



ICAO ENGINE nvPM EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: Genx-1B54/P2 BYPASS RATIO (-): 9.4
UNIQUE ID NUMBER: 01P17GE204 PRESSURE RATIO π_{∞} (-): 35.9
COMBUSTOR: TAPS
ENGINE TYPE: TF RATED OUTPUT F_{∞} (kN): 255.3

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 $nvPM_{mass}$	7.7	$7.01\text{E}+13$	161
AS % OF CAEP/10 LIMIT	-	-	3.7
AS % OF CAEP/11 LIMIT (InP)	2.2	1.7	
AS % OF CAEP/11 LIMIT (NT)	3.6	2.5	

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	1.887	1.7	$7.94\text{E}+10$	
CLIMB OUT	85	2.2	1.553	1.6	$7.67\text{E}+10$	
APPROACH	30	4.0	0.518	2.3	$3.51\text{E}+13$	
IDLE	7	26.0	0.178	2.4	$3.05\text{E}+13$	
LTO TOTAL (kg, mg, number of particles)			687	1422	$1.29\text{E}+16$	-
NUMBER OF ENGINES				1	1	1
NUMBER OF TESTS				3	3	3
AVERAGE LTO/F_{∞} VALUES (mg/kN, particles/kN)				5.6	$5.04\text{E}+13$	-
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_{∞})	CORRECTED EMISSIONS INDICES	
		EI_{mass_SL} (mg/kg)	EI_{num_SL} (particles/kg)
TAKE-OFF	100	2.2	$1.10\text{E}+11$
CLIMB OUT	85	2.2	$1.06\text{E}+11$
APPROACH	30	3.0	$1.50\text{E}+14$
IDLE	7	3.1	$1.20\text{E}+14$

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** DATA SUPERSEDED **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:

07P27GE230