



Net Safety Benefit: Accelerating Rotor Strike Prevention

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HOW CAN A NEW POLICY UNLOCK LIFE-SAVING, AFFORDABLE OBSTACLE COLLISION PREVENTION FOR HELICOPTERS ?

Rotorcraft safety
figures

Regulatory
framework

Rotor strike
prevention
system

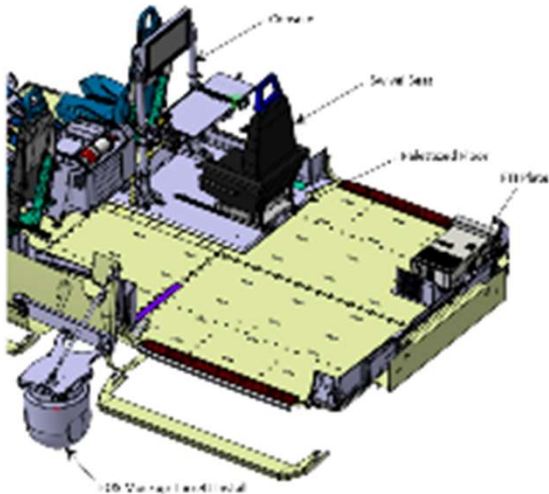
Operational
and safety
gain

Net Safety
Benefit
application

Conclusion

INTRODUCTION

AEROTEC & CONCEPT

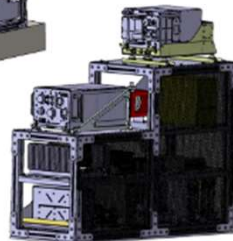
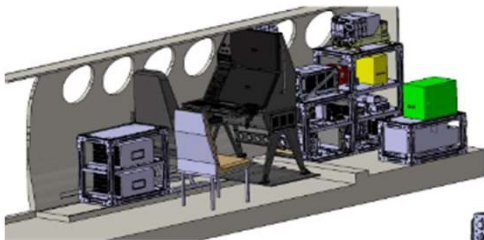
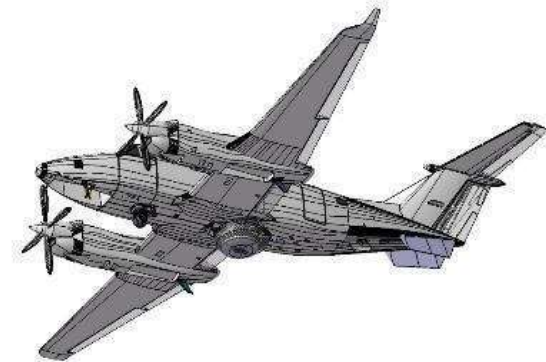


PART21J - D.O.A.
EASA.21J.362
 "Design Organisation"

- STC and Service Bulletin
- Airworthiness & Design
- Permit To Fly
- Flight Test Department



+ 2 300 STC / modifications
+ 5 000 Aircraft / Rotorcraft modified



PART21G - P.O.A.
EASA.21G.331
Production Organisation

- Electrical Wiring
- Electronic Components
- Various supports and racks
- EASA Form 1 delivering kits

PART145 - MRO
FR.145.0789
Maintenance Organisation

- Avionic equipment dealer (GARMIN, Becker Avionics, Rockwell Collins, Honeywell, Avidyne, L3 COM, ASPEN, Astronautics,...)
- Repair station for avionic equipment including WESCAM
- MRO for General Aviation, commercial aircraft and Helicopters
- Pratt & Whitney service center

PART-CAMO
FR.CAMO.0163
Continuing Airworthiness Management activities

ROTORCRAFT SAFETY FIGURES

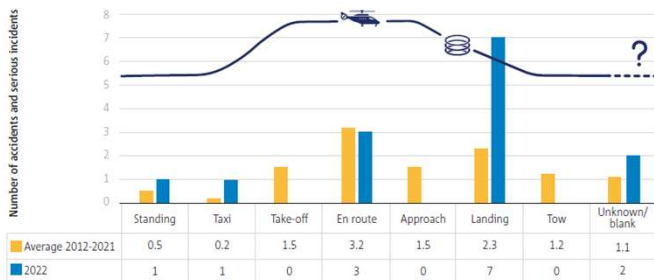


Figure 3.12 Accidents and serious incidents by phase of flight involving CAT helicopters

