



# ICAO ENGINE nvPM EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: Genx-1B75/P2 BYPASS RATIO (-): 8.6  
UNIQUE ID NUMBER: 01P17GE212 PRESSURE RATIO  $\pi_{\infty}$  (-): 47.6  
COMBUSTOR: TAPS  
ENGINE TYPE: TF RATED OUTPUT  $F_{\infty}$  (kN): 345.2

### 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 $nvPM_{mass}$	8.7	9.80E+13	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	3.5	

### 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	2.752	1.9	8.25E+10	
CLIMB OUT	85	2.2	2.236	1.7	7.65E+10	
APPROACH	30	4.0	0.692	4.2	1.11E+14	
IDLE	7	26.0	0.209	2.2	1.80E+13	
LTO TOTAL (kg, mg, number of particles)			903	2156	2.43E+16	-
NUMBER OF ENGINES				1	1	1
NUMBER OF TESTS				3	3	3
AVERAGE $LTO/F_{\infty}$ VALUES (mg/kN, particles/kN)				6.2	7.05E+13	-
MAX EI VALUES (mg/kg, particles/kg) AND MAX MASS CONC. ( $\mu\text{g}/\text{m}^3$ )				6.9	1.91E+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	1.14E+11
CLIMB OUT	85	2.3	1.06E+11
APPROACH	30	6.1	6.24E+14
IDLE	7	2.7	5.69E+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\*\* DATA SUPERSEDED \*\*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:

07P27GE236