



ICAO ENGINE nvPM EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: AS907-3-1E-A2 (HTF7500E) BYPASS RATIO (-): 4.2
UNIQUE ID NUMBER: 01P14HN015 PRESSURE RATIO π_{co} (-): 22.3
COMBUSTOR: SABER-1
ENGINE TYPE: MTF RATED OUTPUT F_{oo} (kN): 31.6

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 $nvPM_{mass}$ | 704.5 | 6.73E+15 | 1906 |
| AS % OF CAEP/10 LIMIT | - | - | 14.3 |
| AS % OF CAEP/11 LIMIT (InP) | 17.8 | 29.1 | |
| AS % OF CAEP/11 LIMIT (NT) | 68.2 | 54.5 | |

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 | 0.349 | 300.0 | 1.62E+15 | |
| CLIMB OUT | 85 | 2.2 | 0.289 | 280.6 | 2.13E+15 | |
| APPROACH | 30 | 4.0 | 0.102 | 6.1 | 2.85E+14 | |
| IDLE | 7 | 26.0 | 0.049 | 9.9 | 5.39E+14 | |
| LTO TOTAL (kg, mg, number of particles) | | | 154 | 16020 | 1.53E+17 | - |
| NUMBER OF ENGINES | | | | 1 | 1 | 1 |
| NUMBER OF TESTS | | | | 4 | 4 | 4 |
| AVERAGE LTO/F_{oo} VALUES (mg/kN, particles/kN) | | | | 506.8 | 4.84E+15 | - |
| MAX EI VALUES (mg/kg, particles/kg) AND MAX MASS CONC. ($\mu\text{g}/\text{m}^3$) | | | | 302.8 | 2.19E+15 | 1481 |

* 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 | 354.0 | 4.58E+15 |
| CLIMB OUT | 85 | 333.9 | 6.36E+15 |
| APPROACH | 30 | 10.3 | 2.21E+15 |
| IDLE | 7 | 18.0 | 4.77E+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

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