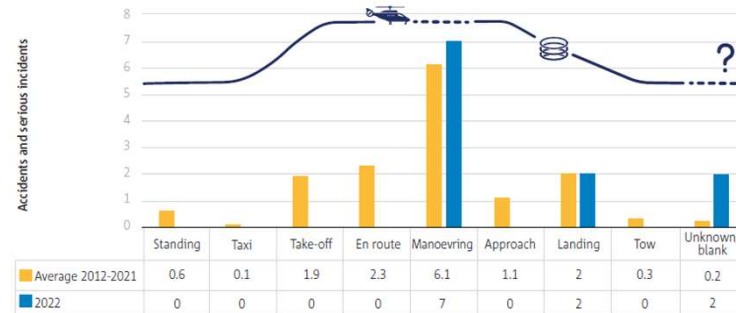


Figure 3.20 Accidents and serious incidents by phase of flight involving SPO helicopters

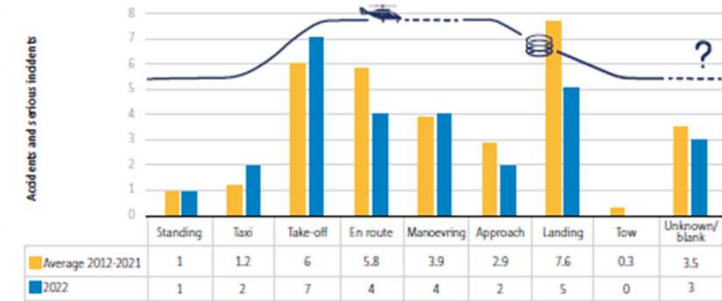


Figure 3.28 Accidents and serious incidents by phase of flight involving non-commercial operations helicopters

Obstacle clearance is a major issue for all rotorcraft kinds of operation

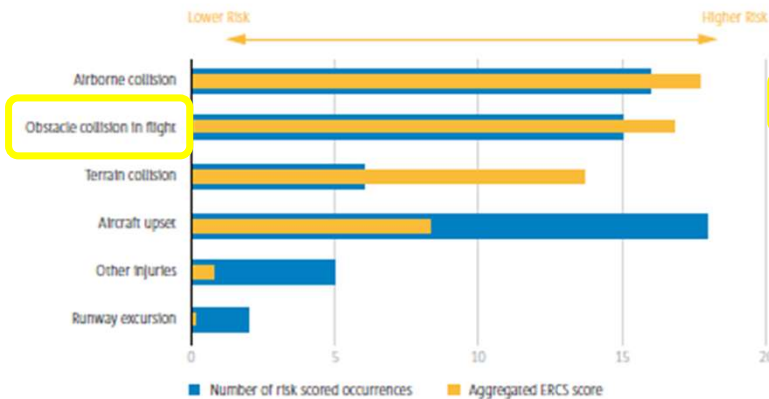


Figure 3.16 KRAs by aggregated ERCS score and number of risk-scored occurrences, involving CAT helicopters

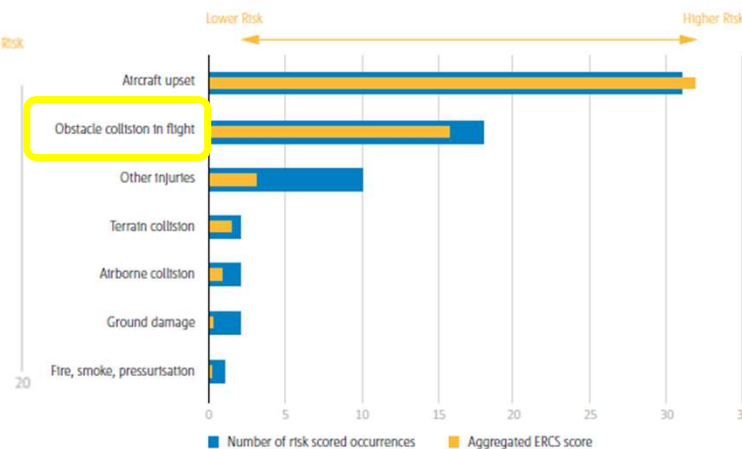


Figure 3.24 KRAs by aggregated ERCS score and number of risk-scored occurrences, involving SPO helicopters

