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Corresponding author: JIMENEZ Juan Manuel

e-mail of corresponding author: arrobitalm22@gmail.com ; juan-manuel.jimenez@airbus.com

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Title

DISRUPTIVE AND EFFICIENT REAR FUSELAGE FOR DUAL USE HIGH SPEED ROTARY WING PLATFORMS

Authors

Juan Manuel JIMENEZ ^{1*}

** Corresponding author*

¹ Airbus Helicopters España, Ctra de las Peñas Km,5.3, Parque Aeronáutico y Logístico
02006 ALBACETE / SPAIN arrobitalm22@gmail.com ; juan-manuel.jimenez@airbus.com

Abstract

RACER Project (Rapid and Cost Effective Rotorcraft) is the proposal of Airbus Helicopters to the growing demand of High Speed Rotary Wing Platforms, being RACER a Technological Demonstrator in which the highest and latest innovations has been implemented and that will perform its first flight during 2023. All that has been developed into the European framework of Clean Sky 2.

The present paper will show the main characteristics and developments linked to RACER, as an advanced and further evolution of a Gyrodine formula. The RACER formula has been patented by Airbus Helicopters. Also it will be performed a comparative between another competitors formulas included into another European and not European Programs, such as FVL (Future Vertical Lift) from USA. It will be introduced the RACER main performances and characteristics focused on the use concept as dual platform, Mission Capabilities, Aerodynamics and Airframe. Furthermore it will be done a general Airframe description with special focus on the Airframe Architecture and the Rear Fuselage (Rotorless Tail) developed in Spain.

The RACER's Rear Fuselage is a high complex, disruptive and efficient Airframe, key into the RACER formula, in terms of its dual applicability. The Rear Fuselage implements several Airbus Helicopters Patents and innovative technological bricks such as cambered cross section into the tail boom, Doubled Tilted H shaped Empennage, and it is a pioneering into the OoA big dimensions and highly loaded structural parts, in addition to the implementation of the first primary structure (class 2 part) that ever has flight in Airbus Helicopters developed by Additive Manufacturing Technologies. It will be provided a further description about the components, design details and manufacturing issues as far as the Ground test from the perspective of the already mentioned innovation challenge.

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