



ATCA INFRASTRUCTURE UPGRADE 35

Tim Wilson | 8 Nov 2022





1988 - 2022

- Capability Upgrades

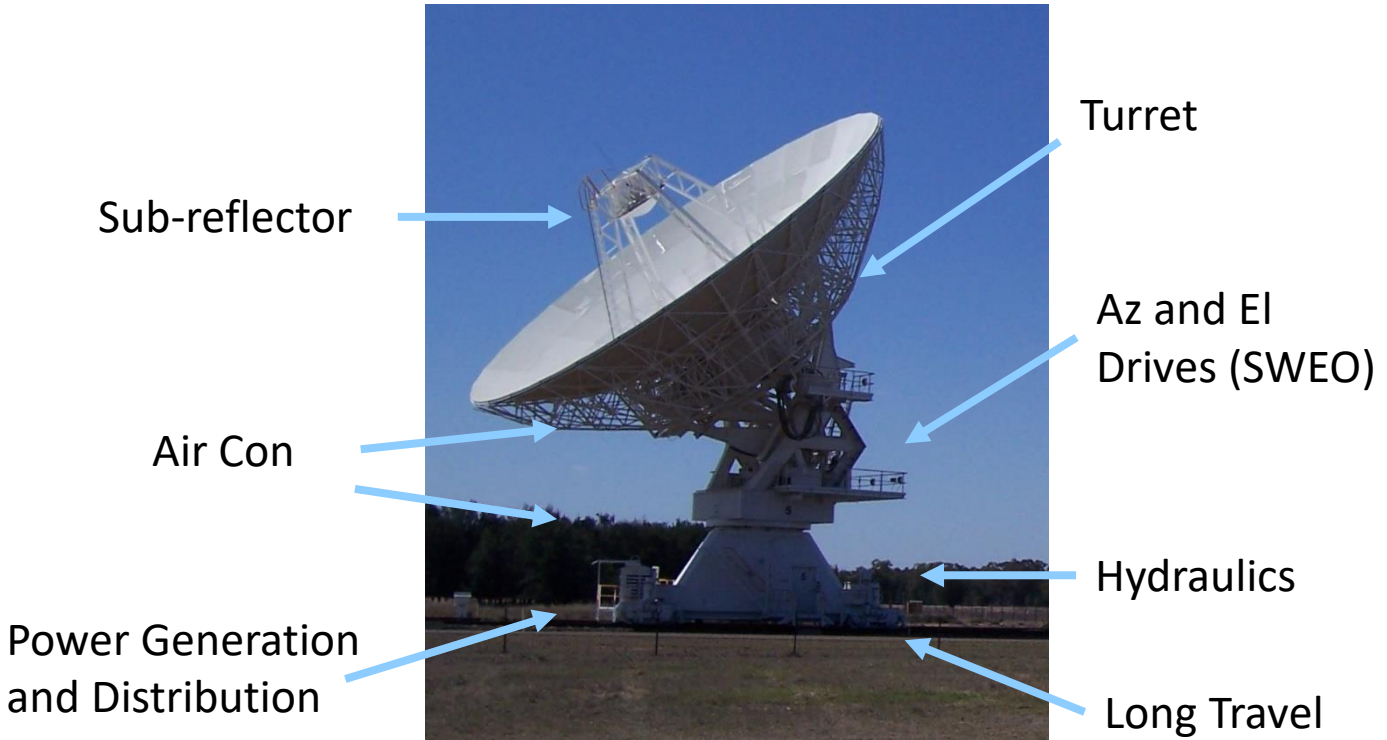
- North Spur
- Solid Surface Panels
- Receivers - mm
- CABB
- Upgraded LS and CX
- *BIGCAT*





Antenna Power and Control Systems (In scope)

