



# ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: CFM56-5B9/3 BYPASS RATIO: 5.9  
 UNIQUE ID NUMBER: 01P08CM110 PRESSURE RATIO ( $\pi_{00}$ ): 24.2  
 COMBUSTOR: Tech Insertion  
 ENGINE TYPE: TF RATED THRUST ( $F_{00}$ ) (kN): 103.6

### REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
D <sub>p</sub> /F <sub>00</sub> (g/kN) or SN	5.1	63.1	34.5	12.3
AS % OF ORIGINAL LIMIT	26.0	53.5	39.0	52.5
AS % OF CAEP/2 LIMIT (NO <sub>x</sub> )			48.8	
AS % OF CAEP/4 LIMIT (NO <sub>x</sub> )			59.8	
AS % OF CAEP/6 LIMIT (NO <sub>x</sub> )			67.9	
AS % OF CAEP/8 LIMIT (NO <sub>x</sub> )			82.2	

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  
 - 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)	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
				HC	CO	NO <sub>x</sub>	
TAKE-OFF	100	0.7	0.956	0.02	0.16	17.54	11.2
CLIMB OUT	85	2.2	0.793	0.03	0.17	14.76	8.4
APPROACH	30	4.0	0.278	0.07	4.42	8.26	2.1
IDLE	7	26.0	0.095	3.01	38.80	3.92	2.1
LTO TOTAL FUEL (kg) or EMISSIONS (g)			359	452	6047	3377	-
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)				4.4	58.3	32.6	11.2
SIGMA (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)				0.5	2.8	1.1	2.5
RANGE (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)				3.81-4.74	55.2-60.2	31.6-33.8	8.3-12.9

### ACCESSORY LOADS

POWER EXTRACTION 0 (kW) AT All POWER SETTINGS  
 STAGE BLEED 0 (% CORE FLOW) 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 Rev1
2. Engine S/N 874-026/01, 778-024/01B, and 892-769/01
3. Certification in accordance with Part III, Chapter 2, of Amendment 7 of ICAO Annex 16 Vol. II.
4. 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)