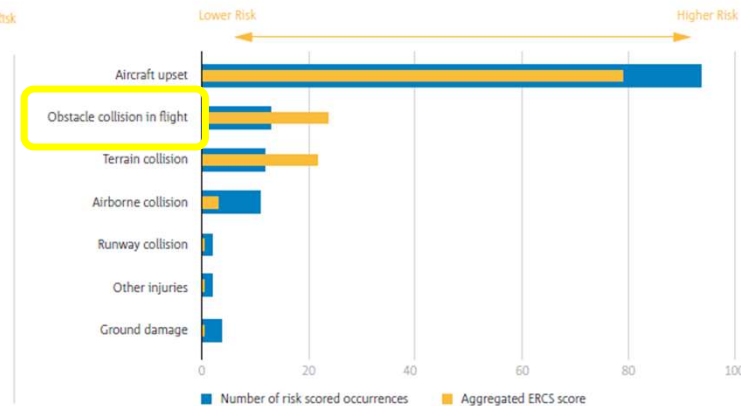


Figure 3.32 KRAs by aggregated ERCS score and number of risk-scored occurrences, involving non-commercial operations helicopters

Obstacle clearance is considered an elevated rotorcraft safety priority in the European Plan For Aviation Safety (EPAS) 2023-2025:

► List 5-1: Rotorcraft safety issues per category & priority

Assess - Elevated priority index

Facilitates Step 2: Assessment of safety issue

- Inadequate obstacle clearance during low-altitude operation, take-off and landing (SI-8031)
- Poor pre-flight planning and preparation (SI-8017)
- Helicopter-maintenance-related issues (SI-8005)

However, efficiently addressing the issue may prove a challenging task for the industry.

REGULATORY FRAMEWORK

Historically, the safety assessment of applications for airworthiness approval have focused on **risks associated with malfunctioning or failing systems** and equipment installed on the aircraft. In this process, the operational use of the systems and equipment was assessed, but generally, no credit was provided for the operational safety benefits that the installation of such systems and equipment would provide.



By nature, safety related systems incorporate or affect functions that tend to induce stringent classification.

In 2021, EASA published the Certification Memorandum CM-SA-001 “Net Safety Benefit” For the certification and installation of safety enhancing systems and equipment that offer operational safety benefits.



Three conditions:

- The proposed change is installed on single engine aeroplanes or a small rotorcraft,
- The safety enhancing systems and equipment addresses one of the safety concerns identified in the Annual Safety Review (ASR) or the European Plan for Aviation Safety (EPAS), and
- The proposed change does not change the operational capability of the aircraft, e.g. a change from VFR to IFR.

If met, and on a case-by-case basis, the Agency will consider granting credit to the compliance demonstration for development assurance activities which consist of the reduction of the level of DAL by one level.

