



ICAO ENGINE nvPM EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: Genx-1B70/75/P2, 1B70/72/P2, 1B70C/P2, BYPASS RATIO (-): 8.9
UNIQUE ID NUMBER: 07P27GE234 PRESSURE RATIO π_{oo} (-): 43.5
COMBUSTOR: TAPS
ENGINE TYPE: TF RATED OUTPUT F_{oo} (kN): 321.6

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 $nvPM_{mass}$	1.5	9.96E+13	160
AS % OF CAEP/10 LIMIT	-	-	4.1
AS % OF CAEP/11 LIMIT (InP)	0.4	2.4	
AS % OF CAEP/11 LIMIT (NT)	0.7	3.6	

MEASURED DATA

MODE	POWER SETTING (% F_{oo})	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	2.518	0.0	5.87E+09	
CLIMB OUT	85	2.2	2.066	0.0	4.70E+09	
APPROACH	30	4.0	0.650	1.8	1.02E+14	
IDLE	7	26.0	0.217	0.2	2.09E+13	
LTO TOTAL (kg, mg, number of particles)			873	344	2.31E+16	-
NUMBER OF ENGINES				1	1	1
NUMBER OF TESTS				3	3	3
AVERAGE LTO/F_{oo} VALUES (mg/kN, particles/kN)				1.1	7.17E+13	-
MAX EI VALUES (mg/kg, particles/kg) AND MAX MASS CONC. ($\mu\text{g}/\text{m}^3$)				5.8	2.45E+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_{oo})	CORRECTED EMISSIONS INDICES	
		EI_{mass_SL} (mg/kg)	EI_{num_SL} (particles/kg)
TAKE-OFF	100	0.0	8.96E+09
CLIMB OUT	85	0.0	7.07E+09
APPROACH	30	2.9	6.78E+14
IDLE	7	0.4	1.91E+14

AMBIENT CONDITIONS

FUEL

	From	To		
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_{oo}
4. The maximum EI_{num} occurs between 30% and 85% F_{oo}