Currently, Spain is taking the first steps in the certification of civil UAVs by AESA (stands for National Aviation Safety Agency in Spanish). The certification process begins with the development of a Certification Plan, aimed at generating the required evidence, which has to be agreed upon with the National Authority. Among other things, it essentially involves defining and agreeing upon the following items for the development and demonstration of the acceptable level of safety of the system/product:

- Objectives for the system’s life cycle processes.
- Description of design activities and considerations for achieving such objectives.
- Description of evidence that shows the objectives have been met.

The biggest challenge in the certification of UAVs will occur, no doubt, in avionics, which is particularly significant in ensuring flight safety for such aircraft.

The standards to be applied are those used by the EASA and FAA for approval of onboard software (EUROCAE ED-12B and RTCA DO-178B/C), but taking into account certain safety scenarios typical of an autonomous unmanned aircraft.

In order to ensure the certification process, it is important to look carefully at the peculiarities of such scenarios and the specific aspects of software safety for the certification of UAV avionics. All this through the perspective of the DO-178B/C standard and the tools commonly used in the safety analysis of such systems. It is critical throughout the certification process to identify the feared events of UAV operation, and to define mechanisms for the management and control of critical failure modes of the software onboard an UAV.