



ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: CFM56-7B22E/B1
UNIQUE ID NUMBER: 01P11CM113
COMBUSTOR: Tech Insertion
ENGINE TYPE: TF
BYPASS RATIO: 5.3
PRESSURE RATIO (π_{co}): 24.2
RATED THRUST (F_{oo}) (kN): 101.0

REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NO _x	SMOKE NUMBER
D _p /F _{oo} (g/kN) or SN	5.2	66.2	37.1	10.8
AS % OF ORIGINAL LIMIT	26.3	56.1	42.0	45.9
AS % OF CAEP/2 LIMIT (NO _x)			52.5	
AS % OF CAEP/4 LIMIT (NO _x)			64.3	
AS % OF CAEP/6 LIMIT (NO _x)			73.0	
AS % OF CAEP/8 LIMIT (NO _x)			88.4	

For non-volatile particulate matter (nvPM) emissions, please refer to the ICAO Engine nvPM Emissions Data Sheet.

DATA STATUS

- PRE-REGULATION
x CERTIFICATION
- REVISED (SEE REMARKS)

TEST ENGINE STATUS

x NEWLY MANUFACTURED ENGINES
x DEDICATED ENGINES TO PRODUCTION STANDARD
- OTHER (SEE REMARKS)

EMISSIONS STATUS

x DATA CORRECTED TO REFERENCE
(ANNEX 16 VOLUME II)

CURRENT ENGINE STATUS

(IN PRODUCTION, IN SERVICE UNLESS OTHERWISE NOTED)
- OUT OF PRODUCTION (DATE: -)
- OUT OF SERVICE (DATE: -)

MEASURED DATA

MODE	POWER SETTING (%F _{oo})	TIME (minutes)	FUEL FLOW (kg/s)	HC	CO	NO _x	SMOKE NUMBER
TAKE-OFF	100	0.7	1.004	0.02	0.16	17.40	9.8
CLIMB OUT	85	2.2	0.832	0.03	0.17	14.67	8.0
APPROACH	30	4.0	0.291	0.07	4.18	8.35	2.1
IDLE	7	26.0	0.099	2.83	37.90	3.95	2.1
LTO TOTAL FUEL (kg) or EMISSIONS (g)			376	446	6179	3538	-
NUMBER OF ENGINES				3	3	3	3
NUMBER OF TESTS				7	7	7	7
AVERAGE D _p /F _{oo} (g/kN) or AVERAGE SN (MAX)				4.4	61.2	35.1	9.8
SIGMA (D _p /F _{oo} in g/kN, or SN)				0.5	3.3	1.2	2.3
RANGE (D _p /F _{oo} in g/kN, or SN)				3.85-4.83	57.8-64.1	34-36.3	8-12.4

ACCESSORY LOADS

POWER EXTRACTION 0 (kW)
STAGE BLEED 0 (% CORE FLOW)

AT All POWER SETTINGS
AT All POWER SETTINGS

ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	97.6-98.5
TEMPERATURE (K)	277-293
ABS HUMIDITY (kg/kg)	0.0015-0.00628

FUEL

SPEC	Jet A
H/C	1.92-1.93
AROM (%)	16.2-17.5

MANUFACTURER: CFM International
TEST ORGANIZATION: General Electric Company
TEST LOCATION: PTO, Ohio
TEST DATES: 29/09/2005-23/03/2006

NO_x REGULATION PARAGRAPH

	2.3.2 c) (CAEP/4)
	2.3.2 d) (CAEP/6)
x	2.3.2 e) (CAEP/8)

REMARKS

1. Ref. GE REPORT CR-2097/3 Rev. 1
2. Engine S/N 874-026/01, 778-024/01B, and 892-769/01
3. Ref. GE REPORT CR-900E Rev. 2, July 19, 2010
4. Certification in accordance with Part III, Chapter 2, of Amendment 7 of ICAO Annex 16 Vol. II.
5. NO_x levels in accordance with Part III, Chapter 2, 2.3.2 e) (CAEP/8)

Compliance with Fuel Venting requirements: x ('x' if complies, 'PR' if pre-regulation, '-' if information is not available)