ICAO ENGINE EXHAUST EMISSIONS DATA BANK

SUBSONIC ENGINES

ENGINE IDENTIFICATION: LEAP-1A24/24E1/23
UNIQUE ID NUMBER: 20CM088
ENGINE TYPE: TF
BYPASS RATIO: 11.3
PRESSURE RATIO (π_{oo}): 30.0
RATED OUTPUT (F_{oo}) (kN): 106.8

REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NOx	SMOKE NUMBER
D_p/F_{oo} (g/kN) or SN	0.7	36.8	24.1	1.8
AS % OF ORIGINAL LIMIT	3.0 %	31.0 %	24.0 %	8.0 %
AS % OF CAEP/2 LIMIT (NOx)			30.0 %	
AS % OF CAEP/4 LIMIT (NOx)			36.0 %	
AS % OF CAEP/6 LIMIT (NOx)			41.0 %	
AS % OF CAEP/8 LIMIT (NOx)			48.0 %	

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
- \- OUT OF SERVICE

MEASURED DATA

MODE	POWER SETTING (%F_{oo})	TIME minutes	FUEL FLOW kg/s	EMISSIONS INDICES (g/kg) HC	CO	NOx	SMOKE NUMBER
TAKE-OFF	100	0.7	0.745	0.02	0.24	17.59	1.3
CLIMB OUT	85	2.2	0.616	0.02	0.41	9.41	1.17
APPROACH	30	4.0	0.219	0.05	3.53	8.02	1.31
IDLE	7	26.0	0.087	0.37	23.79	4.45	1.25
LTO TOTAL FUEL (kg) or EMISSIONS (g)			301	55	3455	2341	-
NUMBER OF ENGINES				2	2	2	2
NUMBER OF TESTS				4	4	4	4
AVERAGE D_p/F_{oo} (g/kN) or AVERAGE SN (MAX)				0.52	32.34	21.91	1.56
SIGMA (D_p/F_{oo} in g/kN, or SN)				0.06	1.7	0.75	0.15
RANGE (D_p/F_{oo} in g/kN, or SN)				0.45 to 0.5	30.21 to 34.00	20.93 to 22.63	1.47 to 1.82

ACCESSORY LOADS

POWER EXTRACTION	0	(kW)	AT	ALL	POWER SETTINGS
STAGE BLEED	0	% CORE FLOW	AT	ALL	POWER SETTINGS

ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	97.8 to 98.8
TEMPERATURE (K)	274.6 to 279.8
ABS HUMIDITY (kg/kg)	.0020 to .0032

FUEL

SPEC	JET A
H/C	1.9
AROM (%)	16.5

MANUFACTURER: GE Aviation
TEST ORGANIZATION: GE Aviation
TEST LOCATION: PTO, Ohio, USA
TEST DATES: FROM 21 Nov 16 TO 02 Dec 16

REMARKS

1. Ref. Report CRL-2201_2/Rev. 1
2. Engine S/N 600-104, 600-105
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. NOx levels in accordance with Part III, Chapter 2, 2.3.2 e) (CAEP/8)

If REVISED, this data supersedes databank UID
Compliance with fuel venting requirements: x ('x' if complies, PR if pre-regulation)