



ICAO ENGINE nvPM EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: CF34-8C5A3, CF34-8C5/M, CF34-8C5A1/M, BYPASS RATIO (-): 4.8
UNIQUE ID NUMBER: 07P27GE225 PRESSURE RATIO π_{00} (-): 25.1
COMBUSTOR: LEC
ENGINE TYPE: TF RATED OUTPUT F_{00} (kN): 64.5

REGULATORY DATA

CHARACTERISTIC VALUES:	LTO_{mass}/F_{00} (mg/kN)	LTO_{num}/F_{00} (particles/kN)	NVPM MASS CONCENTRATION ($\mu\text{g}/\text{m}^3$)
LTO/ F_{00} AND MAX nvPM _{mass}	136.7	1.10E+15	4325
AS % OF CAEP/10 LIMIT	-	-	51.3
AS % OF CAEP/11 LIMIT (InP)	4.2	5.7	
AS % OF CAEP/11 LIMIT (NT)	17.0	11.4	

MEASURED DATA

MODE	POWER SETTING (% F_{00})	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	0.732	132.7	7.90E+14	
CLIMB OUT	85	2.2	0.594	34.8	4.26E+14	
APPROACH	30	4.0	0.192	1.8	1.47E+12	
IDLE	7	26.0	0.067	2.8	8.51E+11	
LTO TOTAL (kg, mg, number of particles)			260	7189	5.79E+16	-
NUMBER OF ENGINES				2	2	2
NUMBER OF TESTS				6	6	6
AVERAGE LTO/ F_{00} VALUES (mg/kN, particles/kN)				111.4	8.96E+14	-
MAX EI VALUES (mg/kg, particles/kg) AND MAX MASS CONC. ($\mu\text{g}/\text{m}^3$)				132.7	7.90E+14	3688

* 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_{00})	CORRECTED EMISSIONS INDICES	
		EI _{mass_SL} (mg/kg)	EI _{num_SL} (particles/kg)
TAKE-OFF	100	158.8	2.16E+15
CLIMB OUT	85	44.4	1.47E+15
APPROACH	30	2.1	3.01E+12
IDLE	7	3.2	1.50E+12

AMBIENT CONDITIONS

FUEL

	From	To		
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