

# Technologies for Radio Astronomy

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CSIRO Astronomy and Space Science  
[www.csiro.au](http://www.csiro.au)



# Staffing

- Tim Bateman absent for at least a year. A replacement being sought.
- Alex Dunning went to the US to meet Sander Weinreb and NRAO staff.
- Yoon Chung presented two papers at a conference in Korea (Sth) covering the 4-12 GHz OMT and a filter with a deep notch for RFI suppression.
- The new wideband feed has intellectual property protection via a provisional patent.
- Carrad retiring around May 2014



# CX Upgrade

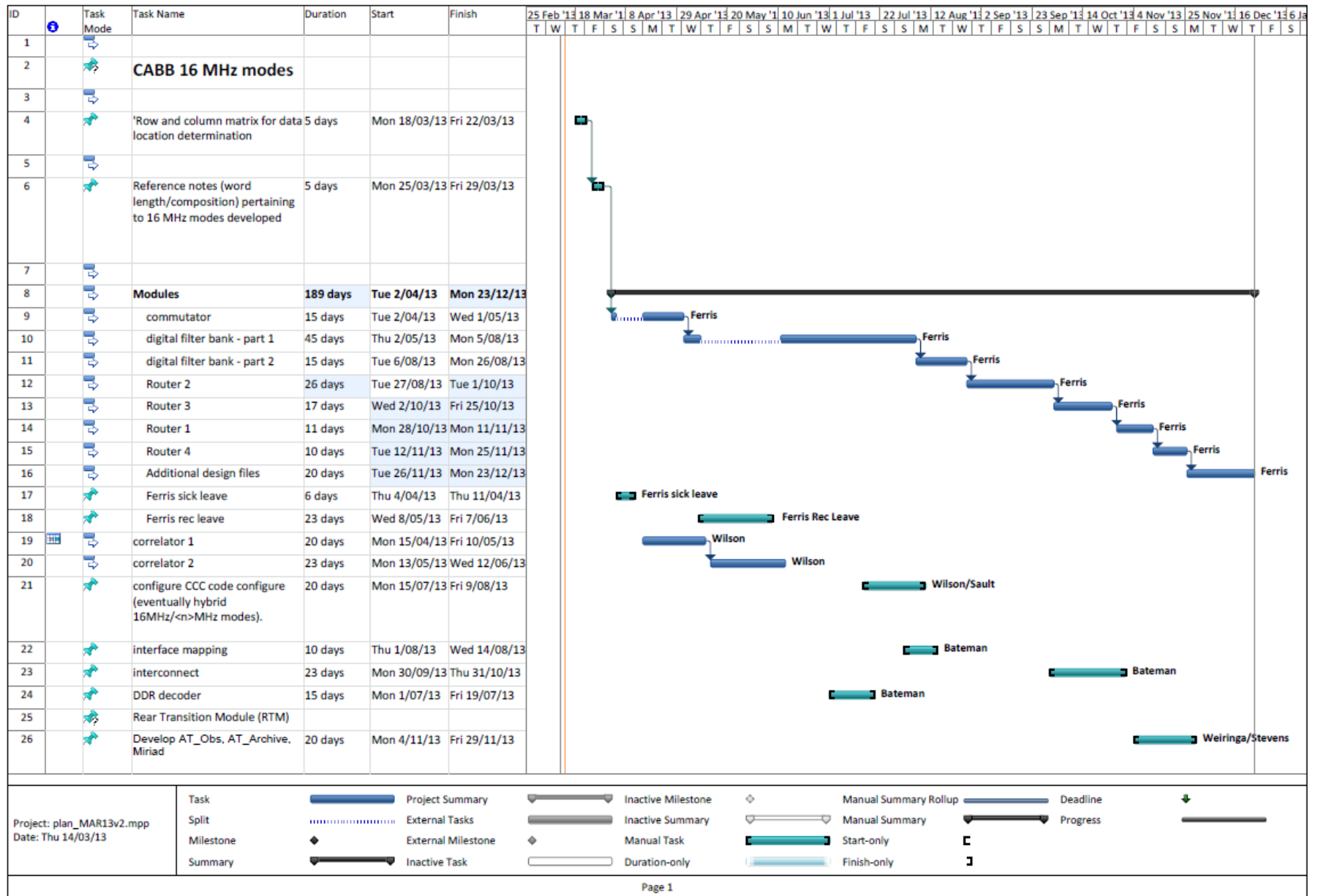
- Receiver suite performing well
- Production versions of prototype modules still require completion
- Documentation requires completion
- About 1 FTE over first quarter 2014 should see the work done and project closed



