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Progress on the development of the ICAO CO₂ Standard

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Development of the CO₂ Standard



- The aircraft CO₂ Standard will result in a new Annex 16 Vol. III
- Two phases in the approach:
 - Phase 1 has been completed
 - Development of CO₂ Certification Requirement, including a CO₂ metric system and procedures.
 - Phase 2 is underway
 - CO₂ Standard setting process (stringency levels, technology responses, cost effectiveness assessments and interdependencies).



The CAEP/9 meeting agreed on an Annex 16, Vol. III certification requirement.



This presentation...



- Principles of the CO₂ Standard development.
- Recent important decisions:
 - CO₂ metric system;
 - Certification requirement.
- Next steps and development timescales.



CO₂ Standard Framework



Aircraft CO₂ Standard

Certification requirement

[Including: Metric system, procedures, measurement methodology, applicability]



Regulatory limit

- Technology Standard similar to current Noise and LAQ Standards.
- Aircraft level Standard similar to Noise Standard.



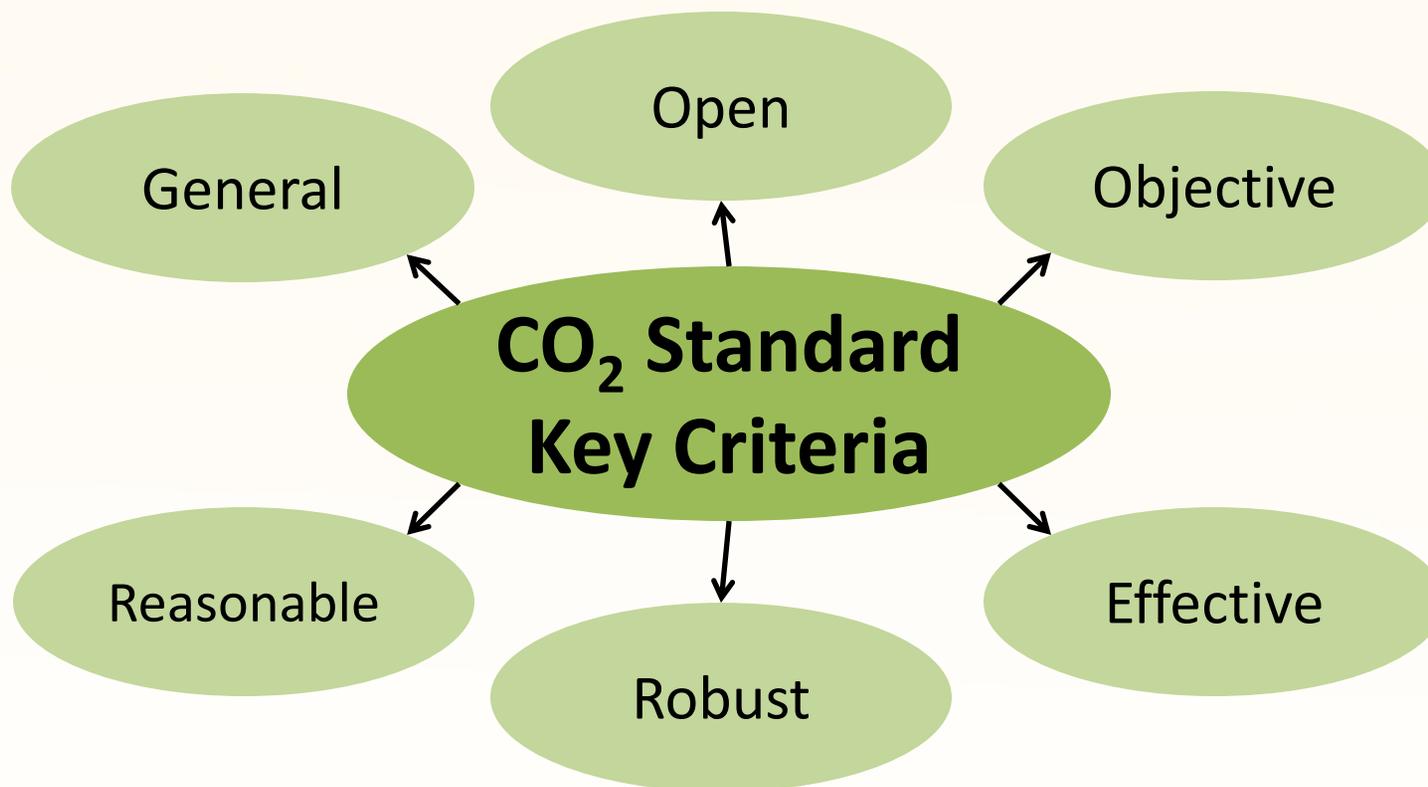
High Level Principles



- An aircraft CO₂ Standard should focus on reducing CO₂ emissions through integration of fuel efficiency technologies into aeroplane type designs.
- To design a metric system which could permit transport capability neutrality at a system level when a stringency is applied based on this metric system.
- Aim for equitable recognition of fuel efficiency improvement technologies in an aircraft type design.



Key Criteria





Selection of a CO₂ metric system

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- On 11 July 2012, at the CAEP Steering Group meeting in Saint Petersburg, an important step was made toward establishing the worldwide Aircraft CO₂ Emissions Standard.
- CAEP reached a unanimous agreement on a CO₂ metric system.
- The CO₂ metric system is a measure of aircraft fuel burn performance and therefore represents the CO₂ emissions produced by an aircraft.

The CO₂ metric system will underpin the ICAO Aircraft CO₂ Emissions Standard



The principle of the CO₂ metric system



- The 'metric system' takes the form of:
 - A metric;
 - A correlating parameter; and
 - Certification test point(s).
- The Metric is a function of:
