



ICAO ENGINE nvPM EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: CF34-8C5A2, CF34-8C5A2/B BYPASS RATIO (-): 4.8
UNIQUE ID NUMBER: 07P27GE224 PRESSURE RATIO π_{oo} (-): 24.4
COMBUSTOR: LEC
ENGINE TYPE: TF RATED OUTPUT F_{oo} (kN): 62.5

REGULATORY DATA

CHARACTERISTIC VALUES:	LTO_{mass}/F_{oo} (mg/kN)	LTO_{num}/F_{oo} (particles/kN)	NVPM MASS CONCENTRATION ($\mu\text{g}/\text{m}^3$)
LTO/ F_{oo} AND MAX nvPM _{mass}	104.3	9.36E+14	3346
AS % OF CAEP/10 LIMIT	-	-	39.0
AS % OF CAEP/11 LIMIT (InP)	3.2	4.8	
AS % OF CAEP/11 LIMIT (NT)	12.7	9.5	

MEASURED DATA

MODE	POWER SETTING (% F_{oo})	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	0.702	104.9	7.20E+14	
CLIMB OUT	85	2.2	0.570	24.5	3.49E+14	
APPROACH	30	4.0	0.187	1.8	1.34E+12	
IDLE	7	26.0	0.066	2.8	8.98E+11	
LTO TOTAL (kg, mg, number of particles)			253	5311	4.77E+16	-
NUMBER OF ENGINES				2	2	2
NUMBER OF TESTS				6	6	6
AVERAGE LTO/ F_{oo} VALUES (mg/kN, particles/kN)				85.0	7.63E+14	-
MAX EI VALUES (mg/kg, particles/kg) AND MAX MASS CONC. ($\mu\text{g}/\text{m}^3$)				104.9	7.20E+14	2853

* 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_{oo})	CORRECTED EMISSIONS INDICES	
		EI _{mass_SL} (mg/kg)	EI _{num_SL} (particles/kg)
TAKE-OFF	100	127.7	2.10E+15
CLIMB OUT	85	31.4	1.23E+15
APPROACH	30	2.1	2.67E+12
IDLE	7	3.3	1.58E+12

AMBIENT CONDITIONS

	From	To	FUEL	
BAROMETER (kPa)	98.2	99.1	HEAT OF COMBUSTION (MJ/kg)	43.16
TEMPERATURE (K)	279.5	287.7	HYDROGEN CONTENT (%mass)	13.87
HUMIDITY (kg water/kg dry air)	0.0017	0.0029	AROMATICS CONTENT (%vol)	20.6
			NAPHTHALENE CONTENT (%vol)	0.26
			SULPHUR CONTENT (ppm by mass)	9

MANUFACTURER: General Electric Company
TEST ORGANIZATION: GE Aviation
TEST LOCATION: PTO, Ohio, USA
TEST DATES: 16/12/2023-21/12/2023

REMARKS

1. Engine S/N 908-337/1
2. Ref. GE Report R2023AE234/Rev.0
3. Engine S/N 195-878/1
4. Ref. GE Report R2021AE242/Rev.0
5. Atmospheric Conditions, Fuel and Test Dates
6. are specified for GE Report R2023AE234/Rev.0