

## Annex 4 (Relating to Article 14)

### Standards for aircraft engine emissions (limited to carbon dioxide)

- 1 The standards for the aircraft engine emissions (limited to carbon dioxide, the same shall apply hereinafter) of the following aircraft (excluding firefighting aircraft, amphibious aircraft and other similar special categories of aircraft) shall be as specified in the following table according to the maximum takeoff weight of the aircraft. However, engines approved by the Minister of Land, Infrastructure, Transport and Tourism as difficult to modify in order to conform to the corresponding standards are excluded.
- a. Subsonic airplanes equipped with turbojet or turbofan engines of greater than 5,700 kg maximum takeoff weight, for which an application for the type certificate, etc. was received on or after January 1, 2020 (except for subsonic airplanes of less than or equal to 60,000 kg maximum takeoff weight with a passenger seating capacity of 19 seats or less)
  - b. Subsonic airplanes equipped with turbojet or turbofan engines of greater than 5,700 kg and less than or equal to 60,000 kg maximum takeoff weight (limited to subsonic airplanes with a maximum passenger seating capacity of 19 seats or less), for which an application for a type certificate, etc. was received on or after January 1, 2023
  - c. Propeller-driven airplanes of greater than 8,618 kg maximum takeoff weight, for which an application for a type certificate, etc. was received on or after January 1, 2020

	CO <sub>2</sub> emissions evaluation metric value (kg/km)
Aircraft of less than or equal to 60,000 kg maximum takeoff weight	It shall be less than or equal to $10^{(-2.73780+(0.681310 \times \log_{10} W)+(-0.0277861 \times (\log_{10} W)^2))}$
Aircraft of greater than 60,000 kg and less than or equal to 70,395 kg maximum takeoff weight	It shall be less than or equal to 0.764.
Aircraft of greater than 70,395 kg maximum takeoff weight	It shall be less than or equal to $10^{(-1.412742+(-0.020517 \times \log_{10} W)+(0.0593831 \times (\log_{10} W)^2))}$
Remarks	
1. CO <sub>2</sub> emissions evaluation metric value shall be measured and computed in accordance with the methods specified in Annex 16 of the International Civil Aviation Convention.	
2. The W shall be the maximum takeoff weight (in kg) of the aircraft.	

- 2 The standards for the aircraft engine emissions of the following aircraft (excluding firefighting aircraft, amphibious aircraft and other similar special categories of aircraft, and aircraft to which the standards specified in paragraph 1 apply) shall be as specified in the following table according to the maximum takeoff weight of the aircraft. However, engines approved by the Minister of Land, Infrastructure, Transport and Tourism as difficult to modify in order to conform to the corresponding standards are excluded.
- a. Subsonic airplanes equipped with turbojet or turbofan engines of greater than 5,700 kg maximum takeoff weight, for which an application for certification of the change in type design (limited to which significantly increases its CO<sub>2</sub> emissions evaluation metric value) was received on or after January 1, 2023
  - b. Subsonic airplanes equipped with turbojet or turbofan engines of greater than 5,700 kg maximum takeoff weight, for which a certificate of airworthiness, etc. was first issued on or after January 1, 2028 (aircraft listed in subparagraph a are excluded).
  - c. Propeller-driven airplanes of greater than 8,618 kg maximum takeoff weight, for which an application for certification of the change in type design (limited to which significantly increases its CO<sub>2</sub> emissions evaluation metric value) was received on or after January 1, 2023;
  - d. Propeller-driven airplanes of greater than 8,618 kg maximum takeoff weight, for which a certificate of airworthiness, etc. was first issued on or after January 1, 2028 (aircraft listed in subparagraph c are excluded).

	CO <sub>2</sub> emissions evaluation metric value (kg/km)
Aircraft of less than or equal to 60,000 kg maximum takeoff weight	It shall be less than or equal to $10^{(-2.57535+(0.609766 \times \log_{10} W)+(-0.0191302 \times (\log_{10} W)^2))}$
Aircraft of greater than 60,000 kg and less than or equal to 70,107 kg maximum takeoff weight	It shall be less than or equal to 0.797.
Aircraft of greater than 70,107 kg maximum takeoff weight	It shall be less than or equal to $10^{(-1.39353+(-0.020517 \times \log_{10} W)+(0.0593831 \times (\log_{10} W)^2))}$
Remarks	
1. CO <sub>2</sub> emissions evaluation metric value shall be measured and computed in accordance with the methods specified in Annex 16 of the International Civil Aviation Convention.	
2. The W shall be the maximum takeoff weight (in kg) of the aircraft.	