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# Minimum Operational Performance Standards (MOPS) for Devices that Prevent Blocked Channels Used in Two-Way Radio Communications Due to Unintentional Transmissions

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# FOREWORD

This document was prepared by Special Committee 163 of the Radio Technical Commission for Aeronautics. It was approved by the RTCA Executive Committee on January 25, 1991.

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. The findings of RTCA are in the nature of recommendations to all organizations concerned. 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.

Coordination of these standards was accomplished by RTCA SC-163 with the European Organisation for Civil Aviation Equipment (EUROCAE) WG-38.

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# 1.0 PURPOSE AND SCOPE

## 1.1 Introduction

This document sets forth minimum operational performance standards for systems that prevent blocked frequencies used in air traffic control (ATC) two-way radio communications due to unintentional transmissions. Incorporated within these standards are system characteristics that should be beneficial to users of the systems as well as to designers, manufacturers and installers.

Compliance with these standards is recommended as a means of assuring that the equipment will perform its intended function(s) satisfactorily under all conditions normally encountered in routine operations. Any regulatory application of this document is the sole responsibility of appropriate government agencies.

Because the measured values of equipment performance characteristics may be a function of the measurement method, standard test conditions and methods of test are recommended in this document.

This document considers an equipment configuration to consist of: transmitter, receiver, power supply, microphone, control panels, antenna, interconnecting cables and related accessories. It should not be inferred that all equipment will necessarily include all of the foregoing components as separate units. This will depend on the specific design configuration chosen by the manufacturer. Additional functions and components that may refer to expanded equipment capabilities that exceed the stated minimum requirements are identified as optional features. Equipment features that are beyond the scope of this document may be developed in future RTCA activities.

If the equipment implementation includes a computer software package, the guidelines contained in RTCA/DO-178A, *Software Considerations in Airborne Systems and Equipment Certification*, shall be considered.

## 1.2 System Overview

The aviation communications system includes ground-based and airborne receiving and transmitting equipment that provides air-to-ground, ground-to-air, air-to-air and ground-to-ground voice and data communications. The equipment addressed in this document provides the means for reducing unintentional transmissions that adversely affect two-way voice radio communications.

Disruption to voice communications in the ATC system presents the potential for degrading flight safety. Although these communication disruptions may occur in areas where traffic density is low, the growth of air traffic (and communications) has increased the number of disruption incidents. The FAA concluded, as early as 1968, that the occurrence of communication disruptions presented serious problems, e.g., the loss of separation standards between aircraft, near mid-air collisions, delays and potentially disastrous disruptions of traffic flow. Various educational programs and advisory material issued by the FAA have not reduced the problem. In fact, subsequent surveys have indicated that the problem has intensified.

In 1984, the FAA was petitioned to enact rulemaking requiring two-way radio communication systems employing anti-blocking and stuck microphone protection circuitry. The FAA subsequently published the petition for rulemaking for public comment. The majority of responses to the petition for rulemaking were favorable.