

# Job Title: Microwave Diagnostics Engineer IO0584

Requisition ID **6805** - 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.

ITER Organization (IO) is an Equal Opportunity/Inclusive organization committed to diversity in the workplace, with diversity and Inclusiveness being one of the ITER Values.

As IO attracts and retains people coming from a vast array of different backgrounds and cultures, bias and exclusion cannot be tolerated. IO believes it is our diverse perspectives and backgrounds that gives unique strength and value to the ITER mission, regardless of race, member nation, gender, religion, status, sexual orientation, or disability - all are welcome and respected at ITER.

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:** 15/01/2023

**Domain:** Engineering Domain

**Department:** Engineering Design Department

**Division:** Port Plugs & Diagnostics Division

**Section:** In-Vessel Diagnostics Section

**Group:** Laser and Microwave Systems

**Job Family:** Engineering

**Job Role:** Engineer – 3

**Job Grade:** P3

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

**Contract duration:** Up to 5 years

## **Purpose**

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As a Microwave Diagnostics Engineer, you will manage microwave diagnostic systems including certain procurement arrangements from: Low Field Side Reflectometer (LFSR), High Field Side Reflectometer (HFSR), Electron Cyclotron Emission (ECE) and Collective Thomson Scattering (CTS). You will maintain the interfaces of these systems, supervise the design and direct procurement, in addition to planning and agreeing all necessary assembly/ commissioning activities for these systems.

## **Background**

*The aim of diagnostics is to provide the measurements to control and understand the plasma so as to achieve the ITER operation goals and gain the knowledge needed for future reactor design. The Port Plug and Diagnostics Division (PPD) provides all the Diagnostics for ITER, along with the engineering infrastructure to support these.*

*IVD prepares 39 diagnostic projects to support ITER operation. Twelve of these diagnostics measure plasma parameters using optical interferometry, polarimetry, mm-wave and optical scattering techniques. The systems employ high power lasers from the far infra-red (FIR) to the visible and coherent sources and receivers from the cm to the mm range. Their measurements aim to control plasma performance and to gain the knowledge needed for reactor designs.*

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

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- Oversees design and construction of several of these systems: Low Field Side Reflectometer (LFSR), High Field Side Reflectometer (HFSR), Electron Cyclotron Emission (ECE) and in-vessel part of Collective Thomson Scattering (CTS) systems:
  - Provide oversight to Domestic Agency (DA) activities;
  - Leads the definition and maintains interfaces;
  - Plans and specifies assembly and integration on site;
  - Ensures DA and IO schedules are compatible at all times.
- Manages IO projects (In-vessel stray microwave radiation sensors and ex-vessel part of CTS):
  - Leads the supply of the systems
  - Determines, organizes and executes all supporting R&D and qualification processes;
  - Manages the hardware and software direct procurement activities;
  - Manages the commissioning preparation activities and support commissioning;
  - Plans and specifies assembly and integration activities on site;
- Monitors service contracts including visits and deliverables;
- Reports variances on all technical, cost and schedule aspects immediately to the Group Leader;
- Supports effective risk identification and management;
- Manages the change control process for the work and communicates changes to the line management;
- Maintains related documentation at all times on the ITER Documentation System and ensure it is updated and in the correct format;
- 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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- Work packages completed to agreed deadlines;
- Develops and obtains approval of interface documentation, schematics plans and databases;
- Develops and obtains approval of technical documentation for procurement;
- Develops and obtains approval of installation and commissioning plans;
- Successful collaboration with technical partners in Domestic Agencies and other Directorates at IO; Efficient work at all times with other Diagnostics team members.

### **Experience & Profile**

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- **Professional Experience:**
  - Minimum 8 years' experience in the design, construction or operation of microwave instrumentation, within complex international environments or projects;
- **Education:**
  - Master degree or equivalent in Physics or Engineering;
  - 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).

- **Other requirements:**
  - For staff expected to perform on-call, shift hours, or other work outside ITER Organization reference working hours, including nights, weekends, and public holidays, the possession of a driving license valid in France is required. No commuting vehicle will be provided by the ITER Organization.
- **Technical competencies and demonstrated experience in:**
  - **Interface Management:** Technical integration of complex mechanical systems and ensuring design compliance of complex mechanical systems with other interfacing systems.
  - **Design:** Development and design of microwave diagnostic system for plasma experiments, including design defense in technical design reviews;
  - **Procurement & Project Management:** Management of contracts for hardware and software, including the ability to project costs and resources for technical projects;
  - **Problem Solving:** Ability to assess complex problems, identify root causes, and reach practical solutions to reach project objectives within time and cost;
  - Delivering high quality technical consolidated reports and documentation in English;
  - **Quality Assurance/Quality Control:** Adhering to procedures and standards for the design, installation, commissioning and operation; working to international nuclear standards is advantageous;
  - Proven participation in experimental operations at a large device;
  - Familiarity with electrical and CAD diagrams would be advantageous.

***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 (Knowledge of these competencies may be acquired through on-board training at basic understanding level for all ITER staff members) :
  - 1) Nuclear Safety, Environment, Radioprotection and Pressured Equipment
  - 2) Occupational Health, Safety & Security
  - 3) Quality Assurance Processes
- ITER Core Behavioral Competencies :
  - 1) **Collaborate:** Ability to facilitate dialogue with a wide variety of contributors and stakeholders
  - 2) **Communicate Effectively:** Ability to adjust communication content and style to deliver messages to work effectively in a multi-cultural environment
  - 3) **Drive Results:** Ability to persist in the face of challenges to meet deadlines with high standards
  - 4) **Manage Complexity:** Ability to analyze multiple and diverse sources of information to understand problems accurately before moving to proposals
  - 5) **Instill Trust:** Ability to apply high standards of team mindset, trust, excellence, loyalty and integrity
    - 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.