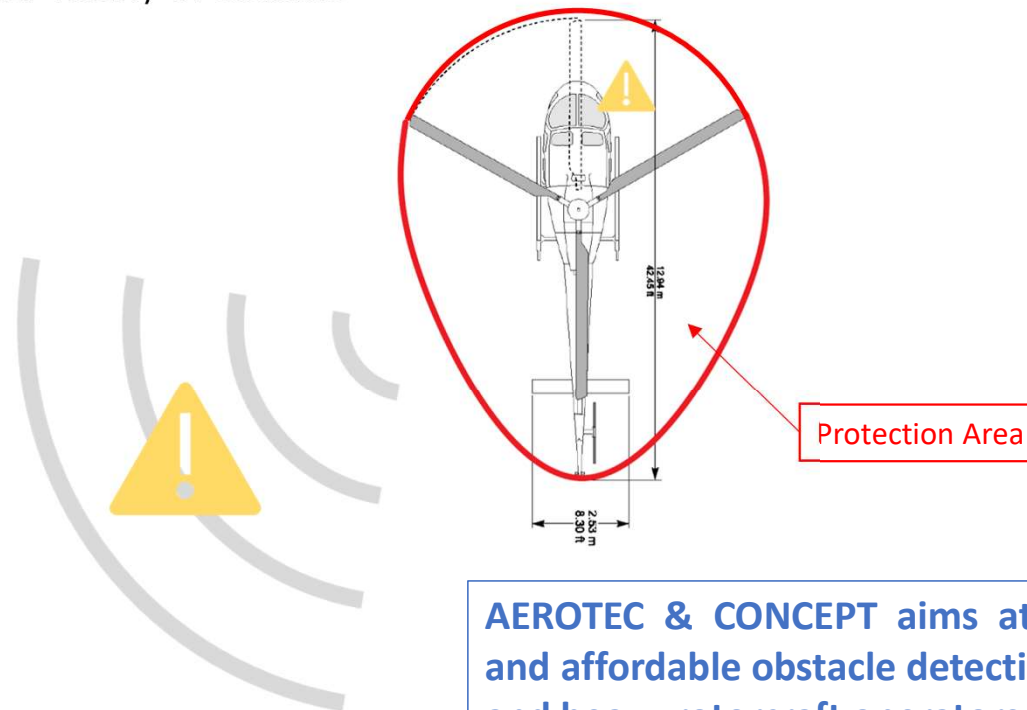
ROTOR STRIKE PREVENTION SYSTEM

AEROTEC & CONCEPT is developing a situational awareness enhancement system to assist the crew during low-speed maneuvers in the vicinity of obstacle by providing alerts.

The system is designed to be:

- Simple
- Intuitive
- preventing misuse
- modular

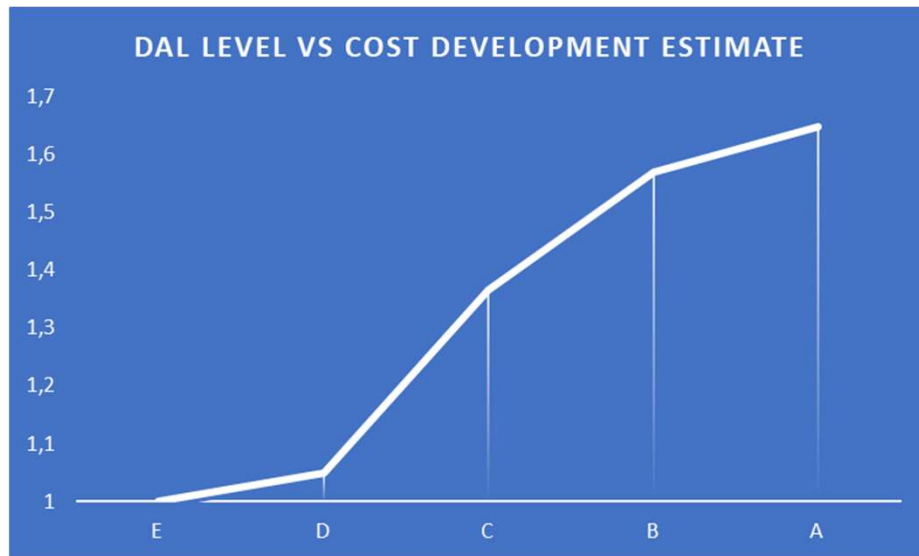
The system does not grant supplemental operational capabilities to the rotorcraft. It is added as a new safety net to the rotorcraft.



AEROTEC & CONCEPT aims at providing reliable, adaptable and affordable obstacle detection and alerting systems to light and heavy rotorcraft operators.

OPERATIONAL AND SAFETY GAIN

Flying safely, while still fulfilling commercial commitments, is always a challenge for operators working in difficult weather and challenging environments.