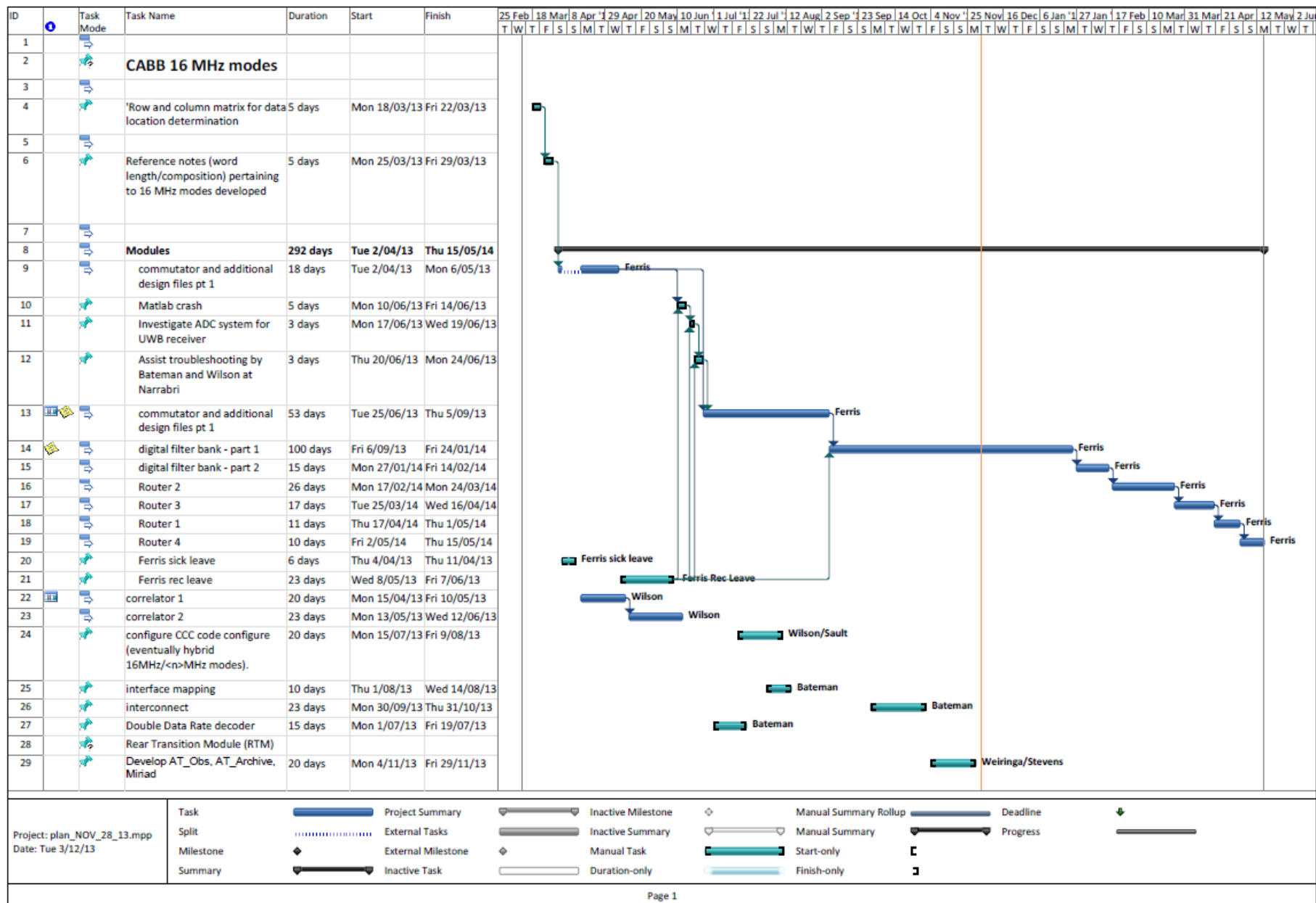
# CABB

- Progress... but not according to plan

Item	Form	Type	n	De	Im	Ma	Est	Act
DFB1_Top	Project	.ise	1	AB	AB	DF	1	
dfb1_cfb_64_32	Structure	.vhd	1	AB	AB	DF	1	
Clock Generation	Code Segment	.vhd	1	AB	AB	DF	0	
Events	Code Segment	.vhd	1	AB	AB	DF	0	
<idelayctrl>	Process	.vhd	1	AB	AB	AB	-	
BusB Input	Code Segment	.vhd	1	DF	DF	DF	0	
BusD Input	Code Segment	.vhd	1	DF	DF	DF	0.2	
BusD Output	Code Segment	.vhd	1	DF	DF	DF	0.3	
fir_top_wrp	Subroutine	.mdl	1	DF	SS	DF	10	
fft_top	Subroutine	.mdl	1	DF	SS	DF	10	
clkxover	Subroutine	.mdl	1	SS	SS	DF	0	
test_dataout_mux :	Process	.vhd	1	SS	SS	DF	0	
dspfxdfbdelrot	Subroutine	.mdl	1	WW	WW	WW	-	
dspfxdfbphasrot	Subroutine	.mdl	1	WW	WW	WW	-	
datadelay2	Subroutine	.mdl	1	DF	DF	DF	0.2	





