## AST Usage

This document is an attempt to give a realistic estimate of requests for observing time from potential users of the AST for one year of operation (Table I). The basis of the list is Section G of the revised AST proposal (6 April 1978). Individuals concerned have not been consulted so the estimates are necessarily approximate. Also, staff turnover will have occurred by the time the AST is in full operation. It is assumed that new people would have at least as much interest in using the AST as those listed. For users from Universities, listed times are assumed to include projects by students working under their supervision. Estimates err on the conservative side and are based in part on the time and effort required for interpretation of the data. Observation times are based on Configuration IV (4 movable + 6 fixed antennas) with full synthesis possible at one of four frequencies (1.4, 5, 10 and 22 GHz) in 4, 2 or 1 x 12h. Some users are assumed to make (mostly) short observations (e.g. for positions, fluxes).

The estimated total of requests for observing time by observers resident in Australia is about  $360 \times 12^h$ . We might expect at least another 10% from overseas users, so the total requested time is  $400 \times 12^h$ . We might (optimistically) expect that 15% of all observations will have to be repeated because of interruptions due to equipment breakdown or bad weather. This brings the total to  $460 \times 12^h$ .

There are a total of 730 x  $12^h$  in one year. Maintenance and array reconfiguration will take (at least) 20% of this and calibration will take a further 10%. This leaves  $510 \times 12^h$ . In general it will be impossible to schedule two  $12^h$  observations in one day as they will overlap. (There is less problem for short observations.) It is estimated that this will further reduce the available time by 25% leaving about 380 x  $12^h$  of available observing time.

The conclusion is that Configuration IV should be able to satisfy potential observing requests with a small oversubscription (17%). If only 8 antennas can be built within the budget (as seems likely, cf. ASTDOC45), then for a 4 movable + 4 fixed array the observing speed is reduced by the factor 16/24, so the oversubscription would be about 75%. For a 2 movable + 6 fixed array, the speed is halved and the oversubscription would be about 135%. For Configuration I array of 5 movable antennas, the speed is down from the Configuration IV array by a factor of 2.5, so the oversubscription would be

