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Statement of Work (SOW) for ICH 50-ohm Matched Switch Design, Prototype Fabrication, and Production

Abstract or description:

This SOW applies to the procurement of the design-built, prototype fabrication, production, and delivery of the ICH 50-ohm Matched Switch.

Workflow Role	Name	Date	Status
Signatory	Gouzy-Portaix, Sophie	28 Jan 2026	Signed
Reviewer	Campbell, Amelia	29 Jan 2026	Recommended
Reviewer	Drummond, Mark J.	05 Feb 2026	Recommended
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Approver	Hardy, Ben	09 Feb 2026	Approved

Change Log

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1. INTRODUCTION

1.1 Background

ITER is an international collaborative research project with a programmatic goal of demonstrating the scientific and technological feasibility of fusion energy for peaceful purposes. The European Union is the host party for the ITER facility, which is being constructed in Cadarache, France. The US contribution to ITER is managed by the US ITER Project Office (USIPO), which is hosted by Oak Ridge National Laboratory (ORNL) under contract with UT-Battelle (hereinafter referred to as the "Company"), and located in Oak Ridge, Tennessee. Responsibility for operating the completed ITER facility will belong to the ITER Organization (IO).

The USIPO has designed the gas- and water-cooled coaxial transmission lines for the ITER Ion Cyclotron Heating and Current Drive (ICH&CD) System. These lines are designed to carry up to 6 MW each of continuous wave (CW) power in a network connecting four (4) radio frequency (RF) power sources to the tuning and matching systems of one ion cyclotron (IC) antenna. These lines are required to transfer this power with high reliability.

1.2 Presentation of the ICH 50-ohm Matched Switch

The ITER ICH&CD System includes 301.5-mm-diameter transmission line components.

Development of these components will involve design, the manufacture, testing, evaluation, final acceptance of one (1) prototype 50-ohm Matched Switch, and the production of four (4) 50-ohm Matched Switches (production units).

The 50-ohm Matched Switch is represented in Figure 1 below.

Note: The figure is included only to indicate the power flows associated with the two switch positions. It should not be taken to indicate any other specific desired design features. Any such features are provided in the Technical Specification [1].

