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TCAS I Functional Guidelines

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F O R E W O R D

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1.0 PURPOSE AND SCOPE

1.1 Introduction

This document contains functional guidelines for the surveillance, proximity warning and cross-link elements of the Traffic Alert and Collision Avoidance System (TCAS) I. TCAS I is primarily intended for use in general aviation aircraft. Section 1.0 provides a functional description of TCAS I including operational applications.

1.2 Definition

A TCAS I-equipped aircraft can receive limited alert and advisory information about aircraft in its vicinity. TCAS I also participates in cross-link communication with TCAS II-equipped aircraft.

TCAS I operates by listening for aircraft transponder transmissions (replies). The replies detected may have been unsolicited transmissions from Mode S transponders (squitters); replies elicited by ground station or TCAS II interrogations (passive TCAS I); or replies resulting from low-power interrogations from TCAS I (active TCAS I).

Additionally, TCAS I receives traffic advisory information from TCAS II aircraft. If an intruding aircraft is equipped with TCAS II, and if that TCAS II determines that a collision hazard exists, it will transmit advisory information to TCAS I which includes bearing (if available), range and relative altitude of the TCAS II aircraft with respect to the TCAS I aircraft.

As an option, TCAS I can be designed to provide an indication of the transmitting transponder's bearing.

1.3 Minimum Requirements

As a minimum, TCAS I should have the following capabilities for surveillance and collision avoidance:

a. Surveillance Function

(1) An integral transponder capable of operating on Modes A, C, and S.

(2) Compatible automatic pressure altitude reporting equipment.