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SAGEM DÉFENSE SÉCURITÉ FLIGHT INSPECTION PRODUCTS

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INTRODUCTION

Sagem Défense Sécurité (Sagem DS) is a major avionics supplier for all types of aircraft (both civil and military aircraft and helicopters).

The products and services offered by Sagem Défense Sécurité for aircraft are grouped into the following main categories:

- Assemblies for automatic piloting and flight control,
- Navigation assemblies,
- Optronics assemblies,
- Aeroplane information system assemblies.

Sagem DS has supplied avionics equipment for civil aircraft for several decades. It contributed to the first Airbus A-300B aircraft in the late 1960s, by supplying attitude/heading references and engine control digital computers. Sagem DS is now a major supplier to the Airbus A-380 particularly with its onboard information system, which is a powerful flying Intranet/Extranet.

Sagem DS made many avionics products for civil aviation as Aircraft Condition Monitoring Systems (ACMS)



Recording of a large number of digital parameters onboard aircraft (flight parameters, physical parameters, etc.), facilitates:

- Preventive maintenance
- Exceptionally, analyse the causes of accidents

Flight recorders execute programs that should be updated periodically, or adapted to suit the special needs of customers.

This equipment family is used on a wide variety of Airbus (A300, A310, A318 to A321, A330, A340, etc.), Boeing (727, 737, 747, 757, 767), Dassault (Falcon 50, Falcon 900, Falcon 2000), Bombardier, Embraer, Dornier, Gulfstream, Raytheon aircraft, etc.

Sagem DS is the world-leader in FDM (Flight Data Monitoring) through a tool called AGS:



The AGS automatic aircraft data analysis system is capable of optimising management of maintenance and reducing costs (MOQA), while contributing to improving in-flight safety (FOQA). The AGS is operated by more than 80 users throughout the world and has become the world leader in terms of data analysis.

Relying on 50 years of experience in flight test and data acquisition, management, recording and analysis and based on requirements from user's, new technologies, new regulations and flight inspection domain evolution, a new generation has been designed.

This paper will present some features of the Global Automatic Flight Inspection System of Sagem Défense Sécurité.

THE GLOBAL AUTOMATIC FLIGHT INSPECTION SYSTEM

Since 1998, many Flight Inspection Organisations have been using the Automatic Flight Inspection System called CARNAC (Calibration des Aides Radio à la Navigation à l'Atterrissage et aux Communications or Calibration of Radio Aids for navigation, landing and communications) in more than 40 countries worldwide.

CARNAC is a fully automatic lightweight and small size multitask system designed for calibration of nav aids.

CARNAC is already a modular system, removable within 30 minutes and easily adaptable to any aircraft.

This system already contains the VP D.GPS technology – which has been certified since 1996 – capable of commissioning Cat III airport. This dual-band carrier offers real time precision, long-range coverage, easy use and quick start up. It can be used in all weather conditions, by day and night. The REPLICATOR capability provides real-time board-to-ground curves transmission system. This option improves significantly the dialogue between airport maintenance and flight inspectors and reduces the flight inspection time.

NEW HARDWARE

Sagem DS has developed new computer and acquisition unit based of COST equipments adapted to flight inspection needs and aircraft conditions.

The user's may choice between one or two displays:

NEW OPERATING SYSTEM

CARNAC works under LINUX and Windows to acquire, compute and displays the data and associated reports.

SOME NEW CAPABILITIES

Choice between one or two displays:

All receivers are acquired in real-time simultaneously

Ethernet output

Store and display of store of "published" and/or "to be published"

Instruments Flight Procedure

New aircraft display

Automatic run chaining

Link to the FMS or EFIS

High rate acquisition

Export of data in PC forms

Scanning DME capability

Etc ...

ADDITIONAL FEATURES

CARNAC is designed to provide Flight Inspection Service as well as additional services using software tools already develop and produce by others organisations as the French DGAC (DTI) or the French Navigation Academy (ENAC).

CARNAC will be able to provide, during the flight inspection, the following:

- LOC simulator (ATOLL from ENAC)
- GS simulator (LAGON from ENAC)



- Research and localisation of Radio Frequencies Interferences (from DTI)
- Flight Data Monitoring

This list is not limited to the above examples but may be increased as CARNAC offers a multi-application platform with different operating systems.

CONCLUSION

The new CARNAC is not only designed to be fully compliant with the new request of Flight Inspection but also proposes the user to provide additional services during the flight inspection time. Sagem Défense Sécurité has designed this AFIS to be compliant for the needs of tomorrow.