PREPARED BY:	***Multiband Imaging Photometer for SIRTF***	NUMBER M11I30	
C. DAVIDSON		TYPE INSPECTION	
APPROVALS			
ENGINEERING	University of Arizona Steward Observatory, IR Group	DATE 07/07/97	
QUALITY	**SPECIFICATION**	SUPERSEDES SPEC. DATED	
PI/DEPUTY PI		REV. NEW	PAGE 1 of 5

TITLE

INCOMING INSPECTION OF 4 X 32 FRAME CLIP (P/N MIPSD – 048), PROCEDURE FOR

1.0 SCOPE

This specification defines the equipment, materials and procedures for incoming inspection of the 4x32 Module Frame Clamp, PIN MIPSD-048, which is used in the build of the MIPS 32x32 Ge: Ga focal plane array.

2.0 PURPOSE

The incoming inspection is to verify that the requirements of the purchase order have been satisfied and that the clamps meet the specifications of drawings MIPSD-048.

3.0 APPLICABLE DOCUMENTS

The following documents form a part of this inspection procedure to the extent specified herein. In the event of conflict between the requirements of this document and the requirements of the engineering drawings called out, the requirements of the drawings shall take precedence. Unless otherwise specified, the most recent revision of the documents identified herein shall apply.

Non-Government Documents

Drawings
University of Arizona, Steward Observatory, IR Group
MIPSD-048 Clamp, 4x32 Module Frame

Manual
University of Arizona Safety Manual

4.0 REQUIREMENTS

4.1 Equipment

Acceptable results are contingent upon the use of the recommended equipment listed below or equivalent equipment. Equivalent equipment may be substituted for the recommended equipment if and only if effectiveness and accuracy are not decreased by its use.

Item	Quantity	Description
1	1 each	Microscope, stereozoom, Bausch and Lomb
2	1 each	Microscope, measuring, x, y, and z-axes, Nikon
3	1 each	Measurement system, Nikon Digimicro System
4	1 each	Gun, blow

4.2 Materials

Item	Quantity	Description
1	as received	Clamp, 4x32 Module Frame, PIN MIPSD-048
2	as required	Acetone, electronic grade
4	as required	Methanol, electronic grade
5	as required	Isopropanol, electronic grade
6	as required	Nitrogen, gaseous (dry) or air (dry)

5.0 PROCEDURAL REQUIREMENTS

Incoming inspection of the 4x32 module frame clamps is to be performed and tracked on a lot basis. The lot number to be recorded on the lot inspection summary sheet, document no. M11I30-A, (see figure 1) is the lot number designated by the vendor on the shipper accompanying the parts or on other vendor supplied documentation. If the vendor does not provide a lot number, then the U of A purchase order number followed by the date the clamps were received will be used as the lot number.

Clamps, which fail to meet the acceptance requirements, will be stored separately from those that do meet acceptance requirements.

6.0 PROCEDURE

Notes:
1. Handling, storage and disposal of chemicals is to be in accordance with the University of Arizona Safety Manual.
2. Cleanroom gloves or finger cots are to be worn when handling hardware and equipment.
3. Removal of outer wrappings and packaging material is to be done outside of the cleanroom.

6.1 Verify Receipt of Requested Paperwork and Quantity of Clamps

6.1.1 Inspect the outer packaging for signs of damage incurred during transport. Record the results on the inspection sheet, document no. M11I30-A.

6.1.2 Carefully remove outer packaging and remove contents and paperwork. With a cleanroom wipe dampened with isopropanol, wipe the inner packaging that covers the clamps or that covers the container of clamps. If the container is not within plastic bags or other protective material, wipe down the container taking care not to obscure label information. Place the paperwork in cleanroom bags. Transport the clamps and paperwork to the cleanroom.

6.1.3 Verify that the quantity of clamps specified on the UA purchase order and the shipper or other vendor-supplied paperwork is in agreement with the quantity received. Report any deficiencies or overages in quantity to the lead process engineer for resolution. Verify receipt of all paperwork called out on the purchase order, including certificates of materials and metrology data.

6.2 Examine Clamp for Contamination and Defects.

6.2.1 Place the clamp onto a clean microscope stage. Under 30-60x magnification, inspect the clamp for contamination. Using dry N_2 or air from a blow gun, blow particles from the surfaces of the clamp. Clean contamination from the clamp by flushing the clamp for a minimum of 20 seconds each with acetone, methanol then isopropanol. Blow the clamp dry with dry N_2 or air. Alternatively, the clamp may be ultrasonically cleaned in isopropanol for 10-15 minutes, then flushed with isopropanol and blown dry.

