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CREATING A NEW GENERATION HELICOPTER - TILT ROTOR. TESTING AND RESEARCH OF THE ROTOR (EUROCOPTER) AND PRGB (AGUSTAWESTLAND)

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ABSTRACT

The research is based on the necessity for creating the new generation hybrid-helicopter. The goal of creating tilt rotor is delivering passengers quickly to the places, where planes can't land. Speed should be approximately 500 km per hour and the number of passengers – 15. Wings of these helio-planes are turned up, that's why the tilt rotor takes off as a helicopter and then it becomes to a turbo plane. This project is associated also to the necessity of creating the innovational tilt rotor in Europe.

The goal is to create the new generation helicopter prototype till the end of year 2012. The new generation helicopter will be useful in civil aviation in all the Europe. This innovative product pays attention to the ecology and low noise level. Here the attention is paid to the gas turbine engine, which doesn't blow off a lot of pollutants.

The tests will take place in AVIATEST LNK Laboratory. It is planned to make a new test rig for the whirl tower test. The new methods and equipment will be used.

[*Keywords:* tilt rotor, whirl tower test, rotor, PRGB, blades.]

GENERAL

The integration and the tests will be performed on the AVIATEST Rotor Bench developed specifically for the NICETRIP project. This includes test rig specification design, and manufacturing, and integration of Rotor, Blades developed under French National funding and Drive System.

FIGURE 1 SCHEME OF THE TOWER WITH A MODULE INSTALLED FOR WHIRL TOWER TEST

This task will validate the concepts chosen for the rotor hub (DART), Blade (ADYN, DART and national project) and Drive system (TRISYD) under the challenge of complete integration.

Test Plan will include two stages:

Stage 1

1.1. Manufacture of the module; Installation of the electric engine, installation of the multiplier, PRGB (AW) and rotor (EC); Performing of the experiments.

1.2 Manufacture of the tower, safety ring.

Stage 2

2.1 Installation of the module on the tower

2.2 Performing of the whirl tower test.