



# ICAO ENGINE nvPM EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: CF6-80C2B5F BYPASS RATIO (-): 5.1  
 UNIQUE ID NUMBER: 01P03GE187 PRESSURE RATIO  $\pi_{co}$  (-): 32.0  
 COMBUSTOR: LEC  
 ENGINE TYPE: TF RATED OUTPUT  $F_{oo}$  (kN): 267.0

### 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>	57.3	6.07E+14	1264
AS % OF CAEP/10 LIMIT	-	-	29.8
AS % OF CAEP/11 LIMIT (InP)	16.5	14.6	
AS % OF CAEP/11 LIMIT (NT)	26.8	21.8	

### MEASURED DATA

MODE	POWER SETTING (% $F_{oo}$ )	TIME minutes	FUEL FLOW kg/s	EMISSIONS INDICES*		NVPM MASS CONCENTRATION PEAK nvPM <sub>mass</sub> ( $\mu\text{g}/\text{m}^3$ )
				$EI_{mass}$ (mg/kg)	$EI_{num}$ (particles/kg)	
TAKE-OFF	100	0.7	2.586	38.6	2.16E+14	
CLIMB OUT	85	2.2	2.094	22.6	2.43E+14	
APPROACH	30	4.0	0.677	1.3	4.21E+13	
IDLE	7	26.0	0.201	1.2	6.09E+13	
LTO TOTAL (kg, mg, number of particles)			861	11015	1.17E+17	-
NUMBER OF ENGINES				1	1	1
NUMBER OF TESTS				3	3	3
AVERAGE LTO/ $F_{oo}$ VALUES (mg/kN, particles/kN)				41.2	4.37E+14	-
MAX EI VALUES (mg/kg, particles/kg) AND MAX MASS CONC. ( $\mu\text{g}/\text{m}^3$ )				38.6	2.46E+14	982

\* 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	
		$EI_{mass_{SL}}$ (mg/kg)	$EI_{num_{SL}}$ (particles/kg)
TAKE-OFF	100	44.5	5.13E+14
CLIMB OUT	85	28.0	8.36E+14
APPROACH	30	2.0	2.69E+14
IDLE	7	2.1	5.34E+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

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