



ICAO ENGINE EXHAUST EMISSIONS DATA BANK

SUBSONIC ENGINES

ENGINE IDENTIFICATION: RB211-524D4
UNIQUE ID NUMBER: 1RR008
ENGINE TYPE: TF

BYPASS RATIO: 4.3
PRESSURE RATIO (π_{00}): 30.22
RATED OUTPUT (F_{00}) (kN): 231.3

REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NOx	SMOKE NUMBER
D_p/F_{00} (g/kN) or SN	5.3	22.2	100.3	15.8
AS % OF ORIGINAL LIMIT	27.0 %	18.8 %	99.9 %	84.2 %
AS % OF CAEP/2 LIMIT (NOx)			124.8 %	
AS % OF CAEP/4 LIMIT (NOx)			148.7 %	
AS % OF CAEP/6 LIMIT (NOx)			168.9 %	
AS % OF CAEP/8 LIMIT (NOx)			198.4 %	

DATA STATUS

- PRE-REGULATION
x CERTIFICATION
- REVISED (SEE REMARKS)

TEST ENGINE STATUS

- 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)
x OUT OF PRODUCTION (DATE: -)
- OUT OF SERVICE

MEASURED DATA

MODE	POWER SETTING (% F_{00})	TIME minutes	FUEL FLOW kg/s	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
TAKE-OFF	100	0.7	2.340	0.59	1.24	59.35	12.2
CLIMB OUT	85	2.2	1.910	0.26	0.34	43.01	9.2
APPROACH	30	4.0	0.650	0.7	1.56	10.63	1.8
IDLE	7	26.0	0.260	1.41	9.3	4.41	0.6
LTO TOTAL FUEL (kg) or EMISSIONS (g)			912	805	4223	20124	-
NUMBER OF ENGINES				1	1	1	1
NUMBER OF TESTS				3	3	3	3
AVERAGE D_p/F_{00} (g/kN) or AVERAGE SN (MAX)				3.44	18.07	86.54	12.3
SIGMA (D_p/F_{00} in g/kN, or SN)				0.08	0.64	0.55	0.31
RANGE (D_p/F_{00} in g/kN, or SN)				3.3-3.5	17.6-18.8	85.9-86.9	12.1-12.7

ACCESSORY LOADS

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

AT - POWER SETTINGS
AT - POWER SETTINGS

ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	103
TEMPERATURE (K)	283 - 286
ABS HUMIDITY (kg/kg)	0.005

FUEL

SPEC	AVTUR
H/C	1.91
AROM (%)	20

MANUFACTURER: Rolls Royce Ltd
TEST ORGANIZATION: Rolls Royce Ltd
TEST LOCATION: SINFIN-Derby
TEST DATES: FROM Sep 86 TO Sep 86

REMARKS

1. Data from certification report CRR60515.
2. Phase 2 combustor.
3. Applicable to engines manufactured after Feb 87.
4. SN mode data scaled from 1RR004

If REVISED, this data supersedes databank UID
Compliance with fuel venting requirements:

0 ('x' if complies, PR if pre-regulation)