



# ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: PW1431G-JM  
UNIQUE ID NUMBER: 01P22PW181  
COMBUSTOR: TALON X, Block-D  
ENGINE TYPE: TF  
BYPASS RATIO: 11.9  
PRESSURE RATIO ( $\pi_{co}$ ): 35.6  
RATED THRUST ( $F_{oo}$ ) (kN): 140.4

### REGULATORY DATA

| CHARACTERISTIC VALUE:                        | HC  | CO   | NO <sub>x</sub> | SMOKE NUMBER |
|--|-----|------|-----------------|--------------|
| D <sub>p</sub> /F <sub>oo</sub> (g/kN) or SN | 0.7 | 29.4 | 38.0            | 10.9         |
| AS % OF ORIGINAL LIMIT                       | 3.7 | 24.9 | 34.2            | 50.4         |
| AS % OF CAEP/2 LIMIT (NO <sub>x</sub> )      |     |      | 42.7            |              |
| AS % OF CAEP/4 LIMIT (NO <sub>x</sub> )      |     |      | 48.6            |              |
| AS % OF CAEP/6 LIMIT (NO <sub>x</sub> )      |     |      | 54.1            |              |
| AS % OF CAEP/8 LIMIT (NO <sub>x</sub> )      |     |      | 62.0            |              |

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

### 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 <sub>oo</sub> ) | TIME (minutes) | FUEL FLOW (kg/s) | HC   | CO    | NO <sub>x</sub> | SMOKE NUMBER |
|--|-----------------------------------|----------------|------------------|------|-------|-----------------|--------------|
| TAKE-OFF   | 100                               | 0.7            | 0.950            | 0.07 | 0.24  | 25.89           | 8.4          |
| CLIMB OUT  | 85                                | 2.2            | 0.780            | 0.07 | 0.28  | 20.23           | 6.7          |
| APPROACH   | 30                                | 4.0            | 0.270            | 0.06 | 3.33  | 10.75           | 0.3          |
| IDLE   | 7                                 | 26.0           | 0.090            | 0.37 | 22.13 | 5.62            | 0.7          |
| LTO TOTAL FUEL (kg) or EMISSIONS (g)                               |                                   |                | 348              | 66   | 3361  | 4601            | -            |
| NUMBER OF ENGINES  |                                   |                |                  | 1    | 1     | 1               | 1            |
| NUMBER OF TESTS  |                                   |                |                  | 4    | 4     | 4               | 4            |
| AVERAGE D <sub>p</sub> /F <sub>oo</sub> (g/kN) or AVERAGE SN (MAX) |                                   |                |                  | 0.5  | 23.9  | 32.8            | 8.4          |
| SIGMA (D <sub>p</sub> /F <sub>oo</sub> in g/kN, or SN)             |                                   |                |                  |      |       |                 |              |
| RANGE (D <sub>p</sub> /F <sub>oo</sub> in g/kN, or SN)             |                                   |                |                  |      |       |                 |              |

### ACCESSORY LOADS

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

AT - POWER SETTINGS  
AT - POWER SETTINGS

### ATMOSPHERIC CONDITIONS

|                      |                 |
|----------------------|-----------------|
| BAROMETER (kPa)      | 101.5-102.2     |
| TEMPERATURE (K)      | 279.6-300.8     |
| ABS HUMIDITY (kg/kg) | 0.00358-0.01201 |

### FUEL

|          |           |
|----------|-----------|
| SPEC     | Jet A     |
| H/C      | 1.91-1.93 |
| AROM (%) | 16.3-16.8 |

MANUFACTURER: Pratt & Whitney  
TEST ORGANIZATION: Pratt & Whitney  
TEST LOCATION: W. Palm Beach, FL  
TEST DATES: 18/01/2020-21/01/2020

### 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 PWA-12091
2. 1 engine tested
3. TALON-X, Block-D combustor
4. Certification in accordance with ICAO Annex 16 Vol. II. 4th Edition, Part III, Chapter 2.

Compliance with Fuel Venting requirements:

x ('x' if complies, 'PR' if pre-regulation, '-' if information is not available)