Astronaut, Colonel Aeronautica Militare Italiana, Rome, Italy

Dr. Nicole Viola

Politecnico di Torino, Italy

Mr. Francesco De Vita

Politecnico di Torino, Italy

A CASE STUDY FOR SPACEGATE POINT TO POINT TRANSPORTATION: EVALUATION OF A
REFERENCE END-TO-END MISSION OPERATIONS AND ASSESSMENT OF THE ASSOCIATED
SAFETY ASPECTS

Abstract

The ALTEC-conducted Spacegate feasibility study addresses the opportunities offered by the sub-orbital flight with special emphasis to future generation transportation. Pursuing the same systemic methodology of the initial Spacegate definition activities, this paper features some specific advances related to a case study for high altitude, point to point transportation that includes launch from one specific location, landing to a specific site and a reference end-to-end mission spanning from preflight, to flight and post landing operations. Specific processes like mission planning, integration within the air traffic, reentry and suborbital trajectories is part of the evaluation. In particular, this paper will pinpoint within the selected reference mission, the main safety aspects considered to be driving factors in planning and implementing future generation transportation; areas such as launch/landing range and relevant risk management/mitigation policies, as well as selection of safety driving criteria in the definition of trajectories and space transition corridors, and capabilities to monitor the vehicle ascent and reentry will be assessed. Safety regulations will also be evaluated to protect launch range, drive spaceport site selection and consequently the ability of the spaceport to accommodate large numbers of passengers and participants, as well as a number of simultaneous operations such as training, vehicle integration tasks, and passenger preparation for flight. For human flight in general, and in particular for commercial point to point activities at this early stage, it is vital to minimize risk since a fatal accident at the very beginning of flights will put the entire business in jeopardy. The regulatory challenges with regards to safety will also be outlined in this paper, related to executing Spacegate activities in Europe and possible collaborations with the involved Agencies in the USA and Europe (FAA, ENAC, ENAV, SESAR, EASA) will be explored; in particular, some initiatives have already been started, that include active ALTEC participation to the IAASS Space Safety Technical Committee (SSTC) that was created to contribute to the advancement of the Safety in the area of the "Commercial Suborbital Flight".