



## Airborne Collision Avoidance System (ACAS)

### EQUIPMENT SPECIFICATIONS

FAA TSO-C118 – prescribes the minimum performance standard that an active traffic alert and collision avoidance system (TCAS I) airborne equipment must meet.

FAA TSO-C119c – prescribes the minimum performance standard that a traffic alert and collision avoidance system II (TCAS II) must meet.

### DISCUSSION

The Canadian Aviation Regulations refer to ACAS. This is the terminology used by the International Civil Aviation Organization and adopted by Canada. The CAR standards refer throughout to the FAA TCAS I or TCAS II equipment standards as meeting the requirements for ACAS equipage.

ACAS is an airborne collision avoidance system based on radar beacon signals, which operate independent of ground-based equipment. TCAS I generates traffic advisories only. TCAS II generates traffic advisories and resolution (collision avoidance) advisories in the vertical plane.

TCAS I provides proximity warning only, in order to assist the pilot in the visual acquisition of intruder aircraft. No recommended avoidance maneuvers are provided, nor authorized, as a direct result of a TCAS I warning.

TCAS I is intended for use by smaller or slower aircraft and general aviation aircraft.

TCAS II provides traffic advisories and resolution advisories. Resolution advisories provide recommended maneuvers in a vertical direction (climb or descend only) to avoid conflicting traffic.

TCAS II is intended for use by larger and faster aircraft.

TCAS II requires installation of a Mode S transponder, which is interrogated by other TCAS II equipment and replies to that equipment.

Mode S is not required for those airplanes with only TCAS I.

TCAS does not respond to aircraft that are not transponder equipped or to aircraft with a transponder failure.

### REGULATIONS

The ACAS regulations were effective for newly manufactured airplanes on the date the applicable CARs were promulgated, July 1, 2007. All airplanes had to be in compliance two years after the date the regulations were promulgated, July 1, 2009.

CAR 702, 704 operations, all (fixed-wing) airplanes greater than 12,500 pounds must be equipped with TCAS I. All turbine-powered airplanes greater than 33,000 pounds must be equipped with TCAS II.

CAR 703 operations only require TCAS I or II for all types of airplanes.

CAR 705 operations, all piston-engined airplanes must be equipped with TCAS I or II. All turbine-powered airplanes must be equipped with TCAS II.

Flight operations in RVSM airspace require equipage with TCAS II (software 7.0) and Mode S transponder.