

ICS 17.100
CCS A 53

JJF

**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

JJF 1938-2021

**Calibration Specification for Digital Barometric Altimeters
(English Translation)**

Issued on: December 8, 2021

Implemented on: June 8, 2022

Issued by: State Administration for Market Regulation

Table of Contents

Introduction (II)	
1 Scope(1)	
2 References(1)	
3 Terms and units of measurement(1)	
3.1 Terminology(1)	
3.2 Units of measurement(1)	
4 Overview(1)	
5 Metrological characteristics(1)	
5.1 Altitude Indication Error(1)	
5.2 Altitude return error(2)	
6 Calibration conditions(2)	
6.1 Environmental conditions (2)	
6.2 Measurement standards and auxiliary equipment (2)	
7 Calibration Items and Calibration Methods(3)	
7.1 Preparations before calibration(3)	
7.2 Altitude indication error calibration (3)	
7.3 Altitude Return Error Calibration(3)	
7.4 Data processing (4)	
8 Calibration Results(4)	
9 Recalibration interval(5)	
Appendix A Functional relationship between altitude and air pressure (6)	
Appendix B Additional error correction method caused by height difference of working medium (8)	
Appendix C Calibration Original Record Reference Format (9)	
Appendix D Altimeter Calibration Certificate Inner Page Format Page 2 (10)	
Appendix E Altimeter Calibration Certificate Inner Page Format Page 3 (11)	
Appendix F Examples of Calibration Uncertainty Evaluation of Altimeter Altitude Indication Error (12)	

3 Terms and units of measurement(1)

3.1

Terminology(1)

3.2

Units of measurement(1)

5 Metrological characteristics(1)

5.1

Altitude Indication Error(1)

5.2

Altitude return error(2)

6 Calibration conditions(2)

6.1

Environmental conditions (2)

6.2

Measurement standards and auxiliary equipment (2)

7 Calibration Items and Calibration Methods(3)

7.1

Preparations before calibration(3)

7.2

Altitude indication error calibration (3)

7.3

Altitude Return Error Calibration(3)

7.4

Data processing (4)

9 Recalibration interval(5)

Appendix A Functional relationship between altitude and air pressure (6)

Appendix B Additional error correction method caused by height difference of working medium (8)

Appendix C Calibration Original Record Reference Format (9)

Appendix D Altimeter Calibration Certificate Inner Page Format Page 2 (10)

Appendix E Altimeter Calibration Certificate Inner Page Format Page 3 (11)

Appendix F Examples of Calibration Uncertainty Evaluation of Altimeter Altitude Indication Error (12)

Introduction

JJF 1071-2010 "Rules for Compilation of National Metrology Calibration Standards", JJF 1001-2011 "General Metrology Terminology and Definition", JJF 1059.1-2012 "Evaluation and Expression of Measurement Uncertainty" together form the basis of supporting calibration specifications Sex series norms:

This specification is published for the first time:

Calibration specification for digital barometric altimeter

1 Scope

This specification applies to newly manufactured, in-use and repaired digital air pressure measuring altitudes below 11000m Altimeter calibration:

2 References

This specification references the following documents:

JJG683 barometric altimeter JJG1084-2013 Digital Barometer for dated references, only the dated version applies to this specification; for undated references document, its latest version (including all amendments) applies to this specification:

3 Terminology and units of measurement

3.1 Terminology

3:1:1 geopotential height in the earth's gravitational field, the height represented by the potential energy of unit mass air relative to sea level:

3.2 Units of measurement the unit of digital barometric altimeter altitude is meter (m) or kilometer (km):

4 Overview

The digital barometric altimeter (hereinafter referred to as the altimeter) adopts the principle of barometric altimeter and outputs data in digital form:

(display) A measuring instrument for air pressure and altitude: The altimeter consists of a barometric pressure sensor, a signal processing unit, an output (display) unit etc: Its working principle is that the atmospheric pressure acts on the air pressure sensor to make it output a corresponding electrical signal, which is determined by After processing by the

signal processing unit, the altitude value corresponding to the air pressure is displayed:

5 Metrological characteristics

5.1 Altitude Indication Error the height indication error of the altimeter shall not exceed the maximum allowable error value specified in Table 1: