



# ICAO ENGINE nvPM EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: CF6-80C2B1F BYPASS RATIO (-): 5.1  
UNIQUE ID NUMBER: 01P02GE186 PRESSURE RATIO  $\pi_{co}$  (-): 30.6  
COMBUSTOR: LEC  
ENGINE TYPE: TF RATED OUTPUT  $F_{oo}$  (kN): 254.3

### 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 <sub>mass</sub>	49.6	6.28E+14	1109
AS % OF CAEP/10 LIMIT	-	-	25.6
AS % OF CAEP/11 LIMIT (InP)	14.3	15.1	
AS % OF CAEP/11 LIMIT (NT)	23.2	22.6	

### MEASURED DATA

MODE	POWER SETTING (% $F_{oo}$ )	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	2.417	34.9	2.36E+14	
CLIMB OUT	85	2.2	2.057	18.3	2.39E+14	
APPROACH	30	4.0	0.645	1.3	3.96E+13	
IDLE	7	26.0	0.195	1.2	6.54E+13	
LTO TOTAL (kg, mg, number of particles)			832	9082	1.15E+17	-
NUMBER OF ENGINES				1	1	1
NUMBER OF TESTS				3	3	3
AVERAGE LTO/ $F_{oo}$ VALUES (mg/kN, particles/kN)				35.7	4.52E+14	-
MAX EI VALUES (mg/kg, particles/kg) AND MAX MASS CONC. ( $\mu\text{g}/\text{m}^3$ )				34.9	2.47E+14	861

\* 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 <sub>mass_SL</sub> (mg/kg)	EI <sub>num_SL</sub> (particles/kg)
TAKE-OFF	100	40.7	6.00E+14
CLIMB OUT	85	23.4	9.25E+14
APPROACH	30	1.9	2.48E+14
IDLE	7	2.2	5.99E+14

### AMBIENT CONDITIONS

	From	To	FUEL	
BAROMETER (kPa)	97.6	97.8	HEAT OF COMBUSTION (MJ/kg)	43.21
TEMPERATURE (K)	284.8	290.6	HYDROGEN CONTENT (%mass)	13.65
HUMIDITY (kg water/kg dry air)	0.0038	0.0062	AROMATICS CONTENT (%vol)	17.5
			NAPHTHALENE CONTENT (%vol)	0.22
			SULPHUR CONTENT (ppm by mass)	78

MANUFACTURER: General Electric Company  
TEST ORGANIZATION: General Electric Company  
TEST LOCATION: PTO, Ohio  
TEST DATES: 11/02/2017

### REMARKS

1. GE Aviation Report R2019AE437/Rev. 0
2. Engine S/N 707-368