Annex 3 (Relating to Article 14)

Standards for aircraft engine emissions (excluding carbon dioxide)

Chapter 1 Standards for the fuel venting from aircraft engines

Aircraft equipped with turbine engines for which the date of manufacture was on or after February 18, 1982 shall not emit liquid fuel into the atmosphere from the fuel nozzle manifold upon engine shutdown following normal flight or ground operations.

Chapter 2 Standards for Aircraft Engine Exhaust Emissions

- 2-1 The standards for the engine exhaust gas emissions of subsonic aircraft equipped with turbojet or turbofan engines shall be as specified below according to the type of exhaust gas. However, engines listed in the following paragraph a through f, and approved by the Minister of Land, Infrastructure, Transport and Tourism as difficult to modify in order to conform to the corresponding standards specified in each paragraph are excluded.
 - a. For the engines listed in the table of 2-1-1, 2-1-2-1 or 2-1-2-2 for which the first Type Approval in accordance with the Article 14, paragraph 1 or other equivalent approval by a Contracting State of the International Civil Aviation Convention (hereinafter referred to as "Type Approval, etc.") was issued before January 1, 1965:
 - The corresponding standards set in 2-1-1, 2-1-2-1 or 2-1-2-2
 - b. For the engines listed in the table of 2-1-1 for which the date of manufacture was within a specific period on or after January 1, 1983:
 - The standards set in 2-1-1
 - c. For the engines listed in the table of 2-1-2-1 for which the date of manufacture was within a specific period on or after January 1, 1986:
 - The standards set in 2-1-2-1
 - d. For the engines listed in the table of 2-1-2-2 for which the date of manufacture of the first individual production model was before January 1, 1996 and the date of manufacture of the individual engine was within a specific period on or after January 1, 2000, or on or after January 1, 2013, or for which the date of manufacture of the first individual production model was on or after January 1, 1996 and before January 1, 2008 and the date of manufacture of the individual engine was within a specific period after January 1, 2013:
 - The standards set in 2-1-2-2
 - e. For the engines listed in the table of 2-1-2-3 for which the date of manufacture was within a specific period on or after January 1, 2020:
 - The standards set in 2-1-2-3 (limited to the part pertaining to the non-volatile

- particulate matter weight concentration)
- f. For the engines listed in the table of 2-1-2-3 for which an application for the first Type Approval, etc. was received before January 1, 2023 and for which the date of manufacture of the individual engine was within a specific period after January 1, 2023:

The standards set in 2-1-2-3 (limited to the part pertaining to the Non-volatile particulate matter mass and non-volatile particulate matter particle number)

2-1-1 Smoke

	Smoke Number (dimensionless)
Engines for which the date of	$83.6 \times (F_{00})^{-0.274}$ or 50, whichever is lower.
manufacture was on or after January	
1, 1983 (engines with a rated thrust	
of more than 26.7 kN for which the	
date of manufacture was on or after	
January 1, 2023 are excluded)	

Remarks

- 1. The Smoke Number shall be measured and computed in accordance with the methods specified in Annex 16 of the International Civil Aviation Convention.
- 2. The F₀₀ shall be the rated thrust (in kN) of the engine as defined in Annex 16 of the International Civil Aviation Convention.
- 2-1-2 Hydrocarbons, carbon monoxide, oxides of nitrogen and non-volatile particulate matter

2-1-2-1 Hydrocarbons and carbon monoxide

	Hydrocarbons mass (g/kN)	Carbon monoxide mass (g/kN)
Engines with a rated	It shall be less than or	It shall be less than or equal to
thrust of more than 26.7	equal to 19.6.	118.
kN for which the date of		
manufacture was on or		
after January 1, 1986		

Remarks

Hydrocarbons and carbon monoxide mass shall be measured and computed in accordance with the methods specified in Annex 16 of the International Civil Aviation Convention.