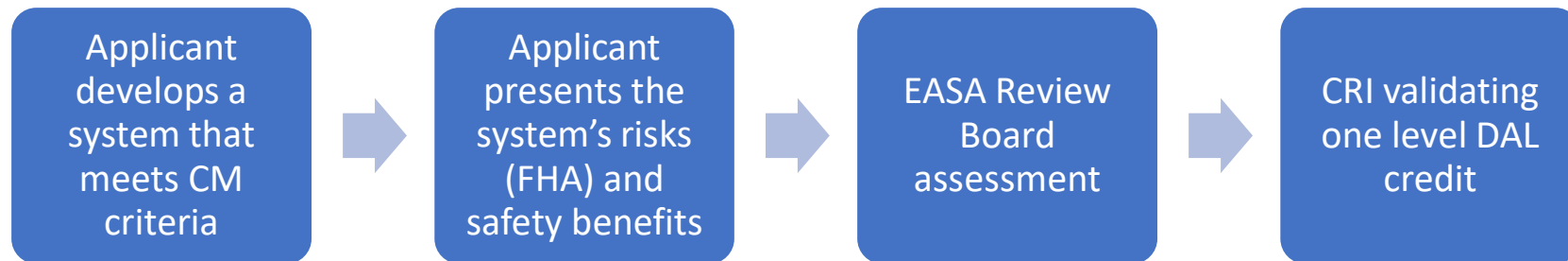
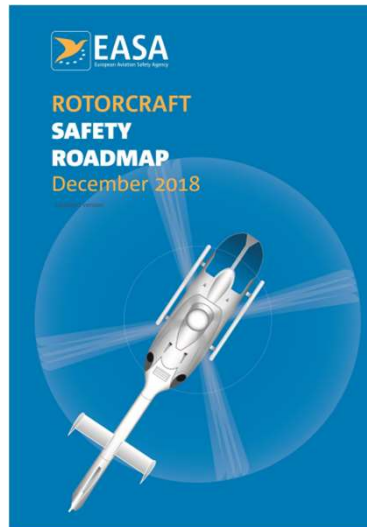


Affordable safety enhancement systems are essential in the competitive light helicopter sector, where maintaining low overheads is vital to improving safety on a global scale, without compromising market viability.

Such affordable solutions may not be compatible with a classical approach of design assurance level classification.

Hence, with the implementation of the Cost-Effective Safety Policy, we anticipate a **notable increase in adoption rates among operators** who previously might have bypassed such systems, now viewing them as viable investments towards enhanced safety and operational efficiency.

NET SAFETY BENEFIT APPLICATION



AEROTEC & CONCEPT reckons the application of the CM Net Safety Benefit is a key factor in the added value for the operators

CONCLUSION

Through the implementation of policies like the **Net Safety Benefit CM**, EASA provides tools for the industry to address the 3 strategic objectives established in the 2018 Rotorcraft Safety Roadmap:

II.2 Strategic Objectives

The following strategic objectives were defined in order to deliver the vision:

Objective 1: Improve overall Rotorcraft safety by 50% within the next 10 years.

- Most of the accidents are attributed to operational causes, and it is recognised that influencing behaviour is a complex process in which changes are difficult to achieve in the short term. If we look more specifically at accidents that are caused by technical failures (which is a small part of the overall accidents), an ambitious target is set to reduce the number of accidents caused primarily by technical failures by one order of magnitude.

Obstacle clearance is a major challenge in rotorcraft safety

DAL level reduction allows for affordable and fast-to-market solution, facilitating adoption.

Objective 2: Make positive and visible changes to the Rotorcraft safety trends within the next 5 years.

- This objective is pushing for quick implementation of key safety measures.

Objective 3: Develop performance-based and proportionate solutions that help to maintain competitiveness, leadership and the sustainability of European industry.

- This objective is also intended to consider the safety challenges and opportunities that come with new technology, and to support the development of new business models.

European industry maintains its competitiveness while providing state of the art safety systems.