

Minimum Performance Standard  
for  
Automatic Pressure Altitude Digitizer Equipment

FOREWORD

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1. PURPOSE:

- 1.1 This document specifies minimum performance standards and test procedures for 100 foot increment automatic altitude reporting digitizer equipment. It is intended that this equipment be operated by a pressure altitude device whose accuracy requirements are the same as those applicable to the pilot's altimeter.
- 1.2 The digitizer equipment is defined as the combination of components needed for conversion of an input equivalent to pressure altitude into the parallel digital code set forth in the International (ICAO) Code for SSR Pressure Altitude Transmission.

2. SCOPE:

- 2.1 All automatic altitude reporting digitizer equipment manufactured under this standard shall comply with the requirements as specified up to its maximum range as indicated on the equipment nameplate.
- 2.2 The digitized altitude output shall be in accordance with "U.S. National Standard for Common System Component Characteristics for the IFF Mark X (SIF)/Air Traffic Control Radar Beacon System SIF/ATCRBS and the International (ICAO) Standard Code for SSR Pressure Altitude Transmission."

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### 3. REQUIREMENTS:

#### 3.1 Identification:

The following information shall be legibly and permanently marked on the device or nameplate attached thereto:

- (a) Name of Instrument.
- (b) Aerospace Standard No.
- (c) Altitude Range.
- (d) Manufacturer's Part Number.
- (e) Manufacturer's Serial Number.
- (f) Manufacturer's Name and Address.

#### 3.2 Accessibility of Controls:

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

#### 3.3 Compatibility of Components:

The Automatic Altitude Digitizer equipment may be qualified either separately or in association with a pressure altitude device and/or an ATC transponder. If the Digitizer Equipment is qualified separately, but requires matching, it shall be identified in a manner that will assure proper matching.

#### 3.4 Operating Range:

The operating range for all digitizers shall begin at or below -1000 feet. The upper limit shall be as indicated on equipment nameplate.

#### 3.5 Pressure Datum:

The digitized altitude information transmitted to the transponder shall be referenced to 29.9213 in. Hg absolute (1013.25 millibars). If the digitizer equipment is part of an altimeter system, the altimeter barometric setting system shall not affect this pressure datum.

#### 3.6 Power Loss:

If electrical power is used, means shall be incorporated in the equipment to detect loss of power or the effect thereof (not including excitation power from the ATC transponder). Under this failure condition the equipment shall:

- (a) Deactivate the digitizer output in a manner which removes the altitude information pulses.
- (b) Provide for operation of a warning device.

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### 3.7 Performance:

3.7.1 The digitizer equipment shall be capable of meeting the individual test and environmental test requirements for the environment in which the equipment is to be used; e.g. if the device is a part of a pressure altitude device, the manufacturer shall state that the environmental standards of the altimeter apply.

3.7.2 The pressure altitude input which feeds the digitizer must meet the accuracy applicable to the pilot's altimeter. The digitizer must reproduce this analog information in digital form with a tolerance of  $\pm 50$  ft measured at the transition points.

When the pressure altitude information and the digitizer are incorporated in the same device the total tolerance of the combination shall be the applicable pilot's altimeter tolerance plus 50 ft at the transition point.

3.7.3 If the pressure altitude input which drives the digitizer is also provided for display in the cockpit, the cockpit system, including the display indicator, must meet the accuracy applicable to the pilot's altimeter. The information fed to the digitizer and the displayed pressure analog information shall agree within  $\pm 25$  feet.

NOTE: The analog output displayed to the pilot (based on 29.9213 in. Hg absolute) shall correspond with the digitized information given to the transponder within  $\pm 125$  ft on a 95% probability basis.

### 3.8 Power Variation:

The device shall properly function with  $\pm 15\%$  variation in D.C. voltage and/or  $\pm 10\%$  variation in A.C. voltage and  $\pm 5\%$  variation in frequency.

### 3.9 Radio Interference:

The instruments shall not be a source of objectionable interference under operating conditions at any frequencies used on the aircraft, either by radiation, conduction, or feedback in any electronic equipment installed in the same aircraft as the instruments.

## 4. TEST CONDITIONS:

Unless otherwise specified herein, all tests shall be conducted under the conditions specified in 3.7.1.