2-1-2-2 Oxides of nitrogen

		Oxides of nitrogen mass	
		(g/kN)	
Engines with a rated thrust of more than		It shall be less than or equal to	
26.7 kN for which the d	ate of manufacture	$40 + 2 \times \pi_{00}$.	
of the first individual pr	oduction model		
was before January 1, 19	996 and the date of		
manufacture of the indiv	vidual engine was		
on or after January 1, 19	986 and before		
January 1, 2000			
Engines with a rated thr	ust of more than	It shall be less than or equal to	
26.7 kN for which the d	ate of manufacture	$32 + 1.6 \times \pi_{00}$.	
of the first individual pr	oduction model		
was on or after January	1, 1996 and before		
January 1, 2004 and the	date of		
manufacture of the indiv	vidual engine was		
before January 1, 2013 of	or for which the		
date of manufacture of t	he first individual		
production model was b	efore January 1,		
1996 and the date of ma	nufacture of the		
individual engine was on or after January			
1, 2000 and before Janu	ary 1, 2013		
Engines with a rated	Engines with a	It shall be less than or equal to	
thrust of more than	pressure ratio of	$37.572 + 1.6 \times \pi_{00} - 0.2087 \times F_{00}$.	
26.7 kN but not more	30 or less		
than 89.0 kN for	Engines with a	It shall be less than or equal to	
which the date of	pressure ratio of	$42.71 + 1.4286 \times \pi_{00}$	
manufacture of the more than 30 but		$-0.4013 \times F_{00} + 0.00642 \times \pi_{00} \times F_{00}$.	
first individual	less than 62.5		
production model was Engines with a		It shall be less than or equal to	
on or after January 1, pressure ratio of		$32 + 1.6 \times \pi_{00}$.	
2004 and before	62.5 or more		
January 1, 2008 and			
the date of			
manufacture of the			
individual engine was			
before January 1, 2013			