## POTENTIAL AST USAGE (ONE YEAR)

10-Australian Observatory	Name	Number of fields	Observing Time (12h units)
ysics  ysics  100  44  44  44  46  100  100  100  10	Anglo-Australian Observator <u>y</u>		
D.C. Mortson  D.C. Mobertson  M.M. Phillips  A. Bosma A.R. Hyland D.S. Mathewson J.G. Bolton J.G. Bolton J.L. Cardner  R.N. Manchester R.N. Hunstead R.N. R.N. Hunstead R.N. R.N. R.	D.A. Allen	3	9
W. W. Phillips	D.C. Morton	20	2 5
-Nount Stromlo Observatory   A. Bosma   A. R. Hosma   A. R. Hyland   A. W. Rodgers   A. R. Hyland   A. M. Rodgers   A. Gaswell   A. Ga	G. RODELLSON M.M. Phillips	7 %	9
A. Bosma A. R. Bosma A. R. Hydraenan A. R. Hydraenan A. R. Hydraeson A. M. Rodgers D. S. Mathewson J. G. Bolton J. C. Caswell F. F. Gardin J. Caswell F. F. Gardin F. F. Gardin J. Caswell F. F. Gardin A. K. Mine B. J. Munchester R. X. McGea D. J. McLean R. W. Mine B. J. Robinson K. W. Mine B. J. Robinson A. E. Wright B. J. Wultecak K. J. Wellington A. E. Wright A. Munchoch B. Y. Wills B. J. Thomas A. Savage A. Savage A. Savage B. A. Bawell A. Savage B. A. Bawell A. Savage B. A. Bayen B. A. Bawell A. Savage B. A. Bayen B. B			
No. Freeman	A. Bosma	4	16
A. R. Hyland A. W. Rodgers A. W. Rodgers A. W. Rodgers J. G. Bolton J. L. Caswell F. F. Gardner R. F. Hynaces D. L. Jauncey M. M. Komesaroff R. N. Marchester R. X. McGe D. J. McLean D. K. Milne B. J. Robinson J. B. Wilrocak K. J. Wellington J. B. Willocak K. J. Wills R. W. Hunstead B. J. Turtle Versity of Sydney R. W. Hunstead B. Y. Mills H. S. Murdoch P. A. Hamilton P. A. Hamilton P. A. Hamilton J. A. Dawe A. Savage B. J. Dawe A. Savage B. A. Savage	K.C. Freeman	4	16
No. 8.   No. 8.	A.R. Hyland	2	4 ,
No Division of Radiophysics   J.G. Bolton   J.L. Caswell   S. F. Gardner   R.F. Gardner   S. D.L. Caswell   S. D.L. Jaunces   S. D.J. McLean   S. M. Mille   S. M. Mille   S. M. Mille   S. M. Mille   S. D. M. Wellington   S. M. Wellington   S. M. Wellington   S. D. D. M. Wellington   S. D.	U.S. Mathewson A.W. Rodgers	7 7	16
J.G. Bolton J.C. Caswell F.F. Haynes B.F. Haynes D.L. Jauncey M.M. Komesaroff R.N. Manchester R.X. McGen D.J. McLean D.X. Milne B.J. Whiteoak K.J. Wellington J.B. Whiteoak K.J. Wellington J.S. Murdoch Wersity of Sydney R.W. Hunstead B.Y. Mills H.S. Murdoch Versity of Tasmania P.A. Hamilton R.W. Hamilton R.W. Hamilton R.W. Thomas J.A. Dawe J.A. Dawe J. A. Savage R. R. Savage	SIRO Division of Radiophysics		
J.L. Caswell     F.F. Gardner     R.F. Haynes     D.L. Jauncey     D.L. Jauncey     M.M. Komesaroff     R.N. Marchester     R.X. McGee     D.J. McLean     R.N. Sheridan     K.J. Wellington     A.E. Wright     R.D. Brown     R.D. Brown     R.D. Brown     R.D. Brown     R.D. Brown     R.W. Hunstead     B.L. Turtle     R.W. Hunstead     B.Y. Mills     R.W. Hunstead     B.Y. Mills     R.W. Hunstead     B.Y. Mills     R.W. Hamilton     R.M. Thomas     Schmidt Telescope Unit     J.A. Dawe     A. Savage     R. Savage     R. R. R. Savage     R. R. Savage		100	10
F. F. Gardner		4	16
D.L. Jauncey  N.M. Komesaroff  R.N. Manchester  R.N. McGee  D.J. McLean  D.K. Milne  B.J. Robinson  J.B. Whiteoak  K.J. Wellington  J.B. Wills  R.N. R. Taylor  B.L. Turtle  R.N. Hunstead  B.L. Turtle  J.A. Mandoch  Versity of Sydney  R.W. Hunstead  B.Y. Mills  H.S. Murdoch  J.A. Hamilton  P.A. Hamilton  R.M. Thomas  Schmidt Telescope Unit  J.A. Dawe  A. Savage  T Post-Docs  R.A. Anawe  A. Savage		8 (2	16
N.W. Komesaroff		20	7 6
R.N. Manchester  R.X. McGee  D.J. McLean  D.S. Milne  B.J. Robinson  K.V. Sheridan  J.B. Whiteoak  K.J. Wellington  A.E. Wright  R.D. Brown  Versity of NSW  K.N. R. Taylor  B.L. Turtle  B.L. Turtle  R.W. Hunstead  B.Y. Mills  H.S. Murdoch  Versity of Tasmania  P.A. Hamilton  R.M. Thomas  Schmidt Telescope Unit  J.A. Dawe  A. Savage  R.X. Manchester  J.A. Dawe  R.X. Dawe  R.X. Savage		40	1 4
N. Y. McGee		2	∞
D.J. McLean D.J. McLean D.J. McLean B.J. Robinson K.V. Sheridan J.B. Whiteoak K.J. Wellington J.B. Whiteoak K.J. Wellington A.E. Wright R.D. Brown R.D. Brown K.N.R. Taylor B.L. Turtle B.L. Turtle C.Versity of Sydney R.W. Hunstead B.Y. Mills H.S. Murdoch P.A. Hamilton R.W. Hamilton Schmidt Telescope Unit J.A. Dawe A. Savage T Post-Docs R. A. A. Savage T Post-Docs R. A. A. Savage R. A. Savage D. A. A. A. Savage T Post-Docs R. A. A. Savage D. A. A. A. Savage R. A. Savage		2	∞ ;
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No. 1, Sheridan   100	-	4 C	01
J.B. Whiteoak       8         K.J. Wellington       2         A.E. Wright       100         R.D. Brown       2         R.D. Brown       2         R.N.R. Taylor       2         B.L. Turtle       2         N.W. Hunstead       4         B.V. Mills       4         H.S. Murdoch       20         versity of Tasmania       20         P.A. Hamilton       20         R.M. Thomas       20         Schmidt Telescope Unit       4         J.A. Dawe       100         T Post-Docs       6         A. Savage       100         A. Savage       6	2 12	100	10
K.J. Wellington	220	8	16
Not-Docs   A	200	2	8 0
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R.D. Brown   2   2   2   2   2   2   2   2   2	fonash University		
Nersity of NSW         2           K.N.R. Taylor         2           B.L. Turtle         2           versity of Sydney         20           R.W. Hunstead         4           B.Y. Mills         20           Wersity of Tasmania         20           versity of Tasmania         20           P.A. Hamilton         20           R.M. Thomas         20           Schmidt Telescope Unit         4           J.A. Dawe         4           A. Savage         100           R. Savage         6		2	8
K.N.R. Taylor			
Not-Docs   Not a light of Savage   Not a light of Supersity of Sydney   Not a light of Sydney   Not a light of Tasmania	TO TOWN A	·	œ
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R.W. Hunstead       20         B.Y. Mills       4         H.S. Murdoch       20         versity of Tasmania       20         P.A. Hamilton       20         R.M. Thomas       20         Schmidt Telescope Unit       4         J.A. Dawe       4         A. Savage       100         T Post-Docs       6         R       6			
B.Y. Mills	R.W. Hunstead	20	2
Note   Note		4 6	16
Nersity of Tasmania   20		70	7
P.A. Hamilton       20         R.M. Thomas       20         Schmidt Telescope Unit       4         J.A. Dawe       100         T. Savage       100         A. Savage       6         A. B. R. B. R. B.			
N.M. Thomas   20	P.A. Hamilton	20	2 5
Schmidt Telescope Unit  J.A. Dawe A. Savage  I Post-Docs A		70	Ν
J.A. Dawe  A. Savage  100  Post-Docs  A  A  6  6  A			
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nearly 200%. If correlators are provided for only two polarizations (ASTDOC45), then polarization observations would take twice as long. This would further increase the oversubscription factor by 5 to 10%.

For a system consisting of 8 antennas with correlators for two polarizations, we would expect (on the basis of these figures) an oversubscription factor of close to 100%. This is perhaps close to optimum.