



SAIMS M - SOLID STATE FLIGHT DATA RECORDING SYSTEM WITH STATIC MEMORIES

SAIMS M product is a hardware software equipment designed to: Receive, record and monitor the main flight parameters of the aircraft on which it is installed; Transfer the recorded data to a ground station, process and display it; Evaluate the flight mission; Analyse the aircraft's functioning during the flight mission/missions or in case of an accident, functional maintenance level O and I; Analyse the causes of the accident. SAIMS M outfits IAR 99 Hawk aircrafts present in RoAF (Romanian AirForce) service.

SAIMS M hardware configuration consists of:

- **ONBOARD EQUIPMENT KIT**, for MiG21UM, MiG21BIS, L39 aircrafts and MiG21 LANCER, IAR99 SOIM, which consists of: Data Acquisition Unit, type UAD M; Protected Recorder, type: IP M; Data retrieval panel, type PPD (for RoAF aircrafts); dedicated transducers for altitude and speed, triaxial accelerometer, throttle position a.s.o.
- **GROUND EQUIPMENT KIT** which consists of: Data Taking Over Equipment, type: EPD M, code: 984.3M.1, referred hereinafter as EPD M; Ground Processing Station, type: ESPD M, code: 984.3M.2, referred hereinafter as ESPD M; SAIMS test bench, type: BT SAIMS, code: A0710 referred hereinafter as BT SAIMS.

DATA ACQUISITION UNIT (UAD-M) is a hardware-software equipment designed to receive, monitor and transmit (to IP-M) the main flight parameters of the aircraft on which it is installed.

UAD-M provides: Manages the continuous execution of the onboard equipment test; Signal acquisition from transducers/sensors/ aircraft devices; Convert the acquired data into digital signals; Creating the data packages correspondent to the each recorded second; Transfer the data packages to IP M.

DATA TAKING OVER EQUIPMENT (EPD-M) (EPD-M) is a hardware software ground equipment designed to support ground operating for SAIMS M onboard equipment.

EPD M provides: Recorded data transfer; Manages data and display it in the requested format; Cancelling SAIMS status signalling and configuration of the monitored parameters bounds; Executes IBIT test for the Operating level O for onboard equipment; Replacing the onboard equipment firmware without disassembling it from the aircraft; Executes calibration. EPD M is used by the operating level O personal in the ground operating process of SAIMS M and the recovery of the aircraft's flight capacity.

GROUND PROCESSING STATION (ESPD-M)

is a hardware software ground equipment designed for flight data processing.

ESPD M provides: Data transfer from EPD M / IP M; Manages data and display in the requested format; Creating the database; Programming, sampling Maintenance level I; Maintenance, IBIT execution on the onboard equipment Maintenance level I.

ESPD M is used: for mission analysis; maintenance level I, regarding the technical condition of the aircraft; analysing the causes for accident/accidents.

PROTECTED RECORDER (IP-M)

is a hardware-software equipment designed to receive the data packages from UAD M, monitoring and signalling, recording and protecting the data correspondent to the aircraft flight parameters, on which it is mounted, in case of an accident.

IP-M provides: Supply of SAIMS M onboard equipment; Acquire data packages from UAD M; Marking the time correspondent to the beginning and the end of each flight; Save and protect the data, in case of an accident; Monitoring the critical parameters and generating warning signals.

OPERATIONAL CHARACTERISTICS

Climatical: class 2, 55 °C ÷ + 70 °C in conformity with MIL 810F; Mechanical: category 4 F, max. 2000 Hz/ 10 g according to MIL 810F;

Crash: in conformity with TSO C124a/ED 55;
High temperature fire: 1100°C for 60 minutes;
Low temperature fire: 260°C for 10 hours;
Penetration resistance: 227 Kg, fall from 3m;
Static accident: 22,5 KN for 5 minutes;
Impact: 3400G;

Pressure: dove in sea water equivalent to 600 m depth;
Fluid immersion: min. 48 hours in aviation fluid.

Recorded data integrity:

Recordings error rate and restitution in environmental conditions: temperature, vibrations, accelerations that do not overcome 1 at 10 000 000 bits on each signal;

Electromagnetic radiation emission – EMI: through CE conduction or RE radiation, in conformity with MIL – STD – 461C.

Electromagnetic susceptibility – EMC: through CS conduction or RS radiation, in conformity with MIL – STD – 461C.

MTBF: 5000 hours.

AEROFINA S.A.

2-4 Fabrica de Glucoza Street, Sector 2, Bucharest 020332

Tel: (021) 242 0772, Fax: (021) 242 0444

E-mail: serv@aerofina.ro, Web: www.aerofina.ro