thrust of more than 89.0 kN for which the date of manufacture of the first individual production model was before January 1, 2013 Engines with a rated thrust of more than 89.0 kN for which the date of manufacture of the first individual production model was before January 1, 2013 Engines with a rated thrust of more than 89.0 kN for which the date of manufacture of the first individual production model was on or after January 1, 2014 or for which the date of manufacture of the first individual production model was before January 1, 2018 and the date of manufacture of the first individual production model was before January 1, 2018 and the date of manufacture of the first individual production model was before January 1, 2018 and the date of manufacture of the first individual production model was before January 1, 2018 and the date of manufacture of the first individual production model was before January 1, 2018 and the date of manufacture of the first individual production model was before January 1, 2018 and the date of manufacture of the first individual production model was before January 1, 2018 and the date of manufacture of the individual engine was on or after January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2008 and the date of manufacture of the individual engine was on or after Januar	Engines with a rated	Engines with a	It shall be less than or equal to
Substitute Su	· ·		
date of manufacture of the first individual production model was on or after January 1, 2004 and before January 1, 2008 and the date of manufacture of the individual engine was before January 1, 2013 Engines with a rated thrust of more than 89.0 kN for which the date of manufacture of the first individual production model was on or after January 1, 2008 and the date of manufacture of the first individual production model was before January 1, 2014 Engines with a pressure ratio of 30 or less — 0.00308 × π_{00} × π_{00} — 0.5303 × π_{00} + 0.00642 × π_{00}		-	$15 + 1.0 \wedge koo$.
the first individual production model was on or after January 1, 2004 and before January 1, 2008 and the date of manufacture of the individual engine was before January 1, 2013 Engines with a rated thrust of more than 89.0 kN for which the date of manufacture of the first individual production model was before January 1, 2014 or for which the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than pressure ratio of manufacture of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than pressure ratio of more than pressure ratio of manufacture of the individual engine was on or after January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than pressure ratio of 16.72 + 1.4080 × π_{00} .			It shall be loss than an equal to
production model was on or after January 1, 2004 and before January 1, 2008 and the date of manufacture of the individual engine was before January 1, 2013 Engines with a rated thrust of more than 26.7 kN but not more than 89.0 kN for which the date of manufacture of the first individual production model was before January 1, 2014 or for which the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than pressure ratio of manufacture of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than pressure ratio of 16.72 + 1.4080 × π_{00} .			-
on or after January 1, 2004 and before January 1, 2008 and the date of manufacture of the individual engine was before January 1, 2013 Engines with a rated thrust of more than 89.0 kN for which the date of manufacture of the first individual production model was on or after January 1, 2008 and the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the individual production model was before January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than pressure ratio of $16.72 + 1.4080 \times \pi_{00}$.		-	$/+2.0 \times \pi_{00}$.
2004 and before January 1, 2008 and the date of manufacture of the individual engine was before January 1, 2013 Engines with a rated thrust of more than 26.7 kN but not more than 89.0 kN for which the date of manufacture of the first individual production model was on or after January 1, 2013 Engines with a date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the individual production model was before January 1, 2008 and the date of manufacture of the individual production model was before January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than 0 the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than 0 the date of manufacture of the individual engine was on or after January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than 0 the date of more than 0 the date of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than 0 the date of the pressure ratio of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than 0 the date of the pressure ratio of the individual engine was on or after January 1, 2013	=		
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the date of manufacture of the individual engine was before January 1, 2013 Engines with a rated thrust of more than 26.7 kN but not more than 89.0 kN for which the date of manufacture of the first individual production model was before January 1, 2014 or for which the date of manufacture of the first individual production model was before January 1, 2014 or or which the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than Engines with a pressure ratio of 82.6 or more Manufacture of the individual engine was on or after January 1, 2008 Engines with a rated thrust of more than Engines with a pressure ratio of 16.72 + 1.4080 × \pi_00.			-
manufacture of the individual engine was before January 1, 2013 Engines with a rated thrust of more than 26.7 kN but not more than 89.0 kN for which the date of manufacture of the first individual production model was on or after January 1, 2014 or for which the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the first individual production model was before January 1, 2013 Engines with a rated thrust of more than 80 but less than or equal to 38.5486 + 1.6823 × π_{00} — 0.00308 × π_{00} × F ₀₀ . It shall be less than or equal to 46.1600 + 1.4286 × π_{00} — 0.5303 × F ₀₀ + 0.00642 × π_{00} × F ₀₀ . It shall be less than or equal to 32 + 1.6 × π_{00} .	-	*	$32 + 1.6 \times \pi_{00}$.
individual engine was before January 1, 2013 Engines with a rated thrust of more than 26.7 kN but not more than 89.0 kN for which the date of manufacture of the first individual production model was on or after January 1, 2014 or for which the date of manufacture of the first individual production model was before January 1, 2014 or for which the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the first individual production model was before January 1, 2013 Engines with a rated thrust of more than $\frac{1}{2}$ Engines with a pressure ratio of $\frac{1}{2}$ Across the first individual production model was before January 1, 2018 Engines with a rated thrust of more than $\frac{1}{2}$ Engines with a pressure ratio of $\frac{1}{2}$ It shall be less than or equal to $\frac{1}{2}$ and $\frac{1}{2}$ a		62.5 or more	
