

ICS 11.040
CCS A 52

JJG

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

JJG 77-2006

Replacing JJG 77-1983

**Verification Regulation of Interference Microscopes
(English Translation)**

Issued on: May 23, 2006

Implemented on: November 23, 2006

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine**

Table of Contents

1 Scope (1)	
2 Citations (1)	
3 Overview (1)	
4 Metrological performance requirements (3)	
4.1 Characteristics of interference filters (3)	
4.2 The distance between the inner edge of the micro-drum differential tube engraved cone surface and the fixed casing engraved surface (3)	
4.3 Measuring the relative position of the index line of the micro eyepiece crosshair reticle and the millimeter reticle engraving line (3)	
4.4 Measure the conformity of the micrometer eyepiece micro-drum engraving line with the millimeter reticle engraving line (3)	
4.5 Measuring error of micrometer eyepiece (3)	
4.6 Optical System Imaging Quality (3)	
4.7 Mutual position between the table and the main optical axis (4)	
4.8 Characteristics of auxiliary imaging devices (4)	
4.9 Instrument indication error (4)	
5 General technical requirements (4)	
6 Measuring instrument control (5)	
6.1 Verification conditions (5)	
6.2 Verification project (6)	
6.3 Verification method (6)	
6.4 Processing of verification results (10)	
6.5 Verification cycle (10)	
Appendix A Evaluation of Uncertainty of Interference Microscopy Indication Error Verification Results (11)	
Appendix B Verification Certificate and Verification Result Notice (inside page) format (16)	

4.1 Characteristics of interference filters (3)

- 4.2 The distance between the inner edge of the micro-drum differential tube engraved cone surface and the fixed casing engraved surface (3)
- 4.3 Measuring the relative position of the index line of the micro eyepiece crosshair reticle and the millimeter reticle engraving line (3)

4.4 Measure the conformity of the micrometer eyepiece micro-drum engraving line with the millimeter reticle engraving line (3)

6.5 Verification cycle (10)

Appendix A Evaluation of Uncertainty of Interference Microscopy Indication Error Verification Results (11)

Appendix B Verification Certificate and Verification Result Notice (inside page) format (16)

Interferometric microscopy procedure

1 Scope

This procedure applies to the first verification, subsequent verification, and in-use inspection of a two-beam interference microscope.

2 Citations

This procedure refers to the following documents.

JJF1001-1998 General measurement terms and definitions JJF1059-1999 Measurement Uncertainty Evaluation and Representation JJF1094-2002 Technical Specifications for Measuring Instrument Characteristics JJG 812-1993 Interference Filter Verification Procedure when using this procedure, care should be taken to use the current valid version of the above cited documents.

3 Overview

The interference microscope consists of an interference and microscopy system that uses the principle of light wave interference to measure surface roughness parameters. it the wavelength of the light wave in the range of (530~600) nm is used as a scale, and the measured surface is compared with a standard optical mirror.

The microscopic geometry of the surface to be measured is observed and measured after high magnification of the microscope. Double beam interference display the micromirror is mainly used for the measurement of the surface roughness evaluation parameter Rz. This instrument can be used to measure the surface of precision machined parts for example, the outer surface such as plane or cylindrical surface can also be used to measure the depth of the surface of the part, such as the marking and plating. Currently used instruments the appearance is shown in Figures 1 and 2.

1-focusing drum; 2-light screen; 3-interference belt width, direction adjustment screw; 4-reference mirror fine adjustment screw;

5,6-Working table moves the micrometer in the vertical and horizontal direction;

7-Workbench; 8-light source; 9-changeable filter;

10-light; 11-micrometer eyepiece; 12-micrometer drum; 13-camera or monitor device

Figure 1 Outline drawing of a commonly used interference microscope (1)