



ICAO ENGINE nvPM EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: CF34-8C5B1 BYPASS RATIO (-): 5.1
UNIQUE ID NUMBER: 01P08GE192 PRESSURE RATIO π_{00} (-): 22.9
COMBUSTOR: LEC
ENGINE TYPE: TF RATED OUTPUT F_{00} (kN): 56.4

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 $nvPM_{mass}$	18.3	$1.86\text{E}+14$	464
AS % OF CAEP/10 LIMIT	-	-	5.1
AS % OF CAEP/11 LIMIT (InP)	0.5	0.9	
AS % OF CAEP/11 LIMIT (NT)	2.1	1.8	

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	0.603	14.5	$1.86\text{E}+14$	
CLIMB OUT	85	2.2	0.495	2.5	$3.77\text{E}+13$	
APPROACH	30	4.0	0.171	0.9	$1.74\text{E}+12$	
IDLE	7	26.0	0.061	1.8	$3.05\text{E}+12$	
LTO TOTAL (kg, mg, number of particles)			227	741	$7.54\text{E}+15$	-
NUMBER OF ENGINES				1	1	1
NUMBER OF TESTS				3	3	3
AVERAGE LTO/F_{00} VALUES (mg/kN, particles/kN)				13.1	$1.34\text{E}+14$	-
MAX EI VALUES (mg/kg, particles/kg) AND MAX MASS CONC. ($\mu\text{g}/\text{m}^3$)				14.5	$1.86\text{E}+14$	360

* 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	18.3	$6.71\text{E}+14$
CLIMB OUT	85	3.1	$1.30\text{E}+14$
APPROACH	30	1.0	$3.06\text{E}+12$
IDLE	7	2.1	$8.07\text{E}+12$

AMBIENT CONDITIONS

	From	To	FUEL	
BAROMETER (kPa)	98.1	98.6	HEAT OF COMBUSTION (MJ/kg)	43.19
TEMPERATURE (K)	290.7	296.3	HYDROGEN CONTENT (%mass)	13.67
HUMIDITY (kg water/kg dry air)	0.0033	0.0048	AROMATICS CONTENT (%vol)	17.5
			NAPHTHALENE CONTENT (%vol)	0.23
			SULPHUR CONTENT (ppm by mass)	77

MANUFACTURER: General Electric Company
TEST ORGANIZATION: General Electric Company
TEST LOCATION: PTO, Site 3B
TEST DATES: 17/04/2017-18/04/2017

REMARKS

- GE Aviation Report R2018AE311/Rev. 0
- Engine S/N 902-647/1

** DATA SUPERSEDED **

SEE FOLLOWING UID FOR REVISED DATA:

07P27GE223