NATIONAL RADIO ASTRONOMY OBSERVATORY

Engineering Memo No. 137

# HIGH-FREQUENCY PERFORMANCE OF THE 140-FOOT TELESCOPE
# III. OBSERVATIONS OF 3C 345 AT 10,650 MHz

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During April 1980 the Sterling mount of the 140-foot telescope was moved to correct the lateral defocusing at the zenith (von Hoerner 1980). As described by R. L. Brown at the May Users' meeting, observations at 22 GHz showed that the move was successful. We have not yet had time to update observations of the performation of the telescope at other frequencies, but during the recent VLB session sufficient time was available to observe 3C 345 across the sky.

The observations were taken on 26-27 May 1980 between 1000 and 2400 LST which provided full hour-angle coverage on 3C 345. The data were taken using the automatic procedure PEAK. The r.m.s. pointing errors were $\lesssim$ 10". Because the telescope was beam-switching with a feed offset in right ascension, I used only the antenna temperatures determined from the declination scans. The source parameters are given in Table 1, and the observed hour angles and gains are given in Table 2. The data are also shown in Figure 1.

When we compare the above results to those of Brown (1979), we see that the "east-west" asymmetry is gone and the peak gain is unchanged.

## References

Brown, R. L. 1970, N.R.A.O. Engineering Memo No. 132.

Porcas, R. 1980, private communication.

von Hoerner, S. 1980, IEEE Antennas Propagat., AP-28, in press.

TABLE 1

Source Parameters

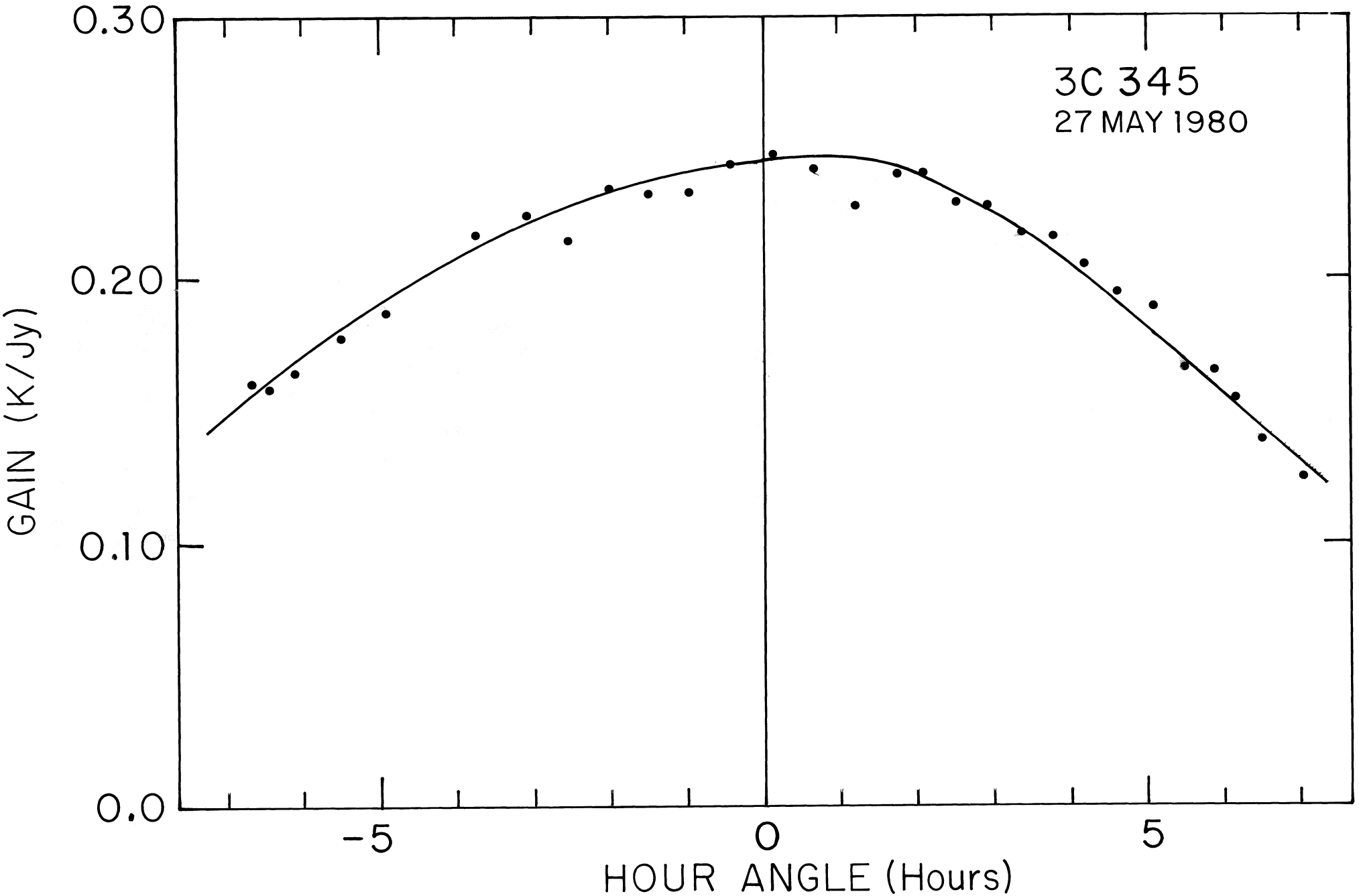
| Source | Declination | $S_{10650}$ | Note |
|---|---|---|---|
| 3C 345 | 39° 54' | 10.33 Jy | * |

Note: Flux density measured at Bonn using 4.63 Jy for 3C 286 (Porcas 1980)

TABLE 2

Gain Measurements

| Hour Angle | Gain | Hour Angle | Gain |
|---|---|---|---|
| $-06^h\ 40^m$ | 0.161 K/Jy | $01^h\ 45^m$ | 0.240 K/Jy |
| -06 26 | 0.159 | 02 07 | 0.241 |
| -06 06 | 0.165 | 02 32 | 0.229 |
| -05 30 | 0.178 | 02 57 | 0.228 |
| -04 55 | 0.188 | 03 22 | 0.218 |
| -03 44 | 0.217 | 03 48 | 0.217 |
| -03 04 | 0.225 | 04 13 | 0.206 |
| -02 32 | 0.215 | 04 38 | 0.196 |
| -02 00 | 0.234 | 05 03 | 0.190 |
| -01 28 | 0.232 | 05 29 | 0.167 |
| -00 56 | 0.233 | 05 53 | 0.166 |
| -00 24 | 0.244 | 06 11 | 0.155 |
| 00 09 | 0.248 | 06 31 | 0.139 |
| 00 41 | 0.242 | 07 02 | 0.125 |
| 01 13 | 0.227 | | |


0.30
0.20
0.10
0.0
GAIN (K/Jy)
3C 345
27 MAY 1980
-5
0
5
HOUR ANGLE (Hours)