



# ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: CFM56-7B20E  
UNIQUE ID NUMBER: 01P11CM111  
COMBUSTOR: Tech Insertion  
ENGINE TYPE: TF  
BYPASS RATIO: 5.5  
PRESSURE RATIO ( $\pi_{00}$ ): 22.4  
RATED THRUST ( $F_{00}$ ) (kN): 91.6

### REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
D <sub>p</sub> /F <sub>00</sub> (g/kN) or SN	7.3	79.4	34.5	9.5
AS % OF ORIGINAL LIMIT	37.3	67.3	40.7	39.3
AS % OF CAEP/2 LIMIT (NO <sub>x</sub> )			50.9	
AS % OF CAEP/4 LIMIT (NO <sub>x</sub> )			62.9	
AS % OF CAEP/6 LIMIT (NO <sub>x</sub> )			71.5	
AS % OF CAEP/8 LIMIT (NO <sub>x</sub> )			87.5	

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 <sub>00</sub> )	TIME (minutes)	FUEL FLOW (kg/s)	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
TAKE-OFF	100	0.7	0.896	0.03	0.15	15.61	8.7
CLIMB OUT	85	2.2	0.746	0.03	0.23	13.50	6.8
APPROACH	30	4.0	0.268	0.08	5.03	8.00	2.1
IDLE	7	26.0	0.094	3.84	43.31	3.80	2.1
LTO TOTAL FUEL (kg) or EMISSIONS (g)			348	572	6729	2987	-
NUMBER OF ENGINES				3	3	3	3
NUMBER OF TESTS				7	7	7	7
AVERAGE D <sub>p</sub> /F <sub>00</sub> (g/kN) or AVERAGE SN (MAX)				6.3	73.4	32.6	8.7
SIGMA (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)				0.6	3.2	1.1	2.2
RANGE (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)				5.55-6.69	69.8-75.3	31.5-33.7	7.1-11.1

### 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<sub>x</sub> 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<sub>x</sub> 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)