



# ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: Trent XWB-79  
UNIQUE ID NUMBER: 01P18RR123  
COMBUSTOR: Phase5 Tiled  
ENGINE TYPE: TF

BYPASS RATIO: 9.2  
PRESSURE RATIO ( $\pi_{00}$ ): 38.8  
RATED THRUST ( $F_{00}$ ) (kN): 355.2

### REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
D <sub>p</sub> /F <sub>00</sub> (g/kN) or SN	1.8	32.3	50.2	11.3
AS % OF ORIGINAL LIMIT	8.9	27.3	42.7	67.4
AS % OF CAEP/2 LIMIT (NO <sub>x</sub> )			53.4	
AS % OF CAEP/4 LIMIT (NO <sub>x</sub> )			59.3	
AS % OF CAEP/6 LIMIT (NO <sub>x</sub> )			65.6	
AS % OF CAEP/8 LIMIT (NO <sub>x</sub> )			74.1	

For non-volatile particulate matter (nvPM) emissions, please refer to the ICAO Engine nvPM Emissions Data Sheet.

### DATA STATUS

- PRE-REGULATION  
x CERTIFICATION  
x 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 <sub>00</sub> )	TIME (minutes)	FUEL FLOW (kg/s)	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
TAKE-OFF	100	0.7	2.601	0.00	0.39	40.20	5.8
CLIMB OUT	85	2.2	2.129	0.00	0.40	30.88	7.0
APPROACH	30	4.0	0.755	0.01	1.36	10.59	6.5
IDLE	7	26.0	0.280	1.22	23.37	4.23	1.6
LTO TOTAL FUEL (kg) or EMISSIONS (g)			1008	534	10597	16834	-
NUMBER OF ENGINES				3	3	3	3
NUMBER OF TESTS				6	6	6	6
AVERAGE D <sub>p</sub> /F <sub>00</sub> (g/kN) or AVERAGE SN (MAX)				1.5	29.8	47.4	10.3
SIGMA (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)				0.2	2.5	1.6	2.2
RANGE (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)				1.34-1.77	27.12-31.92	45.6-48.8	7.8-12.1

### ACCESSORY LOADS

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

### ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	98.5-101.9
TEMPERATURE (K)	280-295
ABS HUMIDITY (kg/kg)	0.00062-0.00964

### FUEL

SPEC	
H/C	1.87
AROM (%)	17.25

MANUFACTURER: Rolls-Royce plc  
TEST ORGANIZATION: Rolls-Royce  
TEST LOCATION: Derby  
TEST DATES: 01/04/2012-20/04/2016

### 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. Data from Certification Report EDNS01000588237 Iss 2
2. Certification in accordance with Part III, Chapter 2, of Amendment 8 of ICAO Annex 16 Vol. II.
3. 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)