25 METER – MILLIMETER WAVE TELESCOPE

MEMO # 29

July. 22, 1975

Telephone conversation with John Payne.

Subject – Pointing error from servo control

Measurements on 36-ft and 45-ft showed a 5 bits peak to peak, and 1.25 bit rms tracking error. If the encoder has a 22 bits ($0.^{0}_{3}$ sec), then it is reasonable to conclude that the servo error is $1.25 \times 0.3 \cong 0.4$ sec and 0.5 sec is a good round-off figure.

The 36-ft has a 5" sec pointing during manual operation (peak) and 2 sec peak at a very good condition. It has a 20-bit encoder. If the 1.25 bit rms is considered a performance at manual condition, then the calculated pointing of the 36-ft is

$$1.25 \times 1.23 = 1.54 \text{ sec} \quad \text{rms} \quad (1\sigma)$$
$$= 4.63 \text{ sec} \quad \text{pk} \quad (3\sigma)$$

which is ok with the 5 sec quoted.

J. P. would not speculate the pointing for the future.

Also 36-ft has bad bearings!