

# Job Title: Radio Frequency Sources Engineer IO1067

Requisition ID **6423** - Posted - (France, 13067 St Paul Lez Durance Cedex) - **Engineering of Systems - New Posting**

The ITER Organization brings together people from all over the world to be part of a thrilling human adventure in southern France—building the ITER Tokamak. We require the best people in every domain.

We offer challenging full-time assignments in a wide range of areas and encourage applications from candidates with all levels of experience, from recent graduates to experienced professionals. Applications from under-represented ITER Members and from female candidates are strongly encouraged as the ITER Organization supports diversity and gender equality in the workplace.

Our working environment is truly multi-cultural, with 29 different nationalities represented among staff. The ITER Organization Code of Conduct gives guidance in matters of professional ethics to all staff and serves as a reference for the public with regards to the standards of conduct that third parties are entitled to expect when dealing with the ITER Organization.

The south of France is blessed with a very privileged living environment and a mild and sunny climate. The ITER Project is based in Saint Paul-lez-Durance, located between the southern Alps and the Mediterranean Sea—an area offering every conceivable sporting, leisure, and cultural opportunity.

To see why ITER is a great place to work, please look at this video

**Application deadline:** 24/07/2022

**Domain:** Engineering Domain

**Department:** Engineering Design Department

**Division:** Heating & Current Drive Division

**Section:** Ion Cyclotron Section

**Group:** Not applicable

**Job Family:** Engineering

**Job Role:** Engineer – 2

**Job Grade:** P2

**Language requirements:** Fluent in English (written & spoken)

**Contract duration:** Up to 5 years

## **Purpose**

As a Radio Frequency Sources Engineer, you will manage the installation and commissioning of the Ion Cyclotron (IC) sources. This work scope includes the coordination of the integration of the sources along with transmission line (TL) components, their supports in the Radio Frequency (RF) building and also support the Technical Responsible Officers on the procurement, in the preparation of the design reviews, delivery readiness reviews, assembly and integration on site.

Preparation of the execution of RF sources acceptance tests and reporting of the results is also included in this responsibility.

## **Background**

The IC system will be used at ITER for Heating and Current Drive (H&CD) in a number of plasma operating scenarios, providing 20MW of power to the plasma by means of two antenna installed in the equatorial ports. That power aims to increase the energy content in the plasma to assist fusion operation and control internal plasma parameters. The IC H&CD system is a powerful radiofrequency system composed of power supplies, RF sources, transmission line system and a set of antennas facing the plasma. The RF sources include 18 amplifier chains and 9 combiners, which together constitute 9 sources that can provide each up to 3MW for 3000 seconds in a frequency range of 40-55MHz to a matched load.

The RF sources will be tested on matched as well as on mismatched load, simulating plasma condition. The layout in the RF building allows interconnecting the RF sources with the 8 main transmission lines, the 2 high power dummy loads and Mis-Match Transmission Line (MMTL) system.

### **Key Duties, Scope, and Level of Accountability**

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- Coordinates the RF sources integration along with TL components and their supports in the RF building and prepares the testing and commissioning plan;
- Follows qualification of IC sources and TL components for RF building procured by the Domestic Agencies (DAs);
- Prepares integration of the IC sources into the rest of the IC system, which includes management of interfaces (control system, interlocks, cooling, building, services);
- Contributes to the preparation of installation contracts within the ITER Organization (IO) scope, contributing the necessary Engineering Work Packages as required;
- Executes tests of RF sources as defined in acceptance procedure;
- Execute tests of TL components in RF building as defined in acceptance procedure;
- Develops and maintains the RF sources commissioning, operation and maintenance documentation;
- Provides training to IO staff and contractors on commissioning, operating or maintaining the RF sources;
- Prepares plans for the update and improvement of the RF power plant;
- Reports variances on all technical, cost and schedule aspects and proposes recovery actions when necessary;
- Supports effective risk identification, mitigation and management;
- May be requested to be part of any of the project/construction teams and to perform other duties in support of the project;
- May be required to work outside ITER Organization reference working hours, including nights, week-ends and public holidays.

### **Measure of Effectiveness**

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- Effectively coordinates and manages the qualification of RF sources and TL components for RF building performed by the DAs;
- Proactively coordinates, reports and follows up on integration of RF sources along with TL components in RF building;
- Develops cost effective installation and testing and commissioning plans;
- Communicates well and maintains high professional standards when interfacing with staff from the IO, DAs and all other stakeholders.
- Maintains high-quality technical documentation of RF power plant.

### **Experience & Profile**

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- **Professional Experience:**
  - At least 5 years' experience in installation, testing and commissioning of Ion Cyclotron sources/RF Sources within complex international environments or projects;
- **Education :**
  - Master's degree or equivalent in Science or Engineering in a relevant area.
  - The required education degree may be substituted by extensive professional experience involving similar work responsibilities and/or additional training certificates in relevant domains.
- **Language requirements:**
  - Fluent in English (written and spoken).
- **Technical Competencies and demonstrated experience in:**
  - Specialized Domain of Expertise (High Power RF Sources): High power RF equipment integration, testing, operation and maintenance, including excellent technical level in radio frequency domain technology;

- Systems engineering and engineering standards such as regulation compliances (such as European Directives);
- Interface management: identifying technical, operational, and contractual interfaces to proactively reach resolution of issues, communicates issues and solutions with stakeholders;
- Contract Management and Execution for complex systems;
- Report Writing: Proficient at writing technical reports and design guidelines;
- Experience in development of IC components for similar applications is an advantage;
- Quality Control: Verifying the compliance of components within nuclear industry with all applicable requirements would be an advantage.
- **Behavioral Competencies:**
  - Collaborate: Ability to facilitate dialogue with a wide variety of contributors and stakeholders;
  - Communicate Effectively: Ability to adjust communication content and style to deliver messages to work effectively in a multi-cultural environment;
  - Drive results: Ability to persist in the face of challenges to meet deadlines with high standards;
  - Manage Complexity: Ability to analyze multiple and diverse sources of information to understand problems accurately before moving to proposals;
  - Instill trust: Ability to apply high standards of team mindset, trust, excellence, loyalty and integrity.

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***The following important information shall apply to all jobs at ITER Organization:***

- Maintains a strong commitment to the implementation and perpetuation of the ITER Safety Program, ITER Values (Trust; Loyalty; Integrity; Excellence; Team mind set; Diversity and Inclusiveness) and Code of Conduct;
- ITER Core technical competencies of 1) Nuclear Safety, environment, radioprotection and pressured equipment 2) Occupational Health, safety & security 3) Quality assurance processes. Knowledge of these competencies may be acquired through on-board training at basic understanding level for all ITER staff members;
- Implements the technical control of the Protection Important Activities, as well as their propagation to the entire supply chain;
- May be requested to work on beryllium-containing components. In this case, you will be required to follow the established ITER Beryllium Management Program for working safely with beryllium. Training and support will be provided by the ITER Organization;
- May be requested to be part of any of the project/construction teams and to perform other duties in support of the project;
- Informs the IO Director-General, Domain Head, or Department/Office Head of any important and urgent issues that cannot be handled by line management and that may jeopardize the achievement of the Project's objectives.