

UNIVERSITY OF MASSACHUSETTS

MEMORANDUM

From..... R. N. Manchester..... Date 31 August 1972.....  
 To..... W. E. Howard.....  
 Subject..... Pointing corrections for 300-ft. travelling feed.....

Regarding the memorandum from Courtney and Kurt Gordon of July 21, 1972, on pointing corrections for the 300-ft. travelling feed system, the P cards currently in use by us are as follows:

Col.	31	40	52	64	70	75
A	0.001	0.068	0.050	0.025	0.000-0.208	0.000
D	0.224	0.184	0.157	0.096	0.053	0.010 0.000
T	1525.0	0.854	3.145	4.004.98	0.875	0.0   0.0
FORMAT	6.1	6.3	6.3	7.2	6.3	8.3   7.2

These corrections were obtained as follows:

(i) The RA data was copied from a 300-ft. pointing card in use in 1969. Their accuracy has not been confirmed at high declinations, however in our 400 MHz observations we have not been troubled by any offset.

(ii) The declination corrections were obtained from observations made in January 1971 on four continuum sources at 410 MHz with the NURAD 250-500 MHz feed. A copy of the plot of these observations together with the high frequency (Stirling Mount) observations by Mike Davis is attached.

(iii) The travelling feed data were determined by Joe Greenhaulgh, Bob Vance and myself at both 410 and 280 MHz again with the NURAD feed. They include a change in the beam deviation factor at large hour angles (greater than about 25<sup>m</sup> as I remember).

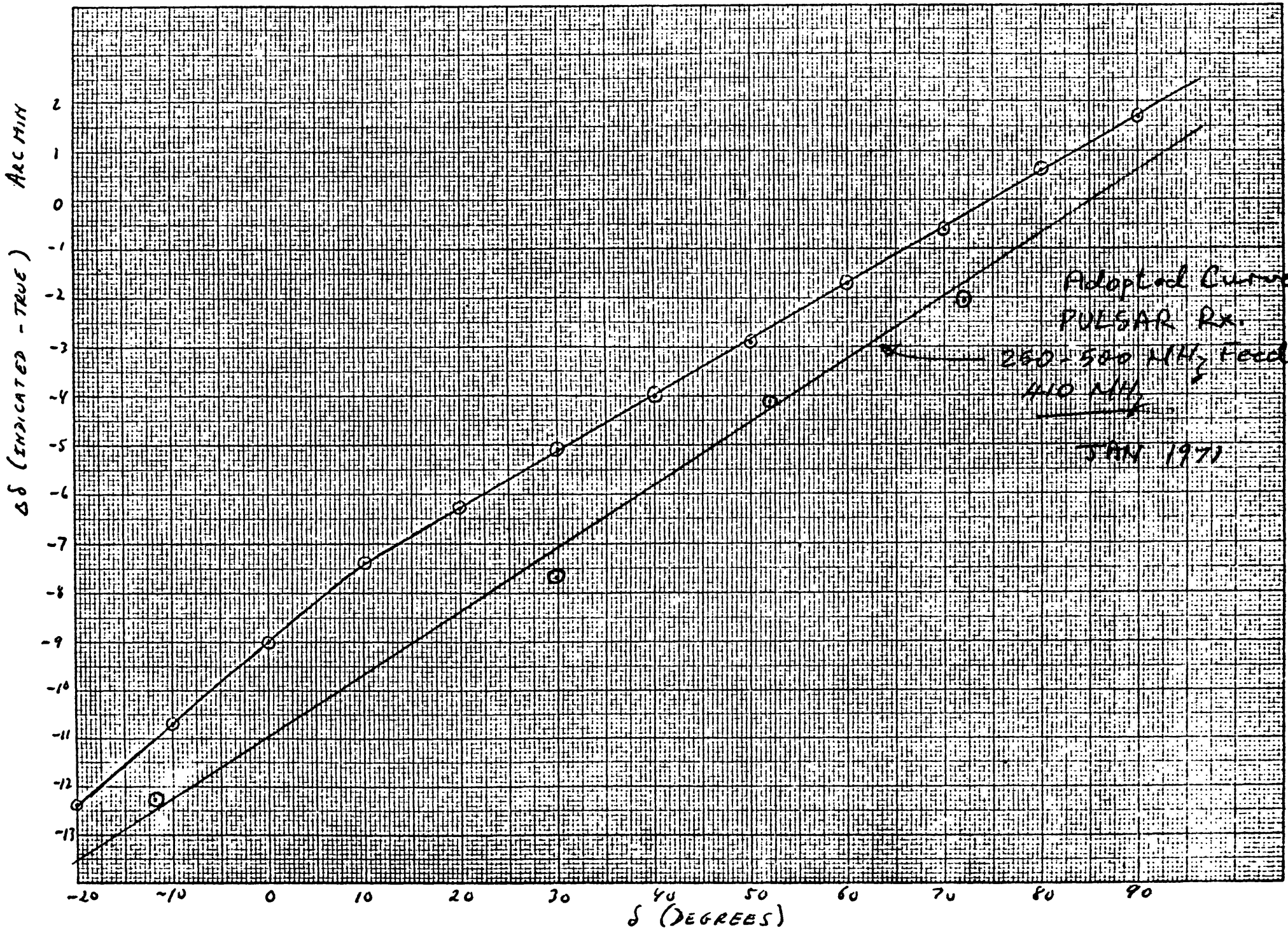
The Gordons mention the need for determination of off-axis pointing corrections. In the case of the RA pointing, this has been done as mentioned in (iii) above. For declination pointing, as far as I am aware there is no provision in the telescope control program for adjustable off-axis declination corrections. The indicated declination is a function of hour angle because the travelling feed

