

## **Flight test for H-V diagram determination of a TH-500 helicopter equipped with new main rotor blades.**

A flight test program was executed for the military qualification of a new main rotor blade model for a TH-500 helicopter. Within the test program, part of the test flights were aimed to gather the required data to determine the height-velocity diagram in a clean configuration of the helicopter. In this frame, several actions were implemented in order to allow for test flight time/costs saving and for safety improvement. In particular, the explored H-V diagram was based on both analytic and off-line simulation predicted curves; moreover, a flight test technique was used where full autorotations were executed only for the most critical test points on the edge of the predicted envelope. The test results obtained were used to define new helicopter limitations and normal and emergency procedures to be included in the flight test manual. The presentation shows, among all things, how the pilot workload was also taken into account in order to clear the new H-V envelope in a safe and reliable manner.