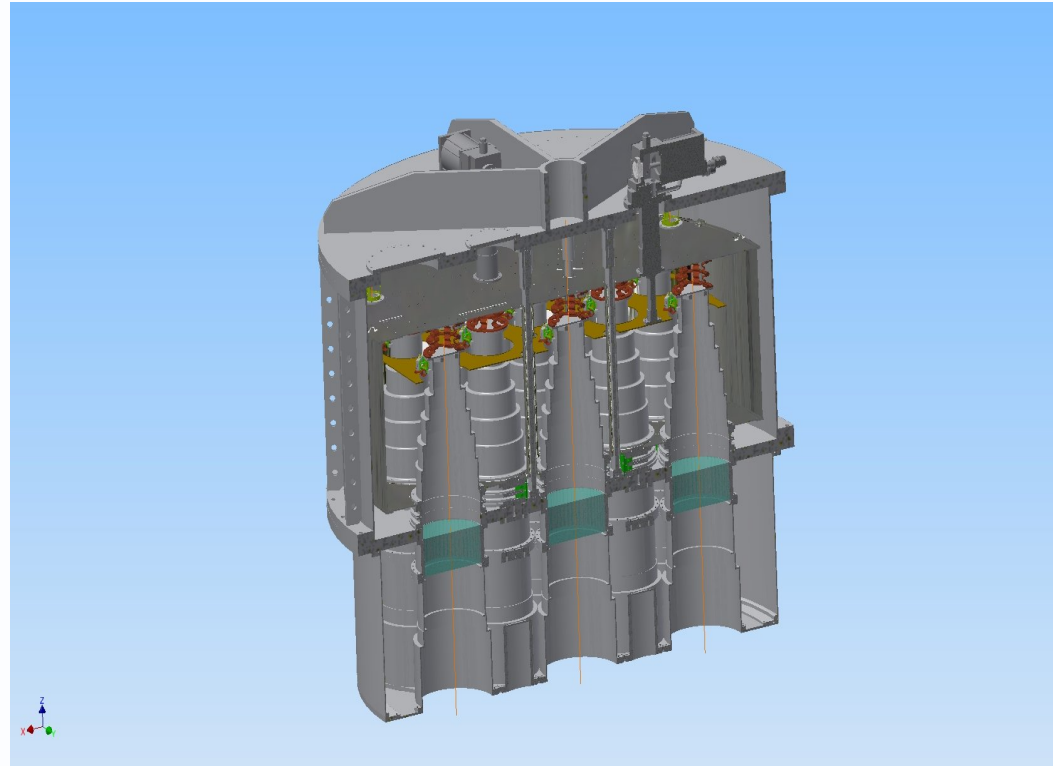


# CABB – May 2014+ finish for 16 MHz mode

- One person available for coding
- Time between coding a similar function quite long so relearning all the time. Documenting this time.
- The first two modes, particularly the 64 MHz, delivered in a rush so short cuts taken. These are being tidied up this time around to allow better transparency for the future modes. Not as detailed as might be best practice but much better.

# FAST – 19 beam 1.3 GHz receiver feasibility

- Test elements have been fabricated and assembled into a cooled, single pixel demonstration unit. Feed / OMT beampatterns have been measured.
- Amplifiers fabricated but because of export controls we use Commercial Off The Shelf devices that are lesser performers than our usual devices. Even so we achieve amplifier noise temps of 6K.
