



# ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: CFM56-5A4  
UNIQUE ID NUMBER: 4CM035  
COMBUSTOR:  
ENGINE TYPE: TF  
BYPASS RATIO: 6.0  
PRESSURE RATIO ( $\pi_{00}$ ): 23.8  
RATED THRUST ( $F_{00}$ ) (kN): 97.9

### 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	41.9	45.6	17.9
AS % OF ORIGINAL LIMIT	25.9	35.5	52.0	75.1
AS % OF CAEP/2 LIMIT (NO <sub>x</sub> )			65.0	
AS % OF CAEP/4 LIMIT (NO <sub>x</sub> )			79.8	
AS % OF CAEP/6 LIMIT (NO <sub>x</sub> )			90.7	
AS % OF CAEP/8 LIMIT (NO <sub>x</sub> )			110.2	

### 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)  
x 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	0.897	0.23	1.10	22.64	13.9
CLIMB OUT	85	2.2	0.740	0.23	1.10	19.11	11.6
APPROACH	30	4.0	0.261	0.50	3.10	8.51	4.2
IDLE	7	26.0	0.095	1.75	20.30	4.04	2.4
LTO TOTAL FUEL (kg) or EMISSIONS (g)			346	322	3352	3851	-
NUMBER OF ENGINES				1	1	1	1
NUMBER OF TESTS				3	3	3	3
AVERAGE D <sub>p</sub> /F <sub>00</sub> (g/kN) or AVERAGE SN (MAX)				3.3	34.1	39.3	13.9
SIGMA (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)							
RANGE (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)							

### ACCESSORY LOADS

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

AT - POWER SETTINGS  
AT - POWER SETTINGS

### ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	94.7-95.6
TEMPERATURE (K)	280-291
ABS HUMIDITY (kg/kg)	0.0026-0.0034

### FUEL

SPEC	Jet A
H/C	1.95
AROM (%)	18

MANUFACTURER: CFM International  
TEST ORGANIZATION: CFM56 Evaluation Engineering  
TEST LOCATION: Peebles Site IIIC  
TEST DATES: 19/11/1986-20/11/1986

### REMARKS

1. Ref GE Reports R89AEB316 and R87AEB386
2. Engine S/N 730002/2

Compliance with Fuel Venting requirements:

- ('x' if complies, 'PR' if pre-regulation, '-' if information is not available)