

A Multidisciplinary Approach Towards Assessing Night Vision Technologies at the Flight Research Laboratory: Integrating Laboratory, Field, Flight and Aeromedical approaches.

Todd Macuda, Greg Craig, Michel Brulotte, Rob Allison, Bob Crowell, Don Filiter, Greg Lester, Scott Healey, Rob Erdos, Stephan Carignan, Denis Tang, Long Truong, Andrew Langille, Kelvin Hamilton, Philippe Souvestre and Sion Jennings

The current presentation is a broad overview of the Night Vision Assessment facilities at the Flight Research Laboratory of the Institute for Aerospace Research of the National Research Council of Canada. This unique cadre of researchers consists of a broad Canadian core group of research scientists, pilots, operational military and law enforcement personnel and physicians that includes several government and private organizations. The initial portion of the presentation shall address the overall assessment of three tube technologies using flight and laboratory methods. This is a summary of recent laboratory and flight trials with the Canadian Forces. The results shall be summarized in terms of laboratory derived estimates of visual acuity, and in-flight test trials by NRC pilots using these night vision technologies. We will discuss this methodological approach as a model and example for assessment of night vision technologies for use in real operational flight environments. Further, these results will consider the importance of providing nominal behavioural performance values for flight technologies. The second portion of our presentation will consider the broader capabilities and activities of this core night vision research group at the Flight Research. We will discuss current and planned efforts aimed at developing civil certification policies for the use of NVGs, suppression of forest fires using NVGs, the use of NVGs for Canadian law enforcement air wings, and the use of medical procedures to assess the impact of NVGs and related technologies in flight environments. The final phase of the talk will summarize our capability as a unique flight research facility capable of supporting a broad range of military and paramilitary needs. FRL can be considered as a distinctive Canadian research facility capable of supporting a broad range of operational flight needs in defence, law enforcement and related civilian environments.