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**Guidance for Certification of Installed Automatic  
Flight Guidance and Control Systems (AFGCS)  
for Part 27/29 Rotorcraft**

RTCA DO-336  
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## FOREWORD

This report was prepared by Special Committee 220 (SC-220) and approved by the RTCA Program Management Committee (PMC) on March 21, 2012.

RTCA, Incorporated is a not-for-profit corporation formed to advance the art and science of aviation and aviation electronic systems for the benefit of the public. The organization functions as a Federal advisory committee, and develops consensus-based recommendations on contemporary aviation issues. RTCA's objectives include but are not limited to:

- coalescing aviation system user and provider technical requirements in a manner that helps government and industry meet their mutual objectives and responsibilities;
- analyzing and recommending solutions to the system technical issues that aviation faces as it continues to pursue increased safety, system capacity and efficiency;
- developing consensus on the application of pertinent technology to fulfill user and provider requirements, including development of minimum operational performance standards for electronic systems and equipment that support aviation; and
- assisting in developing the appropriate technical material upon which positions for the International Civil Aviation Organization and the International Telecommunication Union and other appropriate international organizations can be based.

The organization's recommendations are often used as the basis for government and private sector decisions as well as the foundation for many Federal Aviation Administration Technical Standard Orders and several advisory circulars.

Since RTCA is not an official agency of the United States Government, its recommendations may not be regarded as statements of official government policy unless so enunciated by the U.S. government organization or agency having statutory jurisdiction over any matters to which the recommendations relate.

## EXECUTIVE SUMMARY

In response to a request by Mr. Nicholas A. Sabatini, FAA Associate Administrator for Aviation Safety, RTCA, Inc. SC-220 was formed to create an installation guidance document for Automatic Flight Guidance and Control Systems (AFGCS) for Part 27/29 rotorcraft. This guidance is designed to support operators with AFGCS to operate safely and efficiently in the National Air Space (NAS). The committee's proposed installation guidance for AFGCS will support the use of these systems in current and future NAS operations. This guidance will standardize and streamline the installation and compliance demonstration process. SC-220 includes representatives from avionics manufacturers, rotorcraft manufacturers, rotorcraft operators, regulatory agencies, and related industry associations.

This AFGCS installation guidance document will be used to support equipage of a wide variety of rotorcraft. This installation guidance document should be useful for designers, equipment manufacturers, aircraft manufacturers, aircraft operators, installers, and aviation authorities.

This AFGCS installation guidance addresses but is not limited to: installed performance of functions, characteristics of specific modes, AFGCS integrations, safety assessment, compliance demonstration and rotorcraft flight manual requirements. Relevant definitions and acronyms are included in the appendices. Recently published RTCA DO-325 document addresses the items intentionally excluded from this document.

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1 – 10 [Reserved]

## CHAPTER 1 BACKGROUND

11 – 16 [Reserved]

## CHAPTER 2 OVERVIEW OF AFGCS

### 17 Purpose

- a. This document provides guidance to find and document compliance of an installed AFGCS with the applicable regulations. There is some confusion to which Code of Federal Regulations (CFR) outside of Title 14, CFR (14 CFR) 27/29.1329 and 27/29.1335 that are typically affected by installing an AFGCS. This document discusses and explains the criteria of the applicable 14 CFR's and their application. This document also provides guidance in using the Safety Assessment (SA) process from SAE ARP 4754a and ARP 4761 as a means to find compliance with (14CFR) 27/29.1309.
- b. This document is not mandatory and does not constitute a regulation. The applicant may elect to follow an alternate method, provided the alternate method is acceptable to the Federal Aviation Administration (FAA). Because the method of compliance presented in this document is not mandatory, the term "shall" used herein applies only to an applicant who chooses to follow this particular method without deviation.

18 – 26 [Reserved]

## CHAPTER 3 AFGCS ENGAGEMENT, DISENGAGEMENT, INDICATIONS, AND OVERRIDE

### 27 General

RTCA/DO-325 contains functional performance standards for parts 27 and 29 AFGCS engagement, disengagement, indications, and override. Compliance with these standards is recommended as one means of assuring that the system will perform its intended function(s) satisfactorily under all conditions normally encountered in routine aeronautical operations.

28 – 41 [Reserved]

## CHAPTER 4 CONTROLS, INDICATIONS, AND ALERTS

### 42 General

RTCA/DO-325 contains functional performance standards for parts 27 and 29 AFGCS controls, indications, and alerts. Compliance with these standards is recommended as one means of assuring that the system will perform its intended function(s) satisfactorily under all conditions normally encountered in routine aeronautical operations.

43 – 51 [Reserved]