



# ICAO ENGINE nvPM EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: Genx-1B54/P2 BYPASS RATIO (-): 9.5  
UNIQUE ID NUMBER: 07P27GE230 PRESSURE RATIO  $\pi_{\infty}$  (-): 35.4  
COMBUSTOR: TAPS  
ENGINE TYPE: TF RATED OUTPUT  $F_{\infty}$  (kN): 255.3

### 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 $nvPM_{mass}$	1.1	$1.05\text{E}+14$	160
AS % OF CAEP/10 LIMIT	-	-	3.7
AS % OF CAEP/11 LIMIT (InP)	0.3	2.5	
AS % OF CAEP/11 LIMIT (NT)	0.5	3.8	

### 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	1.903	0.0	$6.16\text{E}+09$	
CLIMB OUT	85	2.2	1.576	0.0	$1.33\text{E}+10$	
APPROACH	30	4.0	0.522	0.7	$4.70\text{E}+13$	
IDLE	7	26.0	0.192	0.3	$4.45\text{E}+13$	
LTO TOTAL (kg, mg, number of particles)			713	194	$1.92\text{E}+16$	-
NUMBER OF ENGINES				1	1	1
NUMBER OF TESTS				3	3	3
AVERAGE $LTO/F_{\infty}$ VALUES (mg/kN, particles/kN)				0.8	$7.52\text{E}+13$	-
MAX EI VALUES (mg/kg, particles/kg) AND MAX MASS CONC. ( $\mu\text{g}/\text{m}^3$ )				5.8	$2.45\text{E}+14$	124

\* 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	0.0	$9.34\text{E}+09$
CLIMB OUT	85	0.0	$2.11\text{E}+10$
APPROACH	30	1.2	$3.33\text{E}+14$
IDLE	7	0.7	$4.26\text{E}+14$

### AMBIENT CONDITIONS

	From	To	FUEL	
BAROMETER (kPa)	97.9	98.5	HEAT OF COMBUSTION (MJ/kg)	43.22
TEMPERATURE (K)	293.4	300.5	HYDROGEN CONTENT (%mass)	13.71
HUMIDITY (kg water/kg dry air)	0.0070	0.0122	AROMATICS CONTENT (%vol)	16.3
			NAPHTHALENE CONTENT (%vol)	0.27
			SULPHUR CONTENT (ppm by mass)	6

MANUFACTURER: General Electric Company  
TEST ORGANIZATION: GE Aerospace  
TEST LOCATION: PTO, Ohio, USA  
TEST DATES: 24/05/2023-31/05/2023

### REMARKS

1. Engine S/N 958-859/1
2. Ref. GE Report R2022AE169/Rev.0
3. The maximum  $EI_{mass}$  occurs between 30% and 85%  $F_{\infty}$
4. The maximum  $EI_{num}$  occurs between 30% and 85%  $F_{\infty}$