f7  
 ↓  
 3.145 | 4  
 52

tracks are straight whereas the HA tracks on the sky are curved. This effect is compensated for by the computer. To check this compensation, we observed Virgo A over a range of hour angles using the 410 MHz dual beam feeds in the N-S position. A plot of these results together with the computed indicated declination is also attached. This shows that the declination compensation is accurate to within  $\pm 1'$  arc and probably better. Similar observations on PSR 0329+54 also showed that the off-axis declination pointing is accurate to  $\pm 1'$  arc.

c.c: K. Kellermann, B. Vance, B. Viers, C. & K. Gordon

DEC POINTING CURVE (AS USED BY 300' TELESCOPE DURING D21 PROGRAM)

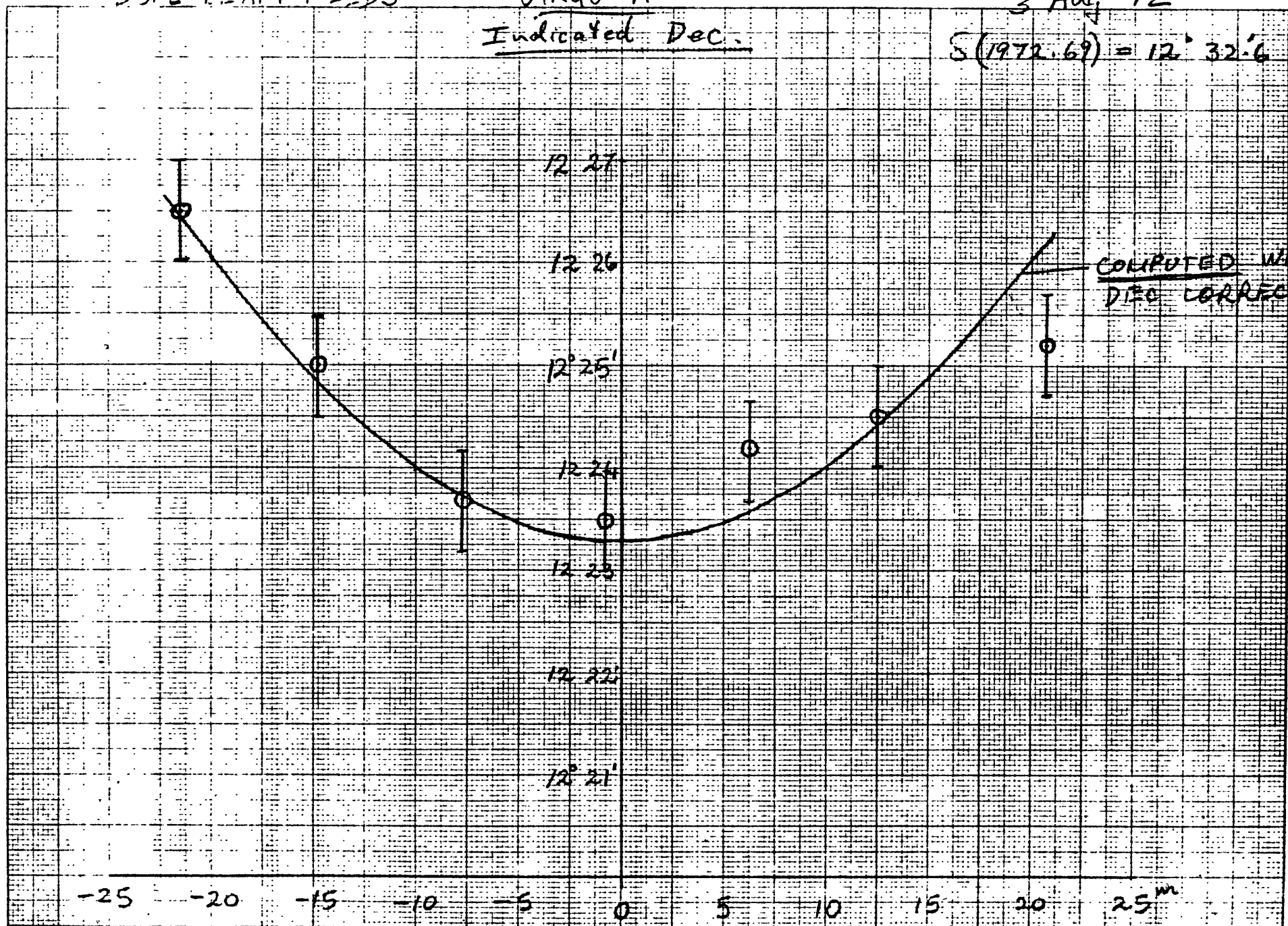


DUAL BEAM FEEDS

VIRGO A  
Indicated Dec.

3 Aug 72

$\delta(1972.69) = 12^{\circ} 32'.6$



COMPUTED WITH  
DEC CORRECTION

-25 -20 -15 -10 -5 0 5 10 15 20 25<sup>m</sup>

HA ( $\delta = 12^{\circ} 30'$ )