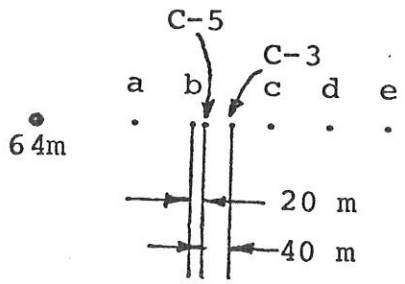
A 1-DAY 720m BASELINE MODE for the AST

The provision of two extra stations in between stations b and c allows a 1 day synthesis with 600m maximum baseline. Thirteen spacings are provided, the outer 5 resulting from products between the 64m antenna and the 22m antennas.

Figure 1 shows the amendments required to the layout of ASTDOC53. The additional stations are numbered according to the convention of ASTDOC53 in terms of the number of 20m increments back from the next major station.

Figure 1



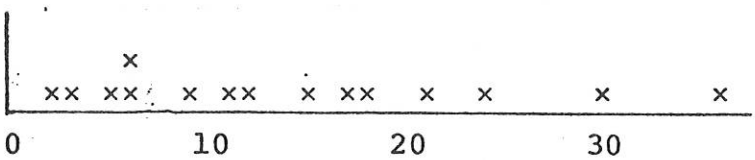
The stations occupied are C-5, C-3, c, d and e. The spacings achieved are shown in Figure 2. The appropriate resolutions are given in Table 1.

Table 1

Frequency	1.4	5	10	22	43
Baseline: 0.72km	61"	17"	8.5"	3.9"	2"
1.32km	33"	9.6"	4.5"	2.2"	0.9"

If on a second day, stations f, g, h, i and j are used, the baseline becomes 1.32km.

Spacing occurrences for compact minimum redundancy configuration:



Spacing x 20m

Figure 2

It might be noted that spacing 6 is redundant in the suggested arrangement. Using b, C-4, C-1, d and e results in the redundancy occurring at spacing 18 giving the possibility of tying the 64m phase back to the 22m array.

Sensitivity

The noise after 12 hours with 5 spacings involving the 64m antenna and 10 pairs of 22m antennas is 14 μJy assuming 64 MHz b.w., 2 polarizations, 60% efficiency, 40K system temperature.

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R.H. Frater