



NATIONAL RADIO ASTRONOMY OBSERVATORY

EDGEMONT ROAD CHARLOTTESVILLE, VIRGINIA 22901
TELEPHONE 804 296 0211 TWX 510 587 5482

July 27, 1982

12 METER MILLIMETER WAVE TELESCOPE
MEMO No. 185

Dr. Sam Baker
Isabelle Project
Brookhaven National Laboratory
Upton, Long Island, NY 11973

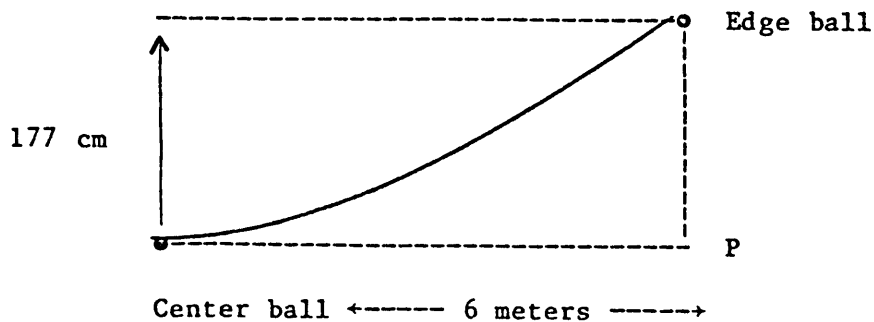
Dear Sam:

Thank you for the measurements of my fixture you sent with your letter of July 21. They look fine and plenty good enough for my purposes. I shall be working near 25° C for the next few weeks, so the knowledge of the actual steel is near enough (it is cold-rolled). But I have asked Buck to track its purchase in case I do need to know more about its expansion coefficient.

We think we are OK--after about 20 days continuous work. Last Saturday afternoon we finally "set" 6 radii, with an average error of below 70 microns. By "set" I mean I adopted a near-enough nominal profile to set to and got the 72 measured points to fit that well enough in one try. I could do better by readjusting, but for the present I am happy.

Anyway, yesterday we took the Green Bank structure apart and started taking the old Kitt Peak telescope down, so we have burnt our boats. I shall work at Green Bank for about five weeks more improving my absolute measuring accuracy, so your work fits with my plans in a very well-timed way.

When I come to the setting problems on Kitt Peak, I shall probably call you again. I plan to survey and adjust my 144 edge balls into a plane good to 25 microns. Then I want the elevation of the center of this plane above my center-ball (a distance of about 69.75 inches (177 cm)), to about 50 microns if possible. I expect to work to these accuracies only in a quite narrow temperature window, which I have not yet chosen. To do this it might be very helpful if I could transfer my center-ball level out to a point below an edge ball--see sketch.



Dr. Sam Baker

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July 27, 1982

You told me once of a firm (Orinda Controls) who make levels, and John Payne is calling them to see. But if you have any further ideas, we will talk sometime. Direct N-III levelling is OK but clumsy.

So, I repeat, thank you very much for your help so far, and we will keep talking.

Yours,

John W. Findlay

JWF/pj

cc: R. E. Hughes
N. P. Samios



BROOKHAVEN NATIONAL LABORATORY
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ISABELLE Project

July 21, 1982

Dr. John W. Findlay
National Radio Astronomy Observatory
Edgemont Road
Charlottesville, VA 22901

Dear John:

As a follow up to our telephone conversation on the 20th, I am enclosing the calibration values for your measuring fixture. The fixture is being returned via UPS to Green Bank, West Virginia. I would estimate delivery some time during the week of July 26th.

I am satisfied with the measurements obtained. The mean, centerline to centerline, measurement with the H-P laser interferometer was 21.96784 (reduced to 68°F). The length by the Central Shop Inspection Report attached, is 21.9676 (at 68°F), or a difference of 0.00024 inches. As I recall, this is well within the limits you desired.

I am pleased that we could assist you in this manner and trust that our work will contribute to a most successful project.

Sincerely,

Sam Baker

Attachments

/lsk

INSPECTION REPORT

Date	Acct. No.	I.L.R. No.	W.O. No.	P.O. No.	Insp. No.

DESCRIPTION

Length Gage	Drawing No.	No. Pieces

VENDOR

EXPLANATION

INSPECTION REQUIRED	
<input type="checkbox"/> Complete <input type="checkbox"/> Partial <input type="checkbox"/> In-Process as noted	

INSPECTION FINDINGS

Note: .7500 dia rolls are .0003 out of parallel to each other. Dimensions recorded are at ϕ of rolls

Roll Temperature 68° F ✓
Humidity 48%

NUMBER OF PIECES MEETING SPECIFICATIONS		NO. OF PIECES NOT MEETING SPECIFICATIONS	
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S. Baker

Report Forwarded To

6-25-1982

Date

J. Schuler

Inspector

ORIGINATOR ACTION

EXPLANATION

<input type="checkbox"/> Accepted Pcs. <input type="checkbox"/> Rejected Pcs. <input type="checkbox"/> Partial acceptance as noted	
<input type="checkbox"/> To be returned to vendor Pcs. <input type="checkbox"/> To be reworked by BNL Pcs. <input type="checkbox"/> Scrapped Pcs.	

Date

Departmental Representative

CHECK DISPOSITION, SIGN, RETAIN YELLOW COPY AND RETURN
BALANCE OF REPORT TO INSPECTION AND QUALITY CONTROL,
BUILDING 462, TELEPHONE EXT. 3357