



ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: Trent 1000-R3
UNIQUE ID NUMBER: 19RR097
COMBUSTOR: Phase5 Tiled
ENGINE TYPE: TF

BYPASS RATIO: 8.9
PRESSURE RATIO (π_{00}): 49.4
RATED THRUST (F_{00}) (kN): 363.9

REGULATORY DATA

** DATA SUPERSEDED **

SEE FOLLOWING UID FOR REVISED DATA:

01P19RR118

CHARACTERISTIC VALUE:	HC	CO	NO _x	SMOKE NUMBER
D _p /F ₀₀ (g/kN) or SN	0.0	8.1	76.3	16.4
AS % OF ORIGINAL LIMIT	0.0	6.9	54.9	98.6
AS % OF CAEP/2 LIMIT (NO _x)			68.7	
AS % OF CAEP/4 LIMIT (NO _x)			72.1	
AS % OF CAEP/6 LIMIT (NO _x)			78.0	
AS % OF CAEP/8 LIMIT (NO _x)			85.8	

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)

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

MEASURED DATA

MODE	POWER SETTING (%F ₀₀)	TIME (minutes)	FUEL FLOW (kg/s)	HC	CO	NO _x	SMOKE NUMBER
TAKE-OFF	100	0.7	2.783	0.00	0.45	61.62	7.7
CLIMB OUT	85	2.2	2.266	0.00	0.43	45.76	9.9
APPROACH	30	4.0	0.723	0.00	0.57	14.87	9.6
IDLE	7	26.0	0.262	0.00	5.99	6.67	1.8
LTO TOTAL FUEL (kg) or EMISSIONS (g)			998	0	2728	26196	-
NUMBER OF ENGINES				3	3	3	6
NUMBER OF TESTS				7	7	7	8
AVERAGE D _p /F ₀₀ (g/kN) or AVERAGE SN (MAX)				0.0	7.5	72.0	15.3
SIGMA (D _p /F ₀₀ in g/kN, or SN)				0.0	1.3	1.2	1.7
RANGE (D _p /F ₀₀ in g/kN, or SN)				0.0	6.08-8.72	70.58-72.75	12.1-16.8

ACCESSORY LOADS

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

AT - POWER SETTINGS
AT - POWER SETTINGS

ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	98.9-102.1
TEMPERATURE (K)	275-304.6
ABS HUMIDITY (kg/kg)	0.00308-0.01935

FUEL

SPEC	
H/C	1.91
AROM (%)	17.2

MANUFACTURER: Rolls-Royce plc
TEST ORGANIZATION: Rolls-Royce
TEST LOCATION: Derby
TEST DATES: 07/02/2011-30/11/2017

NO_x REGULATION PARAGRAPH

	2.3.2 c) (CAEP/4)
	2.3.2 d) (CAEP/6)
x	2.3.2 e) (CAEP/8)

REMARKS

1. Data from Certification Report EDNS01000615769
2. Certification in accordance with Part III, Chapter 2, of Amendment 8 of ICAO Annex 16 Vol. II.
3. NO_x 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)