

## **Proposed Special Conditions applicable to EC 175B on Extended Take-Off Power Duration (EP, 30 min All Engines Operating)**

### **Introductory note:**

The hereby presented Special Condition has been classified as important and as such shall be subject to public consultation, in accordance with EASA Management Board decision 02/04 dated 30 March 2004, Article 3 (2.) of which states:

"2. Deviations from the applicable airworthiness codes, environmental protection certification specifications and/or acceptable means of compliance with Part 21, as well as important special conditions and equivalent safety findings, shall be submitted to the panel of experts and be subject to a public consultation of at least 3 weeks, except if they have been previously agreed and published in the Official Publication of the Agency. The final decision shall be published in the Official Publication of the Agency."

### **Statement of issue**

The Eurocopter Model EC175-B is a Large Rotorcraft and in addition to the ratings identified in CS29 an Extended Take-Off Power Duration is expected to support specific operations.

The Extended Take-Off Power Duration rating (EP) allows an AEO hover during extended periods at a power level higher than Maximum Continuous Power (up to Maximum Take-Off Power) :

- for a continuous excursion up to 30 minutes,
- for cumulative use up to 50 minutes per flight.

CS29 does not encompass an AEO power rating to be used for extended periods at power level above MCP, and therefore specific requirements need to be established for its approval.

### **Proposed Special Conditions**

When approval for Extended Take-Off Power Duration (EP) rating is claimed, the following Special Conditions will be applicable as part of the a/c certification basis:

#### **SC 29.1049 Hovering cooling test at EP rating.**

The hovering cooling provisions at the EP rating must be shown:

(a) At maximum weight or at the greatest weight at which the rotorcraft can hover (if less), at sea level, with the power required to hover but not more than hover increased power rating, in the ground effect in still air, until :

- at least 5 minutes after the occurrence of the highest temperature recorded, or
- the continuous time limit of the hover increased power rating if the highest temperature recorded is not stabilised before.

(b) With EP rating, maximum weight, and at the altitude resulting in zero rate of climb for this configuration, until:

- at least 5 minutes after the occurrence of the highest temperature recorded, or
- the continuous time limit of the hover increased power rating if the highest temperature recorded is not stabilised before.

#### **SC 29.1305 Power plant instruments**

(1) For rotorcraft for which an EP rating is claimed, a means must be provided to alert the pilot when the engines are at the EP rating levels, when the event begins, when the time interval expires and when the cumulative time in one flight is reached.

**SC 29.1521 Powerplant limitations: EP rating.**

The powerplant hover operation must be limited by:

- (1) The maximum rotational speed, which may not be greater than:
  - (i) The maximum value determined by the rotor design; or
  - (ii) The maximum value shown during the type tests;
- (2) The maximum allowable turbine inlet or turbine outlet gas temperature
- (3) The maximum allowable power or torque for each engine, considering the power input limitations of the transmission with all engines operating;
- (4) The time limit for the use of the power corresponding to the limitations established in subparagraphs  
(1) to (3); and
- (5) The maximum allowable engine and transmission oil temperatures.