# Position Details

## Research Projects- CSOF5 / CSOF6

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| The following information is for applicants |
| Advertised Job Title | Mechanical Engineer – Space and Astronomy |
| Job Reference | 91481 |
| Tenure | Specified term of 3 years - Full-time or Part-time (minimum 0.8 FTE)*Note that visa sponsorship may not be available for part-time appointments* |
| Salary Range | **CSOF5** AU$105k - AU$114k or **CSOF6** AU$121k - AU$142k per annum(pro-rata for part-time) plus up to 15.4% superannuation (pension fund) |
| Location(s) | Marsfield (Sydney) New South Wales, Australia |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | All candidates - visa sponsorship will be provided if required |
| Position reports to the | Team Leader in Antenna and Receiver Technologies Group |
| Client Focus – Internal | 50% |
| Client Focus – External | 50% |
| Number of Direct Reports | 0 |
| Enquire about this job | Stephanie Smith via email Stephanie.Smith@csiro.au or phone +61 2 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. |

**Acknowledgement of Country**

CSIRO acknowledges the Traditional Owners of the land, sea and waters, of the areas that we live and work on across Australia. We acknowledge their continuing connection to their culture and pay our respects to their Elders past and present. View our [vision towards reconciliation](https://www.csiro.au/en/about/Indigenous-engagement/Reconciliation-Action-Plan).

### Role Overview

The Mechanical Engineer is a member of the Antenna and Receiver Technologies group within CSIRO’s Space and Astronomy business unit. The position is offered across two salary levels, with the expected outputs and requirements of each level outlined within this document.

For a CSOF6 appointment, the Mechanical Engineer will lead mechanical design and development of high value low quantity technology products for use in radio astronomy and space science, whereas a CSOF5 appointee will be part of a team undertaking these activities. The antennas and receiving systems operate over the frequency range 0.2 to 115 GHz and encompass the fields of cryogenically cooled microwave receivers, phased array feed systems, specialised RF electronics, digital and signal processing systems.

The role involves Finite Element Analysis (FEA); thermal modelling; mechanical design and the production of Statements of Work, engineering reports and engineering drawings to AS1100 (or equivalent). At the CSOF6 level, the Mechanical Engineer will lead projects and interact with contract manufacturers and suppliers to ensure engineering developments are conducted to an agreed standard and within agreed timelines and budget. The CSOF5 position will lead activities and parts of projects (with potential scope to lead projects in the future), and both will provide leadership and mentoring to junior engineers and technicians. The CSOF6 position may also provide team leadership at times, with a view to possibly taking on the role more permanently in the longer term (by mutual agreement).

CSIRO Space and Astronomy operate a number of world-class radio astronomy observatories that are collectively known as the Australia Telescope National Facility or the ATNF. We are one of the world’s leading astronomical facilities and Australia’s premier radio astronomy research organisation. S&A is also a participant in ground-breaking projects such as the international Square Kilometre Array (SKA) project which has the goal of building the world’s most sensitive radio telescope and a satellite communications ground station project in partnership with the CSIRO spin-out Quasar.

### Duties and Key Result Areas

* Undertake mechanical design tasks including Finite Element Analysis (FEA), and thermal modelling associated with the development of antennas, receiver and feed systems, radio frequency and digital systems for use in radio astronomy and/or space science applications.
* Produce high quality engineering/project reports and engineering drawings to AS1100 (or equivalent) suitable for distribution to clients, suppliers and contractors.
* Oversee the fabrication of prototype and/or proof-of-concept components or assemblies using in-house facilities.
* Lead and manage activities and parts of projects and assist with elements of larger projects including the management of external contracts to ensure engineering developments are conducted within agreed timelines and budget.
* As required, represent CSIRO externally, including in public forums, with industry or the research sector or with Government.
* Manage interactions, including confidential discussions and meetings, with commercial partners. This may involve access to personal or commercially sensitive information.
* Work effectively as an integral member of a multi-disciplinary team comprising scientists, engineers and technicians, at times working under broad guidance from more senior members of staff.
* Provide leadership and mentoring to junior engineers and technicians.
* Travel to S&A observatories and other sites to assist in the maintenance, development, verification and commissioning of instrumentation.
* Communicate effectively and respectfully in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation.
* Work collaboratively and honestly with internal and external colleagues, clients and partners to develop and progress a range of research projects.
* Adhere to the spirit and practice of CSIRO’s Values, Health, Safety and Environment plans and policies, Diversity initiatives and Zero Harm goals.
* Other duties as directed.

