# Position Details

## Research Projects- CSOF5

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| The following information is for applicants |
| Advertised Job Title | Antenna and Radio Frequency Engineer |
| Job Reference | 73292 |
| Tenure | Specified Term of **three** years Full-time or Job-share (if circumstances permit) |
| Salary Range | AU$98k - AU$106k per annum (pro-rata for part-time), plus up to 15.4% superannuation |
| Location(s) | Marsfield (Sydney) New South Wales |
| Relocation Assistance | Will be provided to the successful candidate if required (within Australia) |
| Applications are open to | * Australian Citizens and Permanent Residents
* New Zealand Citizens who usually reside in Australia
* Australian temporary residents who are currently residing in Australia and have the right to work for the expected duration of the term (at least to end of July 2024), with no requirement for sponsorship
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| Position reports to the | Team leader in the Antenna and Receiver Technologies Group, CASS |
| Client Focus – Internal | 50%  |
| Client Focus – External | 50% |
| Number of Direct Reports | 0 |
| Enquire about this job | Stephanie Smith – Stephanie.Smith@csiro.au or telephone 02 9372 4131 |
| How to apply | Apply online at <https://jobs.csiro.au/> Internal applicants please apply via **Jobs Central**If you experience difficulties when applying, please email careers.online@csiro.au or call 1300 984 220. |

### Role Overview

The Antenna and Radio Frequency (RF) Engineer provides antenna array beamforming expertise to industry clients and large in-house projects. The initial focus will be on the phased array commercialisation project. The role involves using models of our phased array design to evaluate the capabilities with digital beamforming, including beamformer weights, aperture tapering and G/T with scan angle. The position interacts with other hardware and software engineers to implement and integrate the beamforming algorithms into the array, develop a measurement and test plan for a demonstration array and be involved in the commissioning of the demonstrator on site.

The position forms part of a skilled engineering team responsible for the development, production, and maintenance of low noise radio astronomy receiver systems together with associated RF, IF and electronic systems. The antennas and receiving systems operate over the frequency range 0.2 to 115 GHz and encompass the fields of cryogenically cooled microwave receivers, specialised RF and analogue electronics and highly integrated receivers.

### Duties and Key Result Areas

* Work closely with our antenna and signal processing engineers to optimise digital beamforming approaches for our array.
* Develop predictions of the array performance in various scenarios.
* Work closely with hardware and software engineers to implement the beamforming algorithms into the array.
* Develop measurement and test plans for evaluating array performance in our anechoic chamber and oversee the measurements.
* Maintain confidentiality when accessing commercially sensitive information of CSIRO and/or research or commercial partners.
* Conduct on-site commissioning measurement / verification of beamforming performance.
* Undertake element and array optimisation for future radio astronomy and commercial applications.
* Carry out antenna and feed system design and analysis for future radio astronomy receivers using HFSS or CST.
* Engage in project timelines, self-managing progress and responding to deadlines.
* Provide technical leadership within and outside the team and collaborate with other teams to meet objectives as required.
* Address problems promptly and in a constructive manner.
* Participate in project scoping and planning, making contributions to the technological direction.
* Effectively communicate concepts and results to internal and external parties, including those less familiar with the field.
* Communicate openly, effectively and respectfully with all staff, clients and suppliers in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation. This may include participating in local and overseas conferences.
* Work collaboratively as part of a multi-disciplinary, regionally dispersed research team.
* Adhere to the spirit and practice of CSIRO’s Values, Code of Conduct, Health, Safety and Environment procedures and policy, Diversity initiatives and Zero Harm goals.
* Other duties as directed.

## **Selection Criteria**

#### Essential

*Under CSIRO policy only those who meet all essential criteria can be appointed.*

1. A minimum of a bachelor’s degree in an area relevant to this position.
2. Demonstrated experience in complex antenna array analysis, such as antenna array modelling from either the antenna or signal processing fields, antenna array design, electromagnetic modelling and/or measurement.
3. Proven experience with electromagnetic analysis software, such as HFSS or CST Studio.
4. Proven experience and proficiency in programming, data manipulation, and data visualization using languages such as Python or MATLAB.
5. Sound judgement in selecting appropriate approaches to solving complex technical problems.
6. Excellent communication skills with a strong client focus, and a history of successful relations across a range of stakeholder groups.
7. The ability to work effectively both individually and as a member of a high-functioning technical team.

## **Desirable**

1. Experience with radio astronomy systems including low noise receiving systems, particularly arrays.
2. Knowledge of ground stations or satellite tracking.
3. Eligibility to obtain a security clearance at the Secret (NV1) level (if required).

## **Required Competencies**

* **Teamwork and Collaboration:** Cooperates with others to achieve organisational objectives and may share team resources in order to do this. Collaborates with other team as well as industry colleagues.
* **Influence and Communication:** Uses knowledge of other party's priorities and adapts presentations or discussions to appeal to the interests and level of the audience. Anticipates and prepares for others reactions.
* **Resource Management/Leadership:** Sets up and maintains effective and efficient work teams and manages performance and resources, to achieve objectives. Chooses appropriate management strategies and communication styles to maintain high levels of motivation and productivity. Gives feedback for development purposes and provides support and direction for improvement.
* **Judgement and Problem Solving:** Investigates underlying issues of complex and ill-defined problems and develops appropriate response by adapting/creating and testing alternative solutions.
* **Independence:** Plans, sets and works to meet challenging standards and goals for self and/or others. Recognises where endeavours will make the most impact or difference, decides on desired outcome and sets realistic goals to reach this target.
* **Adaptability:**Copes with ambiguity or situations that lack clarity. Adapts readily to changing circumstances and new responsibilities (which may include activities outside own preferences) in the interests of achieving team objectives. Recognises the need for and undertakes personal development as a result of changes.

Special Requirements

The successful candidate will be asked to obtain and provide evidence of a National Police Clearance or equivalent. Please note that individuals with criminal records are not automatically deemed ineligible. Each application will be considered on its merits.

To be eligible for this position you must be willing and able to work flexible hours when required, and spend periods of up to two weeks at a time working at locations away from Sydney. While most of the work will be in office and laboratory environments, at times field work in various weather conditions will be required.

## **About CSIRO**

We solve the greatest challenges through innovative science and technology. Visit [CSIRO Online](http://www.csiro.au/) and [CSIRO Astronomy and Space Science](https://www.csiro.au/en/Research/Astronomy) for more information.

CSIRO is a values-based organisation.  In your application and at interview you will need to demonstrate behaviours aligned to our values of:

1. People First
2. Further Together
3. Making it Real
4. Trusted