Note: To prevent redistribution of contaminants or possible solvent residue from remaining on the clamp, keep the clamp wet with solvent until it is blown dry.

6.2.2 Under microscope magnification, verify that the clamp is free of contamination. If contamination is still present, reject the clamp. Label and store the clamp appropriately.

6.3 Verify the Clamp Dimensions

Note: If a contact measuring system (i.e., a Nikon Digimicro System) is used to measure the clamp thickness or other parameters, take care not to damage the clamp.

Using a 3-axes measuring microscope, make the measurements called out in the inspection sheet. Each parameter is to be measured at three different locations, and a minimum of three measurements is to be made at each location. For clamp acceptance, the average of the measurements for a parameter must fall within the specification range identified on the drawing and on the inspection sheet.

6.4 Lot Acceptance Verification.

Visually examine and measure each clamp per paragraphs 6.2.1 through 6.3.

6.5 Store the Clamps.

Place acceptable frames in a clean storage container. Cover the container and label the cover: 'MIPS 4x32 Module Frame Clamp, PIN MIPSD-48, Lot No. xxxx, Acceptable.' For lot number identification, reference paragraph 5.0. Store container on appropriate shelf of N_2-purged desiccator.

In a similar manner, but in a separate lication, label and store reject clamps. On the label, record the word 'reject'.

6.6 Verify Inspection Documentation is Complete.

6.6.1 Summarize the results of inspection and measurement of the individual clamps on the lot incoming inspection sheet, M11I30-A.

6.6.2 Advise the process lead engineer of the status of the lot of clamps. Place all vendor-supplied paperwork and the inspection summary sheet in the process file.

MIPS 4x32 Module Frame Clamp (PIN MIPSD-048)
Lot Incoming Inspection Sheet
Document No. M11I30-A

Lot No: _____ Operator: _____ Date: _____

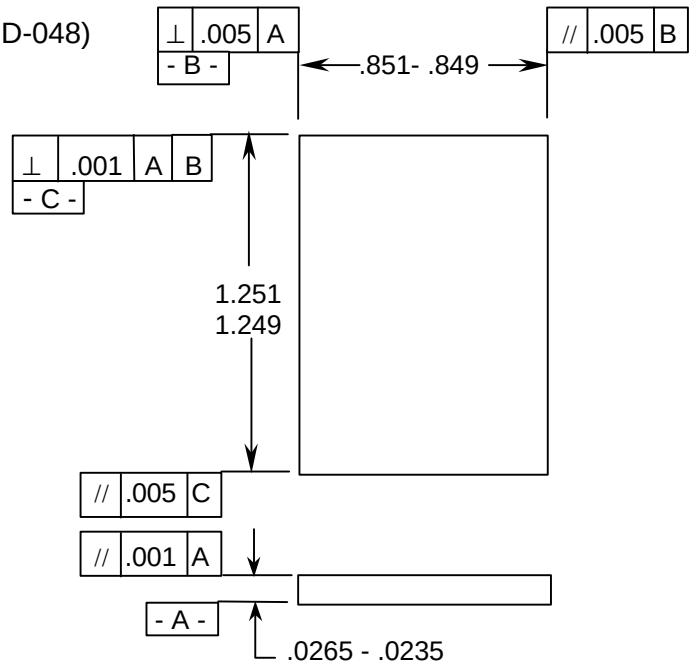
Vendor: _____ U A Purchase Order No: _____

1. Outer Packaging: No damage noted ☐ Comments:
Damage noted ☐

2. Quantity of Clamps Ordered: _____; Quantity Received: _____

3. Dimensional Measurements:
Equipment Used: _____; Calibration Date: _____

Requirements:
(ref. dwg MIPSD-048)



4.0 Lot Inspection/Measurement Summary:

Quantity Rejected Clamps: _____ Quantity Acceptable Clamps: _____

Primary cause for rejection:
a. out of spec dimension ☐ b. contamination ☐ c. chips ☐ d. other ☐

Figure 1. MIPS 4x32 Module Frame Clamp Incoming Inspection Lot Summary Sheet