

Technical Specifications (In-Cash Procurement)

Technical Specifications_Diagnostics expertise for Instrumentation & Control and Electrical Services

The technical need described in this technical specifications constitutes system engineering and interface management for Electrical Services and Instrumentation & Control systems across all diagnostic systems.

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1 Purpose

This document describes technical needs for Diagnostics expertise in the area of Instrumentation & Control and Electrical Services.

2 Scope

The technical need described below constitutes system engineering and interface management for Electrical Services and Instrumentation & Control systems across all diagnostic systems.

3 Definitions

C-R: Contractor Responsible. See Contract specifications for definition of duty.

C-TRO: Contractor Task Responsible Officer. Carrying out the contract tasks. See Contract specifications for definition of duty.

IO-CT: ITER Organization (Central Team)

IO-DA: Domestic Agency

IO-TRO: ITER Organization Technical Responsible Officer. See Contract specifications for definition of duty.

PPD: Port Plug and Diagnostics Engineering Division

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

4 References

Links inserted in text.

5 Estimated Duration

The work shall be spread over the period of 1 year starting from the signature date of the contract. Services are to be fully provided at the IO work site. The contractor may be asked by the IO-TRO to perform travel missions of a short duration for the purpose of the execution of the Contract, they will be defined in the course of the contract.

6 Work Description

The task encompasses the following activities:

- Electrical engineering to support the development of electrical services including the common items.
- Interface management for electrical services to ensure alignment of work activities with overall project schedule
 - Expert support to the DAs for the preparation of electrical design data and review of submitted materials.
 - Interface management with the PBS 43 and 44 for the achievement of milestones (RFE and RFOC dates) for which PBS 55 inputs are required.

- Coordination of activities in the scope of rationalization of common electrical component specification and design.
- Radiation Hardness Assurance coordination for diagnostics electronics exposed to radiation
 - Work with DAs and with the IO-CT RHA coordinator for mitigation strategy elaboration.
 - Elaboration of a radiation test plan for cameras.
 - Organization of I&C coordination meeting, e.g. 2nd workshop on Diagnostic Electronics in Radiation Environment (DEiRE workshop).
- Project management related to the previous activity lines

The above work will be documented in a number of reports defined in Section 8 List of Deliverables and due dates.

7 Responsibilities

7.1 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.

7.2 IO's Responsibilities

The IO shall:

- Nominate the Responsible Officer to manage the Contract (IO-TRO);
- Organise a monthly meeting(s) on work performed;
- Provide offices at IO premises.
- Grant the access to the IDM as Author to the contractor, in order to upload documentations.

8 List of Deliverables and due dates

The main deliverables are listed in the table below

D #	Description	Due Dates
D01	Progress report on status of electrical interface data between PBS 55/57 and PBS 43 (SSEN) & 44 (Cable trays) & PBS 62 (buildings). The progress report will include review of schematics, technical notes and Interface Sheets prepared by the DAs and/or by the IO-CT.	T0 + 2 months

D02	Progress report on status of interfaces with PBS 46-47-48 including requirement clarifications. The progress report will include review of Interface Sheets prepared by the DAs and/or by the IO-CT.	T0 + 4 months
D03	Development plan for camera radiation test including description of test protocol, hardware and software functions to be tested, acceptance criteria and test report template.	T0 + 6 months
D04	Development plan for very low voltage power supply including functional and non-functional requirement specifications, interface management, and project planning.	T0 + 8 months
D05	Update of reports on status of electrical interface data between PBS 55/57 and PBS 43 & 44 and on status of interfaces with PBS 46-47-48.	T0 + 10 months
D06	I&C coordination (e.g. 2nd DEiRE workshop) including preparation of meetings, agenda elaboration, presentations and final reports.	T0 + 12 months

9 Acceptance Criteria

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

- The deliverables will be in the form of reports as indicated in section 8 “List of Deliverables and due dates”.
- The deliverables will be posted in the Contractor’s dedicated folder in IDM.
- The IO-TRO is the Approver of the delivered documents.
- The Approver can name one or more Reviewers(s) in the area of the report’s expertise.
- The Reviewer(s) 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.

10 Specific requirements and conditions

Experience of all skills and techniques in deliverable list – in particular:

1. Works with a team of scientists to achieve goals and objectives
2. Interface to virtual partner teams across the globe
3. Coordinate between IO-CT and all IO-DA and other stakeholders
4. First-hand knowledge and experience of formal project management
5. Proven experience of delivery on complex large-scale projects
6. Has a good knowledge of diagnostics interfacing with CODAC
7. Works with partners and host to define critical needs
8. Ability to work with the organization’s processes to achieve the best results
9. Ensures alignment of work priorities with overall project schedule

11 Work Monitoring / Meeting Schedule

The work will be managed by means of Progress Meetings and through the formal exchange of documents and transmitted by emails which provide detailed progress.

Progress Meetings will be called by the ITER Organization or the C-TRO. They will be held as needed and at least bi-monthly, either on the IO site or via videoconference. Progress meetings will involve C-TROs and the IO-TRO. External experts will be invited to discuss technical matters. The C-TRO will be invited in case of contractual discussions.

For all Progress Meetings, minutes, including action items, shall be written by the C-TRO and be stored in the ITER IDM in order to ensure traceability.

12 Delivery time breakdown

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

13 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 [Quality Assurance for ITER Safety Codes \(ITER_D_258LKL\)](#).

14 CAD Design Requirements (if applicable)

No CAD design tasks are foreseen for this contract.

15 Safety requirements

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

For Protection Important Components and in particular Safety Important Class components (SIC), the French Nuclear Regulation must be observed, in application of the Article 14 of the ITER Agreement.

In such case the Suppliers and Subcontractors must be informed that:

- The Order 7th February 2012 applies to all the components important for the protection (PIC) and the activities important for the protection (PIA).
- The compliance with the INB-order must be demonstrated in the chain of external contractors.
- In application of article II.2.5.4 of the Order 7th February 2012, contracted activities for supervision purposes are also subject to a supervision done by the Nuclear Operator.

For the Protection Important Components, structures and systems of the nuclear facility, and Protection Important Activities the contractor shall ensure that a specific management system is implemented for his own activities and for the activities done by any Supplier and Subcontractor following the requirements of the Order 7th February 2012 ([PRELIMINARY ANALYSIS OF THE IMPACT OF THE INB ORDER - 7TH FEBRUARY 2012 \(AW6JSB v1.0\)](#)).