



# ICAO ENGINE nvPM EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: CF34-8C5A1, CF34-8C5A1/B BYPASS RATIO (-): 4.8  
UNIQUE ID NUMBER: 07P27GE222 PRESSURE RATIO  $\pi_{00}$  (-): 23.8  
COMBUSTOR: LEC  
ENGINE TYPE: TF RATED OUTPUT  $F_{00}$  (kN): 60.6

### 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 <sub>mass</sub>	80.6	7.93E+14	2606
AS % OF CAEP/10 LIMIT	-	-	29.8
AS % OF CAEP/11 LIMIT (InP)	2.4	4.0	
AS % OF CAEP/11 LIMIT (NT)	9.7	7.9	

### MEASURED DATA

MODE	POWER SETTING (% $F_{00}$ )	TIME minutes	FUEL FLOW kg/s	EMISSIONS INDICES*		NVPM MASS CONCENTRATION PEAK nvPM <sub>mass</sub> ( $\mu\text{g}/\text{m}^3$ )
				EI <sub>mass</sub> (mg/kg)	EI <sub>num</sub> (particles/kg)	
TAKE-OFF	100	0.7	0.674	83.3	6.51E+14	
CLIMB OUT	85	2.2	0.550	17.2	2.83E+14	
APPROACH	30	4.0	0.182	1.9	1.24E+12	
IDLE	7	26.0	0.066	2.9	9.55E+11	
LTO TOTAL (kg, mg, number of particles)			247	3981	3.92E+16	-
NUMBER OF ENGINES				2	2	2
NUMBER OF TESTS				6	6	6
AVERAGE LTO/ $F_{00}$ VALUES (mg/kN, particles/kN)				65.7	6.46E+14	-
MAX EI VALUES (mg/kg, particles/kg) AND MAX MASS CONC. ( $\mu\text{g}/\text{m}^3$ )				83.3	6.51E+14	2223

\* 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 <sub>mass_SL</sub> (mg/kg)	EI <sub>num_SL</sub> (particles/kg)
TAKE-OFF	100	102.8	2.00E+15
CLIMB OUT	85	22.1	1.01E+15
APPROACH	30	2.1	2.39E+12
IDLE	7	3.3	1.67E+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