

To: J. Findlay
From: S.v.Hoerner

25 METER - MILLIMETER WAVE TELESCOPE

MEMO # 28

June 24, 1975

Dear John:

Thanks for your Memo of June 23. Looks very good to me. And I am glad to see that this important and urgent problem is being pushed forward. Here are a few notes:

1. The test you suggest doing, on a track of 12.5 m with flat known ends, seems exactly the right thing to do. I would suggest to have this track slightly curved, up and down again, with about the same amount of curvature as the 25-m dish will have.
2. It seems to me that you do not need two flat end pieces; one piece of length L at the start should be enough. Also, on a telescope you may have the central flat but there will be no flat piece at the rim.
3. Regarding the central flat piece, our present design of the 25-m dish would not allow it. There is the central cabin sticking out by 4 ft above the vertex, and it has 7 ft diameter.

Please think it over, how important it would be to allow for the central flat piece. I just talked with Woon-Yin about it; he said the dish design could be changed if wanted. It just takes time to do it, but he sees no problem.

4. In all cases without the central flat piece, I think we really need some additional measurement of many rim points (one for each track) by some different accurate method, as for example with laser or radar technique.

Or, would it be feasible to have a machined central ring of width L , on which all tracks would start?

5. But even with the central flat disk or ring, it still would be better to have the additional measurement of the rim points. This would reduce the accumulated random errors (by about a factor two, I think); it would also correct for any systematic error arising from small inaccuracies or deformations of the central piece.

Furthermore, it yields a calibration for the zero of the depth sensor.

6. I really look forward to a measurement of the 140-ft by your method. Our theoretical study (on correcting all surface errors of the main dish at the secondary) is still in progress and has given very promising results so far.