**For appointment at the higher salary level (CSOF6), duties will also include:**

* Lead and manage interactions with contract manufacturers and suppliers to ensure engineering developments are conducted to an agreed standard and within agreed timelines and budget.
* Lead and manage small research projects and assist with elements of larger projects including the management of external contracts to ensure engineering developments are conducted within agreed timelines and budget.

**Selection Criteria**

**Essential**

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

1. A bachelor’s degree in Mechanical or other relevant Engineering field.
2. Demonstrated experience in the use of industry standard 3D mechanical CAD tools (AutoCAD Inventor or equivalent) in the analysis and mechanical design of high value low quantity systems.
3. Demonstrated experience in the use of NASTRAN Mechanical FEA (or equivalent) as well as thermal analysis of cryogenic systems.
4. Demonstrated ability to produce high quality engineering reports and engineering drawings to AS1100 (or equivalent), suitable for manufacture by suppliers and/or contractors.
5. Demonstrated ability to work both collaboratively and autonomouslyas part of a multi-disciplinary team.

**Desirable:**

1. An understanding of structured system engineering and project management principles.
2. Experience in the design of high vacuum systems and an understanding of material behaviour including composites within this environment.
3. Experience in the maintenance, design, installation, verification and commissioning of astronomy instrumentation.
4. Experience in the design of cryogenic and/or refrigeration systems, with an understanding of the materials used in these applications.
5. Experience providing engineering leadership and mentorship, supporting junior engineers and technicians in their professional development.

**For appointment at the higher (CSOF6) salary level, as well as satisfying the Essential Criteria listed above, you must also have:**

1. Significant experience demonstrated in the use of industry standard 3D mechanical CAD tools (AutoCAD Inventor or equivalent) in the analysis and mechanical design of high value low quantity systems.
2. Significant experience demonstrated in the use of NASTRAN Mechanical FEA (or equivalent) as well as thermal analysis of cryogenic systems.
3. Proven experience leading the design, development, verification and maintenance of high-value engineering products, such as science instrumentation.
4. Demonstrated experience providing engineering leadership and mentorship, supporting junior engineers and technicians in their professional development.

## **Required Competencies**

* **Teamwork and Collaboration:**

**CSOF5&6** 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:**

**CSOF5** 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.

**CSOF6** Identifies critical stakeholders and influences them via an influential third party, for example through an established network, to gain support for sometimes contentious, proposals / ideas.

* **Resource Management/Leadership:**

**CSOF5&6** 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:**

**CSOF5** Investigates underlying issues of complex and ill-defined problems and develops appropriate response by adapting/creating and testing alternative solutions.

**CSOF6** Anticipates and manages problems in ambiguous situations. Develops and selects an appropriate course of action and provides for contingencies. Evaluates, interprets and integrates complex bodies of information and draws logical conclusions, synthesises proposals and defends options with reasoned arguments.

* **Independence:**

**CSOF5** 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.

**CSOF6** Assesses the risk and opportunity of identified strategies, options and actions. Overcomes problems and setbacks in achieving goals. Invariably includes consideration of value-added future impact on bottom line when determining the optimal and efficient use of resources.

* **Adaptability:**

**CSOF5** 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.

**CSOF6** Demonstrates flexibility in thinking and adapts to and manages the increasing rate of organisational change by adjusting strategies, goals and priorities.

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, applicants must be willing and able to:

 - work flexible hours when required;

 - spend periods of up to two weeks at time working at locations away from Sydney;

 - access and work at heights up to 100M above the ground;

 - work in confined spaces.

## **About CSIRO**

We solve the greatest challenges through innovative science and technology. Visit [CSIRO Online](http://www.csiro.au/) and [Space and Astronomy](https://www.csiro.au/en/about/people/business-units/Space-and-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:

* People First
* Further Together
* Making it Real
* Trusted