Stanford University
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GP-B Quartz block "QB#3 Zygo Measurement" P0462 Rev -

February 19, 1999

Prepared: _____ Date _____
Lynn Huff, Optical Engineer

Prepared: _____ Date _____
Ken Bower, SIA Assembly

Approved: _____ Date _____
Barry Muhlfelder, Responsible Engineer

Approved: _____ Date _____
Sasha Buchman, Hardware Manager

Approved: _____ Date _____
Ben Taller, Quality Assurance

QB#3 ZYGO MEASUREMENT

- for SUGP-B dwg #22770-101

- The Quartz Block is a heavy, delicate, and somewhat irreplaceable with multiple critical surfaces that can be easily damaged or contaminated by normal handling. Safe handling practices are critical.

- If at any time during this procedure flight hardware is not live monitored, verify that all flight hardware is seismically secured and protected against airborne contamination.

- Authority to redline this procedure is given to Barry Muhlfelder, Ken Bower, Ben Taller, and Lynn Huff.

- This procedure describes the process by which Surface C of the flight Quartz Block will be measured. The purpose of the measurement is to verify that Surface C has not been adversely affected by repairs to the Quartz Block. This verification is to be carried out using an interferometer located in Lockheed Martin's Building 202.

- Personnel involved shall include, at a minimum, Ken Bower, Lynn Huff, and a QA representative.

PROCEDURE:

11) One person shall be designated the Test Director. Record this person's name below:

Test Director: Name _____ Date: _____

12) Carefully place the Quartz Block in its shipping container. Verify that it has acceptably packaged and that the shipping container is properly closed.

Packaging verified: **Test Director** _____

QA _____

3) The shipping container with the quartz block in it shall be carried by two persons to the transport vehicle and strapped or tied to the floor of the transport vehicle so the shipping container does not slide or bounce during transport.

Installed as required: **Test Director** _____

QA _____

4) The Quartz Block shall be driven to the Lockheed Martin Advanced Technology Center, Building 202, taking precautions to avoid bumps and strong breaking during the trip.

No unusual events: **Test Director**_____ ___

QA _____

5) The shipping container shall be inspected to verify that it has remained strapped or tied in position. The shipping container shall then be unstrapped or untied from the floor of the transport vehicle. After inspecting the route over which the shipping

container will be carried, it shall be carried by two persons to the location of the Zygo interferometer.

Process completed: **Test Director**

QA _____

6) The Quartz Block shall be carefully unpacked and mounted in front of the 12 inch aperture of the Zygo interferometer, with the top flange (Surface C) facing the interferometer. The Quartz Block shall then be secured to the table.

Quartz Block secure: **Test Director**

QA _____

7) Measure the surface flatness of Surface C of the Quartz Block, both over the entire surface and over the 7.25" outside diameter x 5.90" inside diameter outer annulus. Results should be averaged over at least five measurements. No more than three people should be in the lab during the actual measurements .

Measurement Results:

Entire Surface: _____ waves P-V; _____ waves rms

Outer annulus: _____ waves P-V; _____ waves rms

Test Director:_____

QA: _____

8) Carefully return the Quartz Block to its shipping container. Verify that it has acceptably packaged and that the shipping container is properly closed.

Packaging verified: **Test Director** _____

QA _____

9) The shipping container with the quartz block in it shall be carried by two persons to the transport vehicle and strapped or tied into the floor of the transport vehicle so the shipping container does not slide or bounce during transport.

Installed as required: **Test Director** _____

QA _____

10) The Quartz Block shall be driven to Stanford University HEPL building, taking precautions to avoid bumps and strong breaking during the trip.

No unusual events: **Test Director**_____ ___

QA _____

11) The shipping container shall be inspected to verify that it has remained strapped or tied in position. The shipping container shall then be unstrapped or untied from the floor of the transport vehicle. After inspecting the route over which the shipping container will be carried, it shall be carried by two persons to the class 10,000 clean room.

Process completed: **Test Director**

QA _____

12) This completes P0462.

Notes:

Final sign off: Responsible Engineer _____ QA _____