



ICAO ENGINE nvPM EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: CF6-80C2B5F/B6F/B7F BYPASS RATIO (-): 5.0
UNIQUE ID NUMBER: 07P27GE219 PRESSURE RATIO π_{∞} (-): 32.7
COMBUSTOR: LEC
ENGINE TYPE: TF RATED OUTPUT F_{∞} (kN): 267.0

REGULATORY DATA

CHARACTERISTIC VALUES:	LTO_{mass}/F_{∞} (mg/kN)	LTO_{num}/F_{∞} (particles/kN)	NVPM MASS CONCENTRATION ($\mu\text{g}/\text{m}^3$)
LTO/F_{∞} AND MAX $nvPM_{mass}$	53.2	5.44E+14	967
AS % OF CAEP/10 LIMIT	-	-	22.8
AS % OF CAEP/11 LIMIT (InP)	15.3	13.0	
AS % OF CAEP/11 LIMIT (NT)	24.9	19.6	

MEASURED DATA

MODE	POWER SETTING (% F_{∞})	TIME minutes	FUEL FLOW kg/s	EMISSIONS INDICES*		NVPM MASS CONCENTRATION PEAK $nvPM_{mass}$ ($\mu\text{g}/\text{m}^3$)
				EI_{mass} (mg/kg)	EI_{num} (particles/kg)	
TAKE-OFF	100	0.7	2.569	26.4	1.68E+14	
CLIMB OUT	85	2.2	2.074	26.1	2.35E+14	
APPROACH	30	4.0	0.671	0.6	4.48E+13	
IDLE	7	26.0	0.196	0.4	4.76E+13	
LTO TOTAL (kg, mg, number of particles)			848	10223	1.04E+17	-
NUMBER OF ENGINES				1	1	1
NUMBER OF TESTS				3	3	3
AVERAGE LTO/F_{∞} VALUES (mg/kN, particles/kN)				38.3	3.91E+14	-
MAX EI VALUES (mg/kg, particles/kg) AND MAX MASS CONC. ($\mu\text{g}/\text{m}^3$)				28.4	2.41E+14	752

* Emissions Indices are corrected for thermophoretic loss and fuel hydrogen content

DATA FOR EMISSIONS INVENTORIES (ESTIMATIONS FOR ENGINE EXIT PLANE VALUES)

MODE	POWER SETTING (% F_{∞})	CORRECTED EMISSIONS INDICES	
		EI_{mass_SL} (mg/kg)	EI_{num_SL} (particles/kg)
TAKE-OFF	100	31.2	4.38E+14
CLIMB OUT	85	30.9	6.36E+14
APPROACH	30	1.0	3.22E+14
IDLE	7	0.9	4.45E+14

AMBIENT CONDITIONS

FUEL

	From	To		
BAROMETER (kPa)	97.6	98.7	HEAT OF COMBUSTION (MJ/kg)	43.22
TEMPERATURE (K)	285.3	290.6	HYDROGEN CONTENT (%mass)	13.68
HUMIDITY (kg water/kg dry air)	0.0023	0.0036	AROMATICS CONTENT (%vol)	16.2
			NAPHTHALENE CONTENT (%vol)	0.26
			SULPHUR CONTENT (ppm by mass)	58

MANUFACTURER: General Electric Company
TEST ORGANIZATION: GE Aerospace
TEST LOCATION: PTO, Ohio, USA
TEST DATES: 15/03/2023-30/03/2023

REMARKS

1. Engine S/N 707-628/1
2. Ref. R2022AE132/Rev. 1
3. The maximum EI_{mass} occurs between 85% and 100% F_{∞}
4. The maximum EI_{num} occurs between 85% and 100% F_{∞}