

# AUTOMATIC TREATMENT OF FLIGHT TEST IMAGES USING MODERN TOOLS : SAAB AND AERITALIA JOINT APPROACH

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## ABSTRACT

The use of on-board cine-cameras, as well as that of on-ground cinetheodolites, is since long time very popular in the world of flight test. Still today the high resolution of film and the high frame rate of cinecameras appear to be hardly exceeded.

The video technology has also successfully entered the flight test scenario particularly once the availability of solid-state optical sensors dramatically reduced the dimensions, and weight, of TV-cameras, thus allowing to locate them in positions otherwise incompatible with space or operational limitations ( e.g. HUD cameras).

A proper combination of cine and video-cameras represents today the typical solution for a complex flight test programme.

The output of such devices is very helpful in many flight test areas and for this reason they are quite largely used, as several successful applications carried out by SAAB and Aeritalia, some of which summarized in this paper, have confirmed.

There is however a draw-back, because the analysis of the large amount of data produced (frames of images) requires a very long time for the analysis, which is normally carried out manually. In order to improve the situation, in the last few years, several Flight Test Centers devoted their attention to possible techniques which allowed a quicker and more effective image treatment.

This paper describes how SAAB approached the problem stimulating a swedish company to develop an advanced system for digitizing and automatically analyzing film and video images and how the system was tailored by SAAB for some specific purposes.

It also explains how Aeritalia flight test reached the conclusion that such system could meet their requirements as well.

Finally it illustrates a joint SAAB-Aeritalia programme which, taking advantage of their specific experiences, is aimed at developing new flight test techniques based on cine and video inputs. The availability of a modern and flexible tool for automatically analyzing digitized images, in fact, is not only effective in saving time, but also for giving the flight test engineers new room for their fantasy.