

PREPARED BY:	<b>MULTIBAND IMAGING PHOTOMETER FOR SIRTf</b>  UNIVERSITY OF ARIZONA STEWARD OBSERVATORY, IR GROUP  <b>SPECIFICATION</b>	NUMBER M43P30	
C. DAVIDSON		TYPE PROCEDURE	
APPROVALS		DATE 03/08/98	
ENGINEERING		SUPERSEDES SPEC. DATED	
QUALITY		REV. NEW	PAGE 1 OF
PI/DEPUTY PI			

TITLE  
EQUIPMENT CALIBRATION AND CONTROL

## 1.0 INTRODUCTION

### 1.1 Purpose

Calibration of critical measurement equipment will be controlled during all phases of the development, manufacture and test of Ge:Ga focal plane arrays (FPAs) for the Multiband Imaging Photometer (MIPS) project to ensure the end-product FPAs meet the program quality requirements necessary for product reliability in the Space Infrared Telescope Facility (SIRTF) application.

### 1.2 Scope

This Equipment Calibration procedure establishes responsibilities, requirements, and quality assurance provisions for the calibration of the critical measurement equipment used in the manufacture and test operations for the MIPS hardware.

## 2.0 APPLICABLE DOCUMENTS

The following documents, of the latest issue in effect, except as otherwise indicated, form a part of this specification to the extent specified. In the event of conflict between documents referenced herein and the contents of this specification, the contents of this specification shall take precedence.

MIPS-0033	MIPS Quality Assurance Plan
MIPS-0035	MIPS FPA Implementation Plan
M43P40	MIPS Contamination Control Procedure
M43P60	MIPS Electrostatic Discharge (ESD) Control Procedure
	The University of Arizona Safety Manual

## 3.0 APPLICABLE EQUIPMENT

### 3.1 Laboratory / Measuring Equipment

- A. Dimensioning Microscope
- B. Wire Bond Pull Tester
- C. Micrometer
- D. Balance
- E. Digimicrometer

## **4.0 CALIBRATION PROVISIONS**

### **4.1 Dimensioning Microscope**

The dimensioning microscope, Nikon Measurescope MM-11, is used for dimensional acceptance testing of detail parts and assemblies at incoming and in-process inspection. It shall be calibrated on an annual basis using a standard dimension block.

### **4.2 Wire Bond Pull Tester**

The wire bond pull test equipment, DAGE Microtester 22, is used to evaluate the integrity of the wire bonds, and to determine if the bonds meet the minimum strength requirements. It shall be calibrated on an annual basis using a set of standard weights.

### **4.3 Micrometer**

The micrometer/caliper, Mitutoyo CD-6CS, is used for dimensional acceptance testing of detail parts and assemblies at incoming and in-process inspection. It is calibrated on an annual basis using a standard dimension shim.

### **4.4 Balance**

The balance, Ohaus Portable Advanced Model # CT-200S, is used for determining the mass of various materials used in the fabrication of FPA assemblies and sub-assemblies, an example being the two-part epoxy adhesives. It is calibrated on an annual basis using a standard weight set.

### **5.5 Digimicrometer**

The dimensional measuring equipment, Digimicro ME-501A, is used for determining coating thickness and other vertical dimensions for detail parts and assemblies at incoming and in-process inspection. It is calibrated on an annual basis using a standard dimension block.

## **5.0 QUALITY ASSURANCE PROVISIONS**

5.1 In accordance with the requirements described in the MIPS Quality Assurance Plan, MIPS-0033, the quality assurance representative shall ensure that all equipment described herein conforms to the requirements set forth in this document.

5.2 No materials or parts shall be determined to be flight-worthy unless inspected and accepted using calibrated equipment. The calibration status of all fabrication and inspection equipment described herein shall be documented on the applicable manufacturing travelers of all flight hardware.

5.3 This document contains the complete list of equipment governed by calibration requirements. Any equipment used in the inspection, manufacture and test of flight-worthy hardware not described in this document will not require calibration.

5.4 Applicable quality records shall be kept documenting the calibration status of all equipment described herein, describing the results of the calibration procedure, the date of calibration and the expiration date. See Appendix A.

Appendix A  
Equipment Calibration Record

	METHOD	RESULTS	DATE	EXPIRATION
MITUTOYO CD-6CS	SHIM STANDARD	Pass	02/27/98	02/28/99
MICROTESTER 22	WEIGHT STANDARD	Pass	02/27/98	02/28/99
OHAUS CT-200S	WEIGHT STANDARD	Pass	02/27/98	02/28/99
DIGIMICRO ME-501A	BLOCK STANDARD	Pass	02/27/98	02/28/99
MEASURESCOPE MM-11	BLOCK STANDARD	Pass	02/27/98	02/28/99