before January 1, 2013 Engines with a rated thrust of more than 26.7 kN but not more than 89.0 kN for which the date of manufacture of the first individual production model was before January 1, 2014 or for which the date of manufacture of the first individual production model was before January 1, 2018 and the date of manufacture of the first individual production model was before January 1, 2018 and the date of manufacture of the first individual production model was before January 1, 2018 and the date of manufacture of the individual production model was before January 1, 2018 and the date of manufacture of the first individual production model was before January 1, 2018 and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than Tated Tanuary 1, 2013 Engines with a rated thrust of more than Tated Tanuary 1, 2013 It shall be less than or equal to 38.5486 + 1.6823 × π_{00} — 0.00308 × π_{00}			
Engines with a rated thrust of more than 26.7 kN but not more than 89.0 kN for which the date of manufacture of the first individual production model was before January 1, 2014 or for which the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the first individual production model was before January 1, 2013 Engines with a rated thrust of more than $2000000000000000000000000000000000000$			
thrust of more than 26.7 kN but not more than 89.0 kN for which the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a pressure ratio of 38.5486 + 1.6823 × π_{00} — 0.2453 × F ₀₀ $-0.00308 × \pi_{00} × F_{00}. It shall be less than or equal to 32 + 1.6 × \pi_{00}.$	before January 1, 2013		
26.7 kN but not more than 89.0 kN for which the date of manufacture of the first individual production model was before January 1, 2014 or for which the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a pressure ratio of $-0.0308 \times \pi_{00} \times F_{00}$. It shall be less than or equal to $32 + 1.6 \times \pi_{00}$.	Engines with a rated	Engines with a	It shall be less than or equal to
than 89.0 kN for which the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a pressure ratio of manufacture of the individual engine was on or after January 1, 2013 Engines with a pressure ratio of more than below that the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a pressure ratio of more than below that the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a pressure ratio of more than below that the date of more than break and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than break and the date of the individual engine was on or after January 1, 2008 Engines with a pressure ratio of the individual engine was on or after January 1, 2008 Engines with a pressure ratio of the individual engine was on or after January 1, 2008 Engines with a pressure ratio of the individual engine was on or after January 1, 2008 Engines with a pressure ratio of the individual engine was on or after January 1, 2008 Engines with a pressure ratio of the individual engine was on or after January 1, 2008 Engines with a pressure ratio of 16.72 + 1.4080 × π_{00} .	thrust of more than	pressure ratio of	$38.5486 + 1.6823 \times \pi_{00} - 0.2453 \times F_{00}$
which the date of manufacture of the first individual production model was on or after January 1, 2014 or for which the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a pressure ratio of 82.6 or more	26.7 kN but not more	30 or less	$-0.00308 \times \pi_{00} \times F_{00}$.
manufacture of the first individual production model was on or after January 1, 2014 or for which the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than 30 but less than 30 but less than 82.6 Engines with a pressure ratio of $32 + 1.6 \times \pi_{00}$. It shall be less than or equal to $32 + 1.6 \times \pi_{00}$.	than 89.0 kN for	Engines with a	It shall be less than or equal to
first individual production model was on or after January 1, 2014 or for which the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a pressure ratio of $32 + 1.6 \times \pi_{00}$. It shall be less than or equal to $32 + 1.6 \times \pi_{00}$.	which the date of	pressure ratio of	$46.1600 + 1.4286 \times \pi_{00}$
production model was on or after January 1, 2008 and before January 1, 2014 or for which the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a pressure ratio of $32 + 1.6 \times \pi_{00}$. It shall be less than or equal to $32 + 1.6 \times \pi_{00}$.	manufacture of the	more than 30 but	$-0.5303 \times F_{00} + 0.00642 \times \pi_{00} \times F_{00}$.
on or after January 1, 2008 and before January 1, 2014 or for which the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than pressure ratio of $32 + 1.6 \times \pi_{000}$. $32 + 1.6 \times \pi_{000}$. $32 + 1.6 \times \pi_{000}$.	first individual	less than 82.6	
2008 and before January 1, 2014 or for which the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than 82.6 or more 82.6 or more 82.6 or more 11 that 32.6 or more 12 The 32.6 or more 13 The 32.6 or more 14 The 32.6 or more 15 The 32.6 or more 16 The 32.6 or more 17 The 32.6 or more 18 The 32	production model was	Engines with a	It shall be less than or equal to
January 1, 2014 or for which the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than Engines with a pressure ratio of $16.72 + 1.4080 \times \pi_{00}$.	on or after January 1,	pressure ratio of	$32 + 1.6 \times \pi_{00}$.
which the date of manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than Engines with a pressure ratio of $16.72 + 1.4080 \times \pi_{00}$.	2008 and before	82.6 or more	
manufacture of the first individual production model was before January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than Engines with a pressure ratio of $16.72 + 1.4080 \times \pi_{00}$.	January 1, 2014 or for		
first individual production model was before January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than Engines with a pressure ratio of $16.72 + 1.4080 \times \pi_{00}$.	which the date of		
production model was before January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than Engines with a pressure ratio of $16.72 + 1.4080 \times \pi_{00}$.	manufacture of the		
before January 1, 2008 and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than Engines with a pressure ratio of $16.72 + 1.4080 \times \pi_{00}$.	first individual		
and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than Engines with a pressure ratio of $16.72 + 1.4080 \times \pi_{00}$.	production model was		
and the date of manufacture of the individual engine was on or after January 1, 2013 Engines with a rated thrust of more than Engines with a pressure ratio of $16.72 + 1.4080 \times \pi_{00}$.	before January 1, 2008		
individual engine was on or after January 1, 2013 Engines with a rated thrust of more than Engines with a pressure ratio of $16.72 + 1.4080 \times \pi_{00}$.	and the date of		
on or after January 1, 2013 Engines with a rated thrust of more than Engines with a pressure ratio of $16.72 + 1.4080 \times \pi_{00}$.	manufacture of the		
on or after January 1, 2013 Engines with a rated thrust of more than Engines with a pressure ratio of $16.72 + 1.4080 \times \pi_{00}$.	individual engine was		
2013 Engines with a rated Engines with a It shall be less than or equal to thrust of more than pressure ratio of $16.72 + 1.4080 \times \pi_{00}$.			
Engines with a rated Engines with a It shall be less than or equal to thrust of more than pressure ratio of $16.72 + 1.4080 \times \pi_{00}$.	_		
thrust of more than pressure ratio of $16.72 + 1.4080 \times \pi_{00}$.		Engines with a	It shall be less than or equal to
	· ·		_
107AV KIN 101 WHICH UIC 20 OF 1033	89.0 kN for which the	30 or less	