1988 - 2022

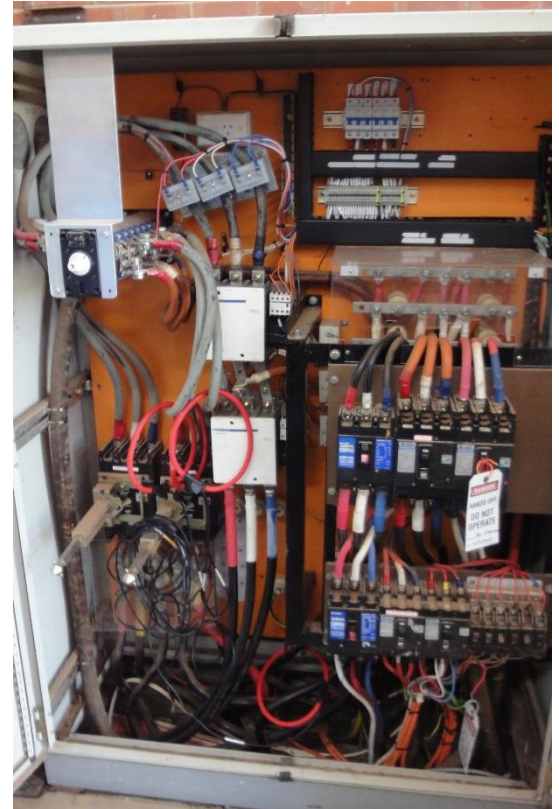




Upgrade Antenna Power and Control Systems

2022-2025

1. Safety (Electrical)
2. Reliability
3. Maintainability
4. Performance and Function





Upgrade Antenna Power and Control Systems

2022-2025

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Relay Logic



PLC





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Operating Parameters:

- Turret Slew Rates
- Azimuth and Elevation Slew Rates
- Tracking Speeds
- Reconfigure Speeds and Duration
- Sub-reflector response

D.7 FEED HORN TURRET DRIVE

Each antenna is equipped with four feed horns and associated equipment mounted in a turret, each feed horn being rotatable to the Secondary focus point at the centre of the main reflector.

The operational requirements on the feed horn turret drive include:

- a) positioning accuracy of +/- 2mm for any feed horn relative to the Secondary focus,
- b) a maximum change-over time of approximately 30 seconds between any feed horn positions, i.e. a nominal rotational speed of approximately 1 rpm,
- c) an average of 4 rotations per day between any feed horn position, with the main reflector at any elevation angle.

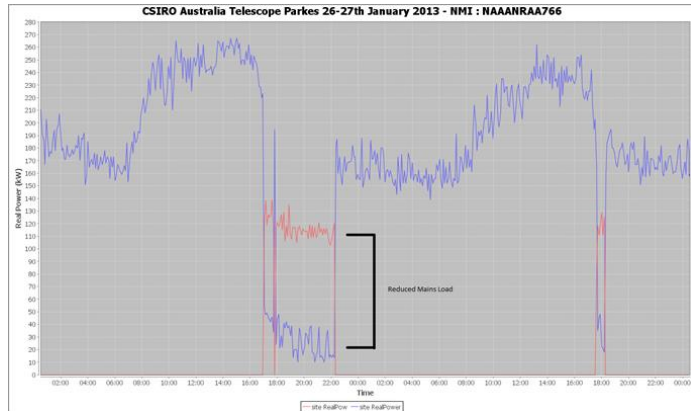
<u>Axis rates:</u>	<u>Azimuth</u>	<u>Elevation</u>
maximum tracking	0.3° s ⁻¹	0.15° s ⁻¹
minimum tracking	0	0
slewing	0.8° s ⁻¹	0.4° s ⁻¹
slew acceleration	0.3° s ⁻²	0.15° s ⁻²



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2022-2025

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4. Performance
5. *Flexibility & Opportunity?*













Upgrade Antenna Power and Control Systems

2022-2025

Expectations:

- Compliant electrical infrastructure 
- Improved monitoring and control to systems 
- Options for enhanced operating parameters 
- Increased time allocated for Observing 
- Improved system flexibility to allow new features 

- Reduced allocation time to maintenance 
- Reduced likelihood of breakdowns and defects 
- Reduced power consumption 



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Thank you

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