



# ICAO ENGINE nvPM EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: Genx-1B70/72/P2  
UNIQUE ID NUMBER: 01P17GE208  
COMBUSTOR: TAPS  
ENGINE TYPE: TF  
BYPASS RATIO (-): 8.8  
PRESSURE RATIO  $\pi_{o_0}$  (-): 44.5  
RATED OUTPUT  $F_{o_0}$  (kN): 321.6

### REGULATORY DATA

CHARACTERISTIC VALUES:	$LTO_{mass}/F_{o_0}$ (mg/kN)	$LTO_{num}/F_{o_0}$ (particles/kN)	NVPM MASS CONCENTRATION ( $\mu\text{g}/\text{m}^3$ )
$LTO/F_{o_0}$ AND MAX $nvPM_{mass}$	8.2	$8.51\text{E}+13$	161
AS % OF CAEP/10 LIMIT	-	-	4.1
AS % OF CAEP/11 LIMIT (InP)	2.4	2.0	
AS % OF CAEP/11 LIMIT (NT)	3.8	3.1	

### MEASURED DATA

MODE	POWER SETTING (% $F_{o_0}$ )	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	2.507	1.8	$7.68\text{E}+10$	
CLIMB OUT	85	2.2	2.050	1.7	$7.83\text{E}+10$	
APPROACH	30	4.0	0.645	3.6	$8.75\text{E}+13$	
IDLE	7	26.0	0.201	2.3	$1.95\text{E}+13$	
LTO TOTAL (kg, mg, number of particles)			844	1904	$1.97\text{E}+16$	-
NUMBER OF ENGINES				1	1	1
NUMBER OF TESTS				3	3	3
AVERAGE $LTO/F_{o_0}$ VALUES (mg/kN, particles/kN)				5.9	$6.12\text{E}+13$	-
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 (% $F_{o_0}$ )	CORRECTED EMISSIONS INDICES	
		$EI_{mass\_SL}$ (mg/kg)	$EI_{num\_SL}$ (particles/kg)
TAKE-OFF	100	2.4	$1.06\text{E}+11$
CLIMB OUT	85	2.2	$1.08\text{E}+11$
APPROACH	30	5.0	$4.67\text{E}+14$
IDLE	7	2.8	$6.39\text{E}+13$

### 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\*\* DATA SUPERSEDED \*\*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:

07P27GE234