date of manufacture of	Engines with a	It shall be less than or equal to	
the first individual	pressure ratio of	$-1.04 + 2.0 \times \pi_{00}$.	
production model was	more than 30 but	$1.04 + 2.0 \wedge h_{00}$.	
1			
on or after January 1,	less than 82.6	7. 1. 11. 1	
2008 and before	Engines with a	It shall be less than or equal to	
January 1, 2014 or for	pressure ratio of	$32 + 1.6 \times \pi_{00}$.	
which the date of	82.6 or more		
manufacture of the			
first individual			
production model was			
before January 1, 2008			
and the date of			
manufacture of the			
individual engine was			
on or after January 1,			
2013			
Engines with a rated	Engines with a	It shall be less than or equal to	
thrust of more than	pressure ratio of	$40.052 + 1.5681 \times \pi_{00} - 0.3615 \times F_{00}$	
26.7 kN but not more	30 or less	$-0.0018 \times \pi_{00} \times F_{00}$.	
than 89.0 kN for	Engines with a	It shall be less than or equal to	
which the date of	pressure ratio of	$41.9435 + 1.505 \times \pi_{00}$	
manufacture of the	more than 30 but	$-0.5823 \times F_{00} + 0.005562 \times \pi_{00} \times F_{00}$.	
first individual	less than 104.7		
production model was	Engines with a	It shall be less than or equal to	
on or after January 1,	pressure ratio of	$32 + 1.6 \times \pi_{00}$.	
2014	104.7 or more		
Engines with a rated	Engines with a	It shall be less than or equal to	
thrust of more than	pressure ratio of	$7.88 + 1.4080 \times \pi_{00}$.	
89.0 kN for which the	30 or less		
date of manufacture of	Engines with a	It shall be less than or equal to	
the first individual	pressure ratio of	$-9.88 + 2.0 \times \pi_{00}$.	
production model was	more than 30 but		
on or after January 1,	less than 104.7		
2014	Engines with a	It shall be less than or equal to	
	pressure ratio of	$32 + 1.6 \times \pi_{00}$.	
	104.7 or more	52 · 1.0 · 1000.	
	104./ 01 111016		

