



ICAO ENGINE nvPM EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: CF34-8E5 BYPASS RATIO (-): 4.7
UNIQUE ID NUMBER: 07P27GE226 PRESSURE RATIO π_{o0} (-): 23.8
COMBUSTOR: LEC
ENGINE TYPE: TF RATED OUTPUT F_{o0} (kN): 59.7

REGULATORY DATA

CHARACTERISTIC VALUES:	LTO_{mass}/F_{o0} (mg/kN)	LTO_{num}/F_{o0} (particles/kN)	NVPM MASS CONCENTRATION ($\mu\text{g}/\text{m}^3$)
LTO/F_{o0} AND MAX $nvPM_{mass}$	79.0	$7.88\text{E}+14$	2488
AS % OF CAEP/10 LIMIT	-	-	28.2
AS % OF CAEP/11 LIMIT (InP)	2.3	3.9	
AS % OF CAEP/11 LIMIT (NT)	9.4	7.8	

MEASURED DATA

MODE	POWER SETTING (% F_{o0})	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	0.652	79.7	$6.39\text{E}+14$	
CLIMB OUT	85	2.2	0.536	18.1	$2.93\text{E}+14$	
APPROACH	30	4.0	0.182	1.9	$1.25\text{E}+12$	
IDLE	7	26.0	0.065	2.9	$1.01\text{E}+12$	
LTO TOTAL (kg, mg, number of particles)			243	3844	$3.83\text{E}+16$	-
NUMBER OF ENGINES				2	2	2
NUMBER OF TESTS				6	6	6
AVERAGE LTO/F_{o0} VALUES (mg/kN, particles/kN)				64.4	$6.42\text{E}+14$	-
MAX EI VALUES (mg/kg, particles/kg) AND MAX MASS CONC. ($\mu\text{g}/\text{m}^3$)				79.7	$6.39\text{E}+14$	2122

* 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_{o0})	CORRECTED EMISSIONS INDICES	
		EI_{mass_SL} (mg/kg)	EI_{num_SL} (particles/kg)
TAKE-OFF	100	98.6	$1.98\text{E}+15$
CLIMB OUT	85	23.4	$1.05\text{E}+15$
APPROACH	30	2.1	$2.42\text{E}+12$
IDLE	7	3.3	$1.77\text{E}+12$

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