



# ICAO ENGINE nvPM EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: Genx-1B76/P2 BYPASS RATIO (-): 8.6  
UNIQUE ID NUMBER: 01P17GE213 PRESSURE RATIO  $\pi_{\infty}$  (-): 48.1  
COMBUSTOR: TAPS  
ENGINE TYPE: TF RATED OUTPUT  $F_{\infty}$  (kN): 349.2

### REGULATORY DATA

CHARACTERISTIC VALUES:	$LTO_{mass}/F_{\infty}$ (mg/kN)	$LTO_{num}/F_{\infty}$ (particles/kN)	NVPM MASS CONCENTRATION ( $\mu\text{g}/\text{m}^3$ )
$LTO/F_{\infty}$ AND MAX $nvPM_{mass}$	8.8	$1.00\text{E}+14$	161
AS % OF CAEP/10 LIMIT	-	-	4.2
AS % OF CAEP/11 LIMIT (InP)	2.5	2.4	
AS % OF CAEP/11 LIMIT (NT)	4.1	3.6	

### MEASURED DATA

MODE	POWER SETTING (% $F_{\infty}$ )	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	2.796	1.9	$8.41\text{E}+10$	
CLIMB OUT	85	2.2	2.268	1.7	$7.63\text{E}+10$	
APPROACH	30	4.0	0.700	4.3	$1.15\text{E}+14$	
IDLE	7	26.0	0.211	2.2	$1.78\text{E}+13$	
LTO TOTAL (kg, mg, number of particles)			914	2203	$2.52\text{E}+16$	-
NUMBER OF ENGINES				1	1	1
NUMBER OF TESTS				3	3	3
AVERAGE $LTO/F_{\infty}$ VALUES (mg/kN, particles/kN)				6.3	$7.22\text{E}+13$	-
MAX EI VALUES (mg/kg, particles/kg) AND MAX MASS CONC. ( $\mu\text{g}/\text{m}^3$ )				6.9	$1.91\text{E}+14$	125

\* Emissions Indices are corrected for thermophoretic loss and fuel hydrogen content

### DATA FOR EMISSIONS INVENTORIES (ESTIMATIONS FOR ENGINE EXIT PLANE VALUES)

MODE	POWER SETTING (% $F_{\infty}$ )	CORRECTED EMISSIONS INDICES	
		$EI_{mass\_SL}$ (mg/kg)	$EI_{num\_SL}$ (particles/kg)
TAKE-OFF	100	2.6	$1.16\text{E}+11$
CLIMB OUT	85	2.3	$1.05\text{E}+11$
APPROACH	30	6.2	$6.51\text{E}+14$
IDLE	7	2.7	$5.60\text{E}+13$

### AMBIENT CONDITIONS

	From	To	FUEL	
BAROMETER (kPa)	97.4	98.2	HEAT OF COMBUSTION (MJ/kg)	43.15
TEMPERATURE (K)	289.9	297.9	HYDROGEN CONTENT (%mass)	13.79
HUMIDITY (kg water/kg dry air)	0.0079	0.0127	AROMATICS CONTENT (%vol)	17.7
			NAPHTHALENE CONTENT (%vol)	0.38
			SULPHUR CONTENT (ppm by mass)	12

MANUFACTURER: General Electric Company  
TEST ORGANIZATION: General Electric Company  
TEST LOCATION: PTO, Ohio  
TEST DATES: 05/09/2019-06/09/2019

### REMARKS

1. GE Aviation Report R2018AE129/Rev. 0
2. Engine S/N 598-426
3.  $EI_{mass\_SL}$  calculated from average  $EI_{mass}$  and  $KSL_{mass}$
4.  $EI_{num\_SL}$  calculated from average  $EI_{num}$  and  $KSL_{num}$

\*\* DATA SUPERSEDED \*\*

SEE FOLLOWING UID FOR REVISED DATA:

07P27GE237