

Interoffice

12 METER MILLIMETER WAVE TELESCOPE

MEMO No. 97

NATIONAL RADIO ASTRONOMY OBSERVATORY
TUCSON, ARIZONA

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To: 12 M File

From: J. Payne

Subject: Subreflector Movement for 12 M Antenna

Lee King and Rick Fisher have discussed the loss of gain of the 12 M antenna due to lateral movement of the subreflector.

The conclusion is that we must move the subreflector both axially and laterally. If the adjustment is not made then the gain will drop by 3dB at the shortest wavelength as the antenna is moved from zenith to horizon. This effect may be reduced by adjusting the surface to be correct at 45° but it is still not acceptable.

The range of adjustment is as follows:

Lateral movement	\pm 2 mm
Repeatability	\pm 0.025 mm

The stringent requirement on repeatability is due to pointing changes with subreflector lateral displacement (39 arc sec/mm).

We need to decide who does the design work on the mechanism and where it will be fabricated.