

Technical Specifications (In-Cash Procurement)

Expert support to Heat and Imaging System Design Integration

CFE for:

The purpose of this contract is to provide expert support to system integration and interface consolidation for the ITER Heat and Imaging Diagnostics.

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1 Purpose

The purpose of this contract is to provide expert support to system integration and interface consolidation for the ITER Heat and Imaging Diagnostics.

2 Scope

The ITER Heat and Imaging Systems comprise the suite of visible and infrared diagnostics, the Divertor Flow Monitor, the Lost Alpha Monitor and Bolometers. For these diagnostics, the contractor will be requested to perform the following activities and tasks:

- Manage the interfaces with diagnostic ports, as well as other ITER PBSs;
- Support the integration in diagnostic ports;
- Support review of technical documents from IO contractors and DAs;
- Support to technical actions related to integration, interfaces and progress meetings
- Support to design integration review and design review meetings;
- Support to creation of Engineering Work Packages;
- Support the update of Contextual Models;
- Support the creation and update of 2D diagrams
- Support the identification and management of technical risks
- Support the update of schedules and ensure that these are compatible with the port integration schedules
- Create technical documents, interface sheets, meeting notes, and presentations for the areas above

The contractor shall be able to work independently and with minimum supervision to manage the aforementioned tasks.

Part of this work is due to redesign of the heat and Imaging systems installed in the equatorial port 17 due to integration of the Disruption Mitigation System. Another part is due to the need of an integrated approach for local shielding design of back-end equipment of the heat & imaging systems in the port-cell support structures. Transversal technical activities (related to interface management and to consolidation of maintenance, commissioning and operation procedures) to support system design teams and port integrators are thus needed to secure proper design maturity level for the expected design reviews.

3 Definitions

CRO	Contractor Responsible Officer
IDM	ITER Document Management system
IO	ITER Organization
IO-CT	ITER Organization – Central Team
PBS	Plant Breakdown Structure

For a complete list of ITER abbreviations see: [ITER Abbreviations \(ITER_D_2MU6W5\)](#).

4 Estimated Duration

The duration of this contract is 12 months.

5 Work Description

The work within this contract includes:

- Manage the interfaces with diagnostic ports, as well as other ITER PBSs;
- Support the integration in diagnostic ports;
- Support review of technical documents from IO contractors and DAs;
- Support to technical actions related to integration, interfaces and progress meetings
- Support to design integration review and design review meetings;
- Support to creation of Engineering Work Packages;
- Support the update of Contextual Models;
- Support the creation and update of 2D diagrams
- Support the identification and management of technical risks
- Support the update of schedules and ensure that these are compatible with the port integration schedules
- Create technical documents, interface sheets, meeting notes, and presentations for the areas above

The contractor shall be able to work independently and with minimum supervision to manage the aforementioned tasks.

The progress on each of these tasks will be summarized in a Progress Report. Each progress report constitutes a deliverable (D1-D3) and will include report on progress on one or more tasks.

Where necessary, the contractor shall collect the required input information by interacting proactively with IO staff and contractors.

The total amount of services required for this contract corresponds to 0.4 ppy distributed over 12 months duration of the contract.

6 Responsibilities

6.1 Contractor's Responsibilities

In order to successfully perform the tasks in these Technical Specifications, the Contractor shall:

- Strictly implement the IO procedures, instructions and use templates;
- Provide experienced and trained resources to perform the tasks;
- Contractor's personnel shall possess the qualifications, professional competence and experience to carry out services in accordance with IO rules and procedures;
- Contractor's personnel shall be bound by the rules and regulations governing the IO ethics, safety and security IO rules.

6.2 IO's Responsibilities

The IO shall:

- Nominate the Responsible Officer (CRO) to manage the Contract;
- Organise regular progress meetings and the kick-off meeting;
- Provide required input information for the Contractor.

7 List of Deliverables and due dates

D1	Progress report #1 on tasks defined in section 5	T0 + 4 months
D2	Progress report #2 on tasks defined in section 5	T0 + 8 months
D3	Progress report #3 on tasks defined in section 5	T0 + 12 months

T0 corresponds to date of the kick-off meeting.

8 Acceptance Criteria

These criteria shall be the basis of acceptance by IO following the successful completion of the services:

- The deliverable will be in the form of report as specified in Section 7.
- The deliverable will be uploaded in the Contractor's dedicated folder in the ITER Organization's document management system IDM.
- The CRO for the contract is the Approver of the delivered document.
- The CRO can ask modifications to the report in which case the Contractor must submit a new version.

The acceptance of the document by the Approver is the acceptance criterion.

9 Specific requirements and conditions

- The contractor shall be an expert in imaging or similar system design, integration and commissioning in large scale installation such as tokamaks.
- The contractor shall have experience with operation of imaging diagnostics in tokamaks.
- The contractor shall work independently with minimum supervision to achieve the objectives and deliverables specified in this technical specification.

10 Work Monitoring / Meeting Schedule

The work will be monitored by means of Progress Meetings and through the formal exchange of documents and information by emails. Progress meetings will be held as needed and at least once per month. The Kick-off Meeting shall take place within two weeks from the contract signature.

11 Delivery time breakdown

See Section 8 “List Deliverables section and due dates”.

12 Quality Assurance (QA) requirements

The organisation conducting these activities should have an ITER approved QA Program or an ISO 9001 accredited quality system.

The general requirements are detailed in [ITER Procurement Quality Requirements \(ITER_D_22MFG4\)](#).

Prior to commencement of the task, a Quality Plan must be submitted for IO approval giving evidence of the above and describing the organisation for this task; the skill of workers involved in the study; any anticipated sub-contractors; and giving details of who will be the independent checker of the activities (see [Procurement Requirements for Producing a Quality Plan \(ITER_D_22MFMW\)](#)).

Documentation developed as the result of this task shall be retained by the performer of the task or the DA organization for a minimum of 5 years and then may be discarded at the direction of the IO. The use of computer software to perform a safety basis task activity such as analysis and/or modelling, etc. shall be reviewed and approved by the IO prior to its use, in accordance with Software qualification policy (ITER_D_KTU8HH).

13 CAD Design Requirements (if applicable)

For the contracts where CAD design tasks are involved, the following shall apply:

The Supplier shall provide a Design Plan to be approved by the IO. Such plan shall identify all design activities and design deliverables to be provided by the Contractor as part of the contract.

The Supplier shall ensure that all designs, CAD data and drawings delivered to IO comply with the Procedure for the Usage of the ITER CAD Manual ([2F6FTX](#)), and with the Procedure for the Management of CAD Work & CAD Data (Models and Drawings [2DWU2M](#)).

The reference scheme is for the Supplier to work in a fully synchronous manner on the ITER CAD platform (see detailed information about synchronous collaboration in the ITER [GNJX6A](#) - Specification for CAD data production in ITER Contracts.). This implies the usage of the CAD software versions as indicated in CAD Manual 07 - CAD Fact Sheet ([249WUL](#)) and the connection to one of the ITER project CAD data-bases. Any deviation against this requirement shall be defined in a Design Collaboration Implementation Form (DCIF) prepared and approved by DO and included in the call-for-tender package. Any cost or labour resulting from a deviation or non-conformance of the Supplier with regards to the CAD collaboration requirement shall be incurred by the Supplier.

14 Safety requirements

ITER is a Nuclear Facility identified in France by the number-INB-174 (“Installation Nucléaire de Base”).

Compliance with Defined requirements for PBS 55 - Diagnostics (NPEVB6 v2.0) or its flowed down requirements in SRD-55 (Diagnostics) from DOORS (28B39L v5.2) is mandatory.