



ICAO ENGINE nvPM EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: AS907-3-1E-A3 (HTF7500E) BYPASS RATIO (-): 4.2
UNIQUE ID NUMBER: 01P14HN016 PRESSURE RATIO π_{co} (-): 23.6
COMBUSTOR: SABER-1
ENGINE TYPE: MTF RATED OUTPUT F_{oo} (kN): 33.8

REGULATORY DATA

CHARACTERISTIC VALUES:	LTO_{mass}/F_{oo} (mg/kN)	LTO_{num}/F_{oo} (particles/kN)	NVPM MASS CONCENTRATION ($\mu\text{g}/\text{m}^3$)
LTO/F_{oo} AND MAX $nvPM_{mass}$	717.9	6.03E+15	1909
AS % OF CAEP/10 LIMIT	-	-	15.0
AS % OF CAEP/11 LIMIT (InP)	18.3	26.3	
AS % OF CAEP/11 LIMIT (NT)	70.6	49.5	

MEASURED DATA

MODE	POWER SETTING (% F_{oo})	TIME minutes	FUEL FLOW kg/s	EMISSIONS INDICES*		NVPM MASS CONCENTRATION PEAK $nvPM_{mass}$ ($\mu\text{g}/\text{m}^3$)
				EI_{mass} (mg/kg)	EI_{num} (particles/kg)	
TAKE-OFF	100	0.7	0.378	278.5	1.25E+15	
CLIMB OUT	85	2.2	0.312	295.0	1.97E+15	
APPROACH	30	4.0	0.108	7.9	3.29E+14	
IDLE	7	26.0	0.050	8.7	4.74E+14	
LTO TOTAL (kg, mg, number of particles)			161	17471	1.47E+17	-
NUMBER OF ENGINES				1	1	1
NUMBER OF TESTS				4	4	4
AVERAGE LTO/F_{oo} VALUES (mg/kN, particles/kN)				516.4	4.34E+15	-
MAX EI VALUES (mg/kg, particles/kg) AND MAX MASS CONC. ($\mu\text{g}/\text{m}^3$)				299.8	2.17E+15	1483

* Emissions Indices are corrected for thermophoretic loss and fuel hydrogen content

DATA FOR EMISSIONS INVENTORIES (ESTIMATIONS FOR ENGINE EXIT PLANE VALUES)

MODE	POWER SETTING (% F_{oo})	CORRECTED EMISSIONS INDICES	
		$EI_{mass_{SL}}$ (mg/kg)	$EI_{num_{SL}}$ (particles/kg)
TAKE-OFF	100	329.1	3.52E+15
CLIMB OUT	85	348.5	5.68E+15
APPROACH	30	13.1	2.49E+15
IDLE	7	15.8	4.19E+15

AMBIENT CONDITIONS

	From	To	FUEL	
BAROMETER (kPa)	96.6	97.5	HEAT OF COMBUSTION (MJ/kg)	43.05
TEMPERATURE (K)	289.0	300.0	HYDROGEN CONTENT (%mass)	13.66
HUMIDITY (kg water/kg dry air)	0.0020	0.0030	AROMATICS CONTENT (%vol)	16.7
			NAPHTHALENE CONTENT (%vol)	1.24
			SULPHUR CONTENT (ppm by mass)	744

MANUFACTURER: Honeywell
TEST ORGANIZATION: Honeywell
TEST LOCATION: Queen Creek, AZ
TEST DATES: 04/12/2015-07/12/2015

REMARKS

1. Reference: Honeywell Report 21-16865 Summary Report: Compliance to International Regulations of Non-Volatile Pa: