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## JOB DETAIL

Ref. IO1828 - 3/3/2017

## Microwave Engineer - TED-087

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<b>Main job</b>	Electricity
<b>Department</b>	TED / Tokamak Engineering Department
<b>Division</b>	TED / Heating & Current Drive Division
<b>Section</b>	TED / HCD / Electron Cyclotron Section
<b>Job Family</b>	Engineer - 2
<b>Application Deadline (MM/DD/YYYY)</b>	04/16/2017
<b>Grade</b>	P3
<b>Direct employment</b>	Not required
<b>Purpose</b>	<p>To be technical responsible officer (TRO) for the Electron Cyclotron (EC) ex-vessel Waveguide (EW) which forms the first confinement including HE11 waveguide, isolation valve and diamond window. Furthermore, provide mechanical engineering support to the overall Electron Cyclotron (EC) system, the launchers and transmission line. This task includes the design finalization of the EW connected to both the equatorial and upper launchers, preparation of technical specifications, system requirements, Procurement Arrangement (PA) preparation and subsequent oversight of the PA activities leading to installation and operation of the EW. The EW-Technical Responsible Officer will also be responsible for Quality Assurance (QA) support, design and Safety and manufacturing follow-up; development of installation, operation and maintenance plans.</p> <p>To define and procure the associated measurement systems to be used for the EC system installation, commissioning and calibration.</p> <p>To perform the measurements during the installation, in-situ acceptance, calibration and periodic inspection.</p>
<b>Main duties / Responsibilities</b>	<p>-Performs the duties of the technical responsible officer for the Electron Cyclotron Ex-vessel Waveguide (EC-EW) procurement, which includes design finalization, Procurement Arrangement (PA) preparation, and oversight during the manufacturing, installation and commissioning phases followed by operation;</p> <p>-Co-ordinates the development of the final design of the EC EW in collaboration with IO-CT (ITER Central Team) and IO-F4E (European Domestic Agency);</p> <p>-Documents the design requirements, load specification, Safety functions, requirements propagation and verification, and Quality plans of the EW (in collaboration with the EU, JA and US DAs);</p> <p>-Ensures design compliance with ITER project requirements and with other ITER systems interfacing with the EW, note that the EW forms the first confinement system and bridges the transmission line to the launchers;</p> <p>-Monitors the final design development and prototype tests of the EW, including the diamond window, isolation valve, waveguide and prototype assemblies;</p> <p>-Co-ordinates the development of the draft qualification and test program of the EW in parallel with the prototype tests of the launchers and transmission line, leading to a final qualification program associated with the manufacturing, assembly, installation and commissioning of the EW;</p> <p>-Assists in the monitoring of Quality Programs associated with the sub-system procurements;</p> <p>-Provides assistance in the above activities for the overall EC system development;</p> <p>-Performs the associated measurements (in collaboration with the other EC TROs) of the installed EC equipment to ensure compliance for operation;</p> <p>-Performs calibration of the integrated system and defines the periodic inspection plans;</p> <p>-Maintains the requirement compliance matrix associated with the EC-EW based on the above measurements;</p> <p>-Performs other duties in support of the project schedule;</p> <p>-May be requested to be part of any of the project/construction teams and to perform other duties;</p>
<b>Measures of effectiveness</b>	<p>-Maintains a strong commitment to the implementation and perpetuation of the ITER Safety Program, values and ethics.</p> <p>-Reports to the Electron Cyclotron Section Leader;</p> <p>-Acts as an interface between the ITER Organization and the Domestic Agencies in developing/monitoring/evaluating contracts, task agreements and system development management;</p>

-In response to requests from the Director-General and/or Tokamak Engineering Department (TED) Head, or proactively, informs the DG/ TED Head of any important and urgent issues that cannot be handled by the concerned line management and may jeopardize the achievement of the Project's objectives.

-Achieves the development of the EW final design progressing toward procurement as measured by the annual work plan and project master schedule milestones;  
 -Improves and updates documentation management, quality compliance, system integration associated with the EW;  
 -Develops within the defined schedule the technical specifications and procedures to ensure the EW is compliant with IO requirements and Safety regulations;  
 -Prepares the test program and test equipment requirements documents within the defined cost and schedule;

Project Construction Phase

<b>Level of study</b>	Master or equivalent degree
<b>Diploma</b>	Electrical eng, microwave or other relevant
<b>Level of experience</b>	At least 8 years
<b>Technical experience/ knowledge</b>	<p>-Further education and/or training in metrology, and systems engineering is an advantage;          -Extensive experience in similar jobs (involving similar work responsibilities) and/or additional training certificates in relevant domains may be considered a reasonable substitute for the required educational degree.</p> <p>-At least 8 years' experience in performing low and high power measurements of microwave systems;          -At least 3 years' experience in operation of high power microwave equipment for fusion applications (or equivalent);          -Experience in requirement propagation and generating test programs is an advantage;          -Experience in performing high (above 200kW) and low power microwave measurements in the frequency range of 60 to 200GHz;          -Experience in operation of high power microwave equipment for fusion applications or equivalent;          -Experience in installation and operation of an EC system on magnetic confinement device is an advantage;</p>
<b>Social skills</b>	<p>Ability to work effectively in a multi-cultural environment          Ability to work in a team and to promote team spirit</p>
<b>Specific skills</b>	<p>Ansys          CATIA          MS Office standard (Word, Excel, PowerPoint, Outlook)</p>
<b>General skills</b>	<p>-Experience in metrology measurements is an advantage;          -Experience with system engineering and engineering standards (for example: ISO 15288, ISO 1101, ISO 2768, EN 10028, EN 13445, RCC-MR, ASME BPVC), regulation compliances (such as European Directives) and quality management (for example: ISO 9000s, IAEA GS-R-3, ASME NQA-1) is an advantage;          -Proficient at writing technical reports and design guidelines.</p>
<b>Others</b>	<p>-Experience using analytical programming required,          -Experience using CATIA and/or ANSYS is an advantage.</p>
<b>Languages</b>	English (Fluent)

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