



ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: SaM146-1S17
UNIQUE ID NUMBER: 01P11PJ003
COMBUSTOR:
ENGINE TYPE: MTF
BYPASS RATIO: 4.4
PRESSURE RATIO (π_{00}): 21.9
RATED THRUST (F_{00}) (kN): 69.2

REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NO _x	SMOKE NUMBER
D _p /F ₀₀ (g/kN) or SN	3.1	78.6	42.8	14.8
AS % OF ORIGINAL LIMIT	15.8	66.6	51.1	56.5
AS % OF CAEP/2 LIMIT (NO _x)			63.9	
AS % OF CAEP/4 LIMIT (NO _x)			73.7	
AS % OF CAEP/6 LIMIT (NO _x)			79.7	
AS % OF CAEP/8 LIMIT (NO _x)			91.9	

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

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 (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	0.791	0.03	0.26	16.37	12.6
CLIMB OUT	85	2.2	0.653	0.04	0.36	13.89	11.7
APPROACH	30	4.0	0.228	0.06	5.07	7.10	0.1
IDLE	7	26.0	0.097	1.05	29.36	3.73	0.1
LTO TOTAL FUEL (kg) or EMISSIONS (g)			326	167	4776	2695	-
NUMBER OF ENGINES				2	2	2	2
NUMBER OF TESTS				5	5	5	5
AVERAGE D _p /F ₀₀ (g/kN) or AVERAGE SN (MAX)				2.4	69.0	38.9	12.6
SIGMA (D _p /F ₀₀ in g/kN, or SN)							
RANGE (D _p /F ₀₀ in g/kN, or SN)							

ACCESSORY LOADS

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

AT - POWER SETTINGS
AT - POWER SETTINGS

ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	100.4-101.3
TEMPERATURE (K)	289.2-302.5
ABS HUMIDITY (kg/kg)	0.00619-0.01331

FUEL

SPEC	Jet A-1
H/C	1.92
AROM (%)	16.7-17.5

MANUFACTURER: PowerJet S.A.
TEST ORGANIZATION: PowerJet S.A.
TEST LOCATION: Villaroche, France and Rybinsk, Russia
TEST DATES: 01/07/2009-01/05/2011

NO_x REGULATION PARAGRAPH

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

REMARKS

1. Test engine 146-006/1A and test engine 146-101/3
2. Certification report CR-037 Rev.1 and CR-037 S1
3. Certification in accordance with Part III, Chapter 2, of Amendment 6 of ICAO Annex 16 Vol. II.
4. NO_x levels in accordance with Part III, Chapter 2, 2.3.2 d) (CAEP/6)

Compliance with Fuel Venting requirements: x ('x' if complies, 'PR' if pre-regulation, '-' if information is not available)