

Promoting Technologies with reduced Emissions Footprint in Rotorcraft, CS23/CS27

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Current Challenges

→ Small aircraft and small rotorcraft

- are part of Aviation even if less visible than commercial air transport
- will have less access to SAF
- Are much more sensitive to weight increase
- Contrary to CS25, CS23 and CS 27 applicability are limited in MTOW
- Propulsion systems with reduced or no emission are heavier than current conventional combustion propulsion system

→ To design or upgrade a more sustainable aircraft requires

- A MTOW increase – but could lead for same design principle to go above CS23/CS27 applicability criteria
- A payload decrease – but leading to strong market disadvantage and prevent more sustainable technology to be adopted



Current framework

	CS-27	SC-VTOL	CS-23 Amdt. 4		CS-23 Amdt. 5 Normal Category
			Normal Category	Commuter Category	
MCTOM	$\leq 3\,175\text{ kg}$	$\leq 5\,670^*\text{ kg}$	$\leq 5\,670\text{ kg}$	$\leq 8\,618\text{ kg}$	$\leq 8\,618\text{ kg}$
Passenger Seats	≤ 9	≤ 9	≤ 9	≤ 19	≤ 19



EASA Sustainable Aviation Program

- Includes a feasibility study of CS23/29 MTOW increase when more sustainable propulsion is proposed
- Could also be linked to Safety enhancement in case of CS27
- Internal task force has been launched



Preliminary outcome

→ Impact on Air Operations

- Typical thresholds of Regulation (EU) No. 965/2012 are
- 5 700 kg; and
- Complex motor-powered aircraft

→ Other regulations and CS apply to 'large aeroplane' which are defined as CS-25

→ Consequently: no impact on Air Operations as Part-NCC and Part-CAT apply already above 5 700kg.

→ However, neither Part-NCC or Part-CAT is prepared for electric propulsion – tasks are on-going

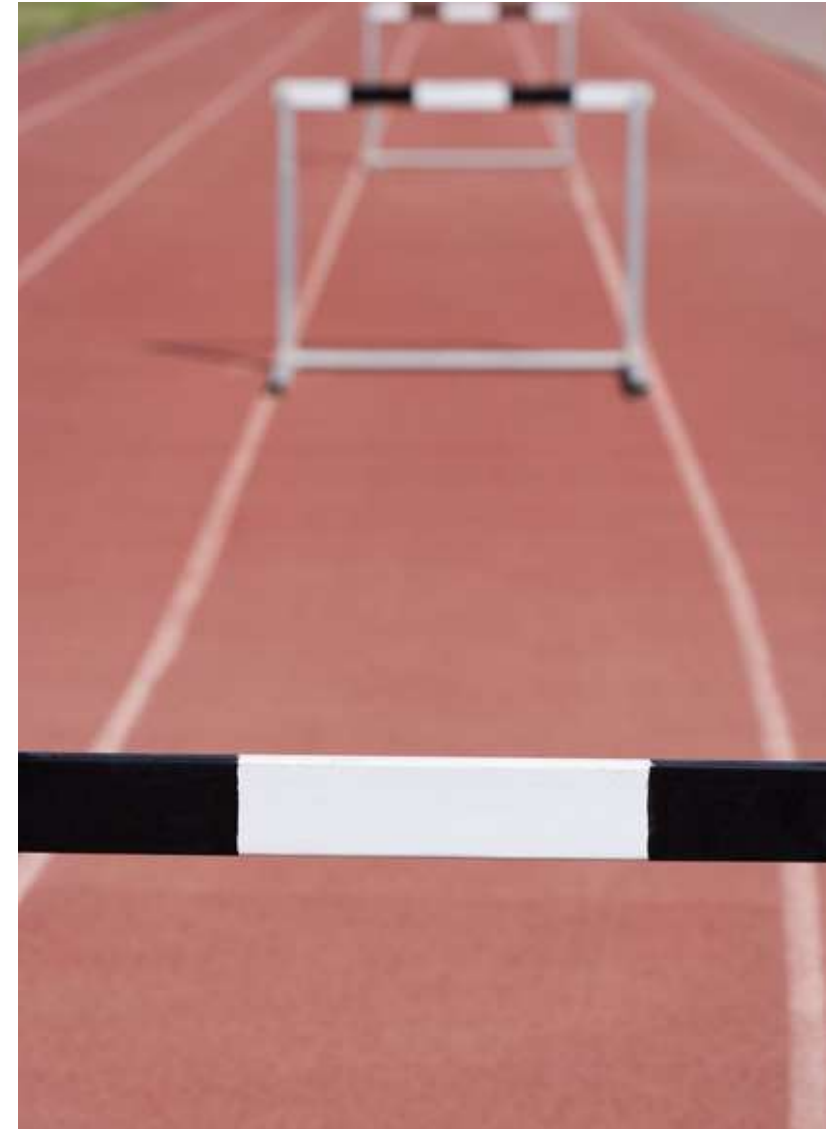


Some Challenges identified

Emission criteria

Noise and emission – ICAO Annex 16

International recognition



Criteria

→ Why level of Environmental benefit?

- Zero Emission – straight forward
- Not zero Emission
 - Which level(s)?
 - Problem of benchmarking/comparison with current technology



Impact on noise and Emissions

- Article 9(2) of the Basic Regulation mandates compliance with environmental protection requirements outlined in ICAO Annex 16 regarding manned aircraft.
- ICAO Annex 16
 - Differentiate noise and emission (when relevant) criteria and measurement procedures based on MTOW
- Above current CS23 and CS27 MTOW would lead to apply CS25 and CS29 noise and emission criteria/measurements
- Question: Is Annex 16 relevant for electric/hybrid A/C?



Next steps

- Evaluate impact on other Flight Standards aspects
- Engage with Industry to
 - Seek interest for proposal
 - Define sound criteria
- Engage with the EC to
 - Seek interest for proposal
 - Ensure legal framework is correct
- Engage with International Partners
 - ICAO
 - Foreign Authorities



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