- FAST team visited in mid October and discussed the work as well as taking part in measurements of the single pixel demonstrator.
- Complete cryostat model has been created and analysed and we feel a receiver is feasible.

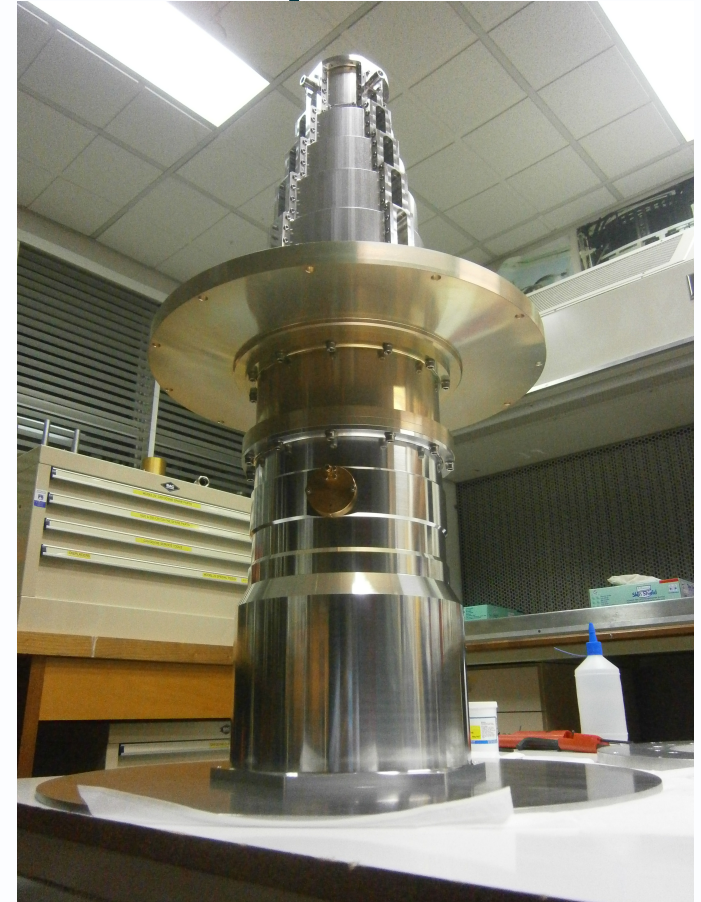




# FAST – 19 beam 1.3 GHz receiver feasibility



Cryostat ready for assembly



Test pixel input waveguide assembly – feed , vacuum window, gapped guide and OMT

# CABB

- Loss of staff makes for a discontinuity in the troubleshooting of reliability problems.
- Not sure there was a lot of progress anyway.

# PAF for MPIfR

- Visit by engineers from MPI in October highlighted the need to look closely at the RFI environment and design for the future.



## Assistance to ASKAP

- Where and when possible for BETA and ADE



# Thank you

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