Remarks

- 1. Oxides of nitrogen mass shall be measured and computed in accordance with the methods specified in Annex 16 of the International Civil Aviation Convention.
- 2. The F₀₀ shall be the rated thrust (in kN) of the engine as defined in Annex 16 of the International Civil Aviation Convention.
- 3. The π_{00} shall be the pressure ratio of the engine as defined in Annex 16 of the International Civil Aviation Convention.

2-1-2-3 Non-volatile particulate matter

	Non-volatile	Non-volatile	Non-volatile
	particulate matter	particulate matter	particulate matter
	mass concentration	mass	particle number
	$(\mu g/m^3)$	(mg/kN)	(particles/kN)
Engines with a rated	It shall be less than		
thrust of more than	or equal to		
26.7 kN for which	$10^{\left(3+2.9\times F_{00}^{-0.274}\right)}$		
the date of	10		
manufacture was on			
or after January 1,			
2020 and before			
December 31, 2022			
Engines with a rated		It shall be less than	It shall be less than
thrust of more than		or equal to	or equal to
26.7 kN but not		4646.9-21.497 ×	2.669×10^{16}
more than 200 kN		F00.	$-1.126 \times 10^{17} \times F_{00}$
for which an			•
application for the			
first Type Approval,			
etc. was received			
before January 1,			
2023 and for which			
the date of			
manufacture of the			
individual engine			
was on or after			
January 1, 2023			
Engines with a rated		It shall be less than	It shall be less than
thrust of morethan		or equal to	or equal to

200 kN for which an	347.5.	4.170×10^{15} .
application for the		
first Type Approval,		
etc. was received		
before January 1,		
2023 and for which		
the date of		
manufacture of the		
individual engine		
was on or after		
January 1, 2023		
Engines with a rated	It shall be less than	It shall be less than
thrust of more than	or equal to	or equal to
26.7 kN but not	1251.1 – 6.914 ×	1.490×10^{16}
more than 150 kN	F00.	$-8.080\times10^{13}\times F_{00}$
for which an		
application for the		
first Type Approval,		
etc. was received on		
or after January 1,		
2023		
Engines with a rated	It shall be less than	It shall be less than
thrust of more than	or equal to	or equal to
150 kN for which an	214.0.	2.780×10 ¹⁵ .
application for the		
first Type Approval,		
etc. was received on		
or after January 1,		
2023		
1		·

Remarks

- 1. Non-volatile particulate matter shall be measured and computed in accordance with the methods specified in Annex 16 of the International Civil Aviation Convention.
- 2. The F₀₀ shall be the rated thrust (in kN) of the engine as defined in Annex 16 of the International Civil Aviation Convention.

2-2 The standards for the engine exhaust emissions of supersonic aircraft equipped with turbojet or turbofan engines listed in the following table shall be as specified below according to the type of exhaust gas.

2-2-1 Smoke

	Smoke Number (dimensionless)
Engines whose date of manufacture	$83.6 \times (F^*_{00})^{-0.274}$ or 50, whichever is lower.
was on or after February 18, 1982	

Remarks

- 1 The Smoke Number shall be measured and computed in accordance with the methods specified in Annex 16 of the International Civil Aviation Convention.
- 2 The F*00 shall be the rated thrust (in kN) with afterburning applied as defined in Annex 16 of the International Civil Aviation Convention.

2-2-2 Hydrocarbons, carbon monoxide and oxides of nitrogen

	Hydrocarbon mass	Carbon monoxide	Oxides of nitrogen
	(g/kN)	mass	mass
		(g/kN)	(g/kN)
Engines whose date	It shall be less than	It shall be less than	It shall be less than
of manufacture was	or equal to	or equal to	or equal to
on or after February	$140 \times (0.92)^{\pi 00}$.	$4550 \times (\pi_{00})^{-1.03}$.	$36 + 2.42 \times \pi_{00}$.
18, 1982			

Remarks

- 1. Hydrocarbon, carbon monoxide and oxides of nitrogen mass shall be measured and computed in accordance with the methods specified in Annex 16 of the International Civil Aviation Convention.
- 2. The π_{00} shall be the pressure ratio of the engine as defined in Annex 16 of the International Civil Aviation Convention.