 - Cruise point fuel burn performance and aeroplane size.
- The Correlating parameter:
 - Maximum aeroplane mass.
- The Certification test points:
 - Three certification test points, each based on a fraction of aeroplane mass.



Certification procedures



- Developed using a group of certification experts from States and international organisations.
- Resulting in the certification test and measurement criteria for determination and implementation of the CO₂ metric system.
- Development of procedures to measure the elements of the CO₂ metric system:
 - measurement of all parameters;
 - correction of measured data to reference conditions.



Applicability and implementation



- The CO₂ Standard will be applicable at an aeroplane level.
- The CO₂ Standard will be applicable to new aeroplane types.
 - Discussions continue over including in-production types.
- The CO₂ Standard will be applicable to subsonic jet and propeller driven aeroplanes.
- Discussions over the applicability dates for the CO₂ Standard are continuing.



CAEP approved Annex 16, Vol. III certification requirement



- The mature Annex 16, Vol. III certification requirement, which is based on the previously agreed CO₂ metric system, was approved by CAEP, including:
 - Part I - Definitions and symbols;
 - Part II - Certification standard for aeroplane CO₂ emissions based on the consumption of fuel;
 - Appendix 1 – Determination of aeroplane CO₂ emissions evaluation metric;
 - Appendix 2 – Calculating the parameter for aeroplane size.



Taking stock of progress



- The CAEP agreed to take stock of the agreed CO₂ metric system and certification requirement before the final Standard was set.
- The CAEP agreed to publish the agreed CO₂ Standard certification requirement as an ICAO Circular for information-only, as soon as possible.



Remaining work and timescale



- To finalise the CO₂ Standard the following issues remain:
 - definition of a no-change criteria;
 - applicability requirements;
 - regulatory limit;
 - applicability date for limit.
- The CAEP assessed a comprehensive work plan and agreed that the CO₂ Standard technical work would be finalised in late-2015.



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Thank you



For more information on the CO₂ Standard developments:

<http://www.icao.int/Newsroom/Pages/new-progress-on-aircraft-CO2-standard.aspx>