



## ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: LEAP-1B28BBJ1 BYPASS RATIO: 8.3  
UNIQUE ID NUMBER: 20CM100 PRESSURE RATIO ( $\pi_{00}$ ): 42.0  
COMBUSTOR: TAPS II  
ENGINE TYPE: TF RATED THRUST ( $F_{00}$ ) (kN): 130.4

REGULATORY DATA \*\* DATA SUPERSEDED \*\* SEE FOLLOWING UID FOR REVISED DATA: 01P20CM138

CHARACTERISTIC VALUE:	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
D <sub>p</sub> /F <sub>00</sub> (g/kN) or SN	0.9	20.5	69.7	1.5
AS % OF ORIGINAL LIMIT	4.8	17.4	56.2	6.8
AS % OF CAEP/2 LIMIT (NO <sub>x</sub> )			70.2	
AS % OF CAEP/4 LIMIT (NO <sub>x</sub> )			76.6	
AS % OF CAEP/6 LIMIT (NO <sub>x</sub> )			84.0	
AS % OF CAEP/8 LIMIT (NO <sub>x</sub> )			94.0	

## 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	1.075	0.05	0.18	64.36	0.9
CLIMB OUT	85	2.2	0.873	0.04	0.15	29.59	0.9
APPROACH	30	4.0	0.285	0.05	0.99	11.92	1.1
IDLE	7	26.0	0.097	0.46	13.77	4.68	0.8
LTO TOTAL FUEL (kg) or EMISSIONS (g)			380	79	2176	7837	-
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)				0.6	16.7	60.1	1.2
SIGMA (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)				0.1	0.8	1.4	0.3
RANGE (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)				0.66-0.84	16.97-18.38	56.39-59.15	0.34-0.9

## ACCESSORY LOADS

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

AT All POWER SETTINGS  
AT All POWER SETTINGS

## ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	97.7-98.8
TEMPERATURE (K)	279.3-290.5
ABS HUMIDITY (kg/kg)	0.0009-0.0084

## FUEL

SPEC	Jet A
H/C	1.9
AROM (%)	14.7

MANUFACTURER: CFM International  
TEST ORGANIZATION: General Electric Company  
TEST LOCATION: PTO, Ohio  
TEST DATES: 08/03/2016-09/03/2016

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 R2013AE589 and CRL-0109b\_7 Vol. 1/Rev. 0
2. Engine S/N 602-109/1
3. SN for each LTO mode is average of max SN for test points around that power setting
4. AVERAGE SN (MAX) is average of maximum SN measured from all points on each run
5. Certification in accordance with Part III, Chapter 2, of Amendment 8 of ICAO Annex 16 Vol. II.
6. 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)