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Minimum Performance Standards-Airborne Doppler Radar Navigation Equipment

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F O R E W O R D

This Document was prepared by International Coordination Group 13 (ICG-13), of the Radio Technical Commission for Aeronautics (RTCA). It was approved by RTCA on October 17, 1975, and supersedes RTCA Document DO-98, dated September 8, 1959, titled "Minimum Performance Standards - Airborne Doppler Radar Ground Speed and/or Drift Angle Measuring Equipment", and DO-104, dated June 8, 1960, titled "Minimum Performance Standards - Airborne Automatic Dead Reckoning Computer Equipment Utilizing Aircraft Heading and Doppler-Obtained Ground Speed and Drift Angle Data."

RTCA is an association of aeronautical organizations of the United States from both government and industry. Dedicated to the advancement of aeronautics, RTCA seeks sound technical solutions to problems involving the application of electronics and telecommunications to aeronautical operations. Its objective is the resolution of such problems by mutual agreement of its member organizations.

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Coordination of these standards was accomplished by RTCA ICG-13 and the European Organization for Civil Aviation Electronics (EUROCAE) Working Group 7C (WG 7C). EUROCAE concurs with RTCA on the Minimum Performance Standards (MPS) set forth herein as being compatible with those contained in EUROCAE Documents MPS/WG 7C/1-74 and 2-74.

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I N T R O D U C T I O N

This Document sets forth Minimum Performance Standards for Airborne Doppler Radar Navigation Equipment.

Compliance with these standards is recommended as a means of assuring that the equipment will satisfactorily perform its intended functions under all conditions normally encountered in aeronautical operations.

In any application of these Minimum Performance Standards, due allowance should be made, where necessary, for equipments in current use which do not fully meet the standards contained herein.

It is recognized that any regulatory application of these standards is the responsibility of governmental agencies.

Inasmuch as the measured values of radio equipment performance characteristics may be a function of the method of measurement, standard test conditions and methods of test are also recommended in this Document.

The word "equipment" as used herein includes all of the components or units necessary (as determined by the equipment manufacturer) for the equipment to properly perform its intended function. For example, an Airborne Doppler Radar Navigation "Equipment" may include an antenna, a control box, an indicator, a transmitter-receiver, a computer, etc. In the case of this example, all of the foregoing components or units comprise the "equipment." It should not be inferred from this example, however, that every "equipment" will necessarily include all of the foregoing components. This will depend on the design used by the "equipment" manufacturer.

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MINIMUM PERFORMANCE STANDARDS -

AIRBORNE DOPPLER RADAR NAVIGATION EQUIPMENT

1.0 GENERAL STANDARDS

1.1 Operation of Controls

The operation of controls intended for use during flight in all possible combinations and sequences shall not result in a condition whose presence or continuation would be detrimental to the reliability of the equipment.

1.2 Accessibility of Controls

Controls which are not normally adjusted in flight shall not be readily accessible to flight personnel.

1.3 Effects of Test

The design of the equipment shall be such that the application of the specified tests produces no discernible condition which would be detrimental to the reliability of the equipment manufactured in accordance with such design.

1.4 Indicators

The requirements contained herein relating to indicators are intended to apply to all indicators which are a part of the equipment. Indicators which are a part of automatic dead reckoning computer equipment are generally classified as "control-indicators" and "repeater-indicators." A "control-indicator" is defined as an indicator which is used to supply input data to and/or receive output data from the computer. A "repeater-indicator" is defined as an indicator which only repeats the output data from the computer.

1.4.1 Indicator Readability

a. Index and dial markings shall be plainly visible from any point within the frustum of a cone the sides of which make an angle of 30° with the perpendicular to the dial and the small