



ICAO ENGINE nvPM EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: Genx-1B67/P2
UNIQUE ID NUMBER: 07P27GE233
COMBUSTOR: TAPS
ENGINE TYPE: TF
BYPASS RATIO (-): 9.0
PRESSURE RATIO π_{∞} (-): 42.0
RATED OUTPUT F_{∞} (kN): 308.7

REGULATORY DATA

CHARACTERISTIC VALUES:	LTO_{mass}/F_{∞} (mg/kN)	LTO_{num}/F_{∞} (particles/kN)	NVPM MASS CONCENTRATION ($\mu\text{g}/\text{m}^3$)
LTO/ F_{∞} AND MAX nvPM _{mass}	1.4	9.57E+13	160
AS % OF CAEP/10 LIMIT	-	-	4.0
AS % OF CAEP/11 LIMIT (InP)	0.4	2.3	
AS % OF CAEP/11 LIMIT (NT)	0.6	3.4	

MEASURED DATA

MODE	POWER SETTING (% F_{∞})	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	2.396	0.0	5.07E+09	
CLIMB OUT	85	2.2	1.966	0.0	5.40E+09	
APPROACH	30	4.0	0.625	1.5	8.98E+13	
IDLE	7	26.0	0.212	0.2	2.35E+13	
LTO TOTAL (kg, mg, number of particles)			842	300	2.13E+16	-
NUMBER OF ENGINES				1	1	1
NUMBER OF TESTS				3	3	3
AVERAGE LTO/ F_{∞} VALUES (mg/kN, particles/kN)				1.0	6.89E+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_{∞})	CORRECTED EMISSIONS INDICES	
		EI _{mass_SL} (mg/kg)	EI _{num_SL} (particles/kg)
TAKE-OFF	100	0.0	7.68E+09
CLIMB OUT	85	0.0	8.15E+09
APPROACH	30	2.5	6.02E+14
IDLE	7	0.4	2.17E+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_{∞}
4. The maximum EI_{num} occurs between 30% and 85% F_{∞}