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AN/460

Technical Provisions for Mode S Services and Extended Squitter

Approved by the Secretary General and published under his authority

Second Edition — 2012

International Civil Aviation Organization

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FOREWORD

The purpose of this manual is to specify technical provisions for the formats and associated protocols used in Mode S services and extended squitter. These detailed technical provisions supplement requirements contained in Annex 10 — *Aeronautical Telecommunications,* Volume III (Part I — *Digital Data Communication Systems*), and Volume IV — *Surveillance Radar and Collision Avoidance Systems,* and are necessary to ensure global interoperability.

The provision of Mode S services, specified in this document, include the following:

a) data formats for transponder registers;

b) formats for Mode S specific protocols:

   traffic information broadcast; and

   dataflash;

c) Mode S broadcast protocols, including:

   1) uplink broadcast; and

   2) downlink broadcast.

Formats and protocols for extended squitter automatic dependent surveillance — broadcast (ADS-B) messages are also included since registers are defined for each of these messages. Those registers are assigned so that the extended squitter messages can be readout on demand by a ground interrogator, in addition to being delivered via an ADS-B message.

The second edition of this manual introduces a new version of extended squitter formats and protocols (Version 2). The first edition of this manual specified earlier versions of extended squitter messages (versions 0 and 1). Version 2 formats and protocols were developed to enhance integrity and accuracy reporting. To support identified operational needs for the use of ADS-B not covered by Version 1, a number of additional parameters were included in Version 2. Additionally, several parameters were modified, and a number of parameters no longer required to support ADS-B applications were removed.

The manual also includes implementation guidelines as well as information on future Mode S services that are under development.

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This manual has been developed by the Aeronautical Surveillance Panel (ASP). Comments on this manual from States and other parties outside ICAO would be appreciated. Comments should be addressed to:

The Secretary General
International Civil Aviation Organization
999 University Street
Montreal, Quebec
Canada H3C 5H7

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