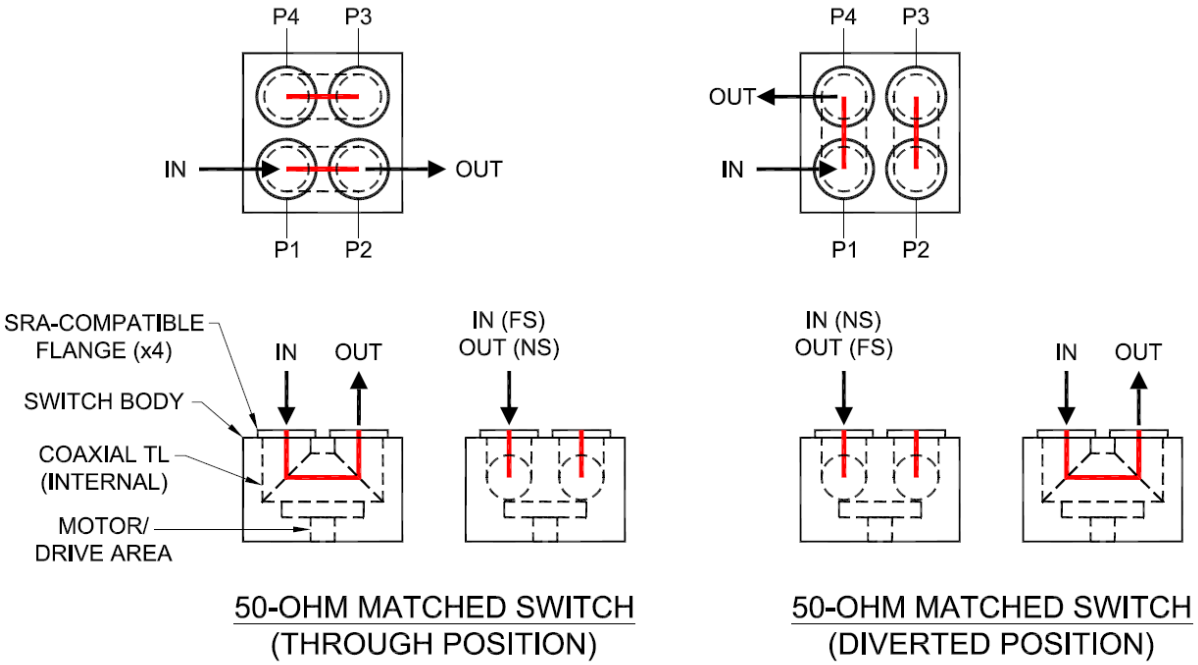

Figure 1: ICH 50-ohm Matched Switch

2. SCOPE

This Statement of Work (SOW) applies to the design of one (1) prototype 50-ohm Matched Switch (Part 1 of this SOW), optional fabrication of one (1) prototype 50-ohm Matched Switch (Part 2 of this SOW), and optional production of four (4) 50-ohm Matched Switches (Part 3 of this SOW) for the ITER ICH&CD System. Part 1 of the procurement begins with preparation of a Design Package for the prototype 50-ohm Matched Switch, and concludes with a Design Review for the prototype 50-ohm Matched Switch. Parts 2 and 3 of the procurement for prototype fabrication and final production are optional activities and may be awarded at the Company's discretion.

During operation, the 50-ohm Matched Switches will operate as shown in Figure 1. An RF source that can generate up to 6 MW of power in the operating frequency range (40-55 MHz) will drive the 50-ohm Matched Switches. Pulse lengths can be up to 3600 s.

The Seller is expected to demonstrate that the proposed design will meet the technical requirements through the Design Package presented at the Part 1 design review (Section 4.1.8). The Seller will also prepare and submit, as part of the Design Package, a Design Compliance Matrix (DCM) for the requirements in Technical Specification [1] for the prototype 50-ohm Matched Switch. The Design Compliance Matrix (DCM) will be the key deliverable to be used by the Company for design evaluation and approval.

After Company approval of the Preliminary Design Package proposed in Part 1, the Company may elect to have the Seller proceed to Part 2 for the manufacture, inspection, testing, packaging, and shipping of one (1) prototype 50-ohm Matched Switch. Qualification and factory acceptance testing

of the prototype unit will be performed by the Seller. Once the prototype passes these tests, it will be shipped to ORNL. After Company approval of the Final Design Package proposed in Part 1, after successful qualification and acceptance testing of the prototype unit, the Company may elect to have the Seller proceed to Part 3 for the manufacture, inspection, testing, packaging, and shipping of four (4) 50-ohm Matched Switches. Factory acceptance testing of the four (4) 50-ohm Matched Switches will be performed by the Seller. Once the four (4) 50-ohm Matched Switches pass these tests, they will be shipped to IO.

For the prototype:

- The Seller is responsible for the shipment from the Seller's facility to ORNL.
- The Seller is responsible for the selection of the transporter.
- The Seller is responsible for packaging and loading onto a transporter's conveyance (e.g. truck, van, trailer, vessel, ocean container, air freight container, rail car).

For the production units:

- The Company is responsible for the shipment from the Seller's facility to IO.
- The Company is responsible for the selection of the transporter.
- The Seller is responsible for packaging and loading onto the Company's Logistics Service Provider (LSP) conveyance (e.g. truck, van, trailer, vessel, ocean container, air freight container, rail car).

3. APPLICABLE DOCUMENTS

3.1 References

Reference documents are provided to supplement this SOW to the extent involved in defining tasks in this SOW. These documents include technical specifications, ITER design handbooks, procedures, and forms. National and international standards are to be provided by the Seller.

Note: Document and drawing references in this SOW, in the *Technical Specification for ICH 50-ohm Matched Switch* [1] will be identified and controlled in the document *Current References List (CRL) for the Procurement of ICH 50-ohm Matched Switch,* EDRM 8093562e.

3.2 Reference Documents

[1] Technical Specification for ICH 50-ohm Matched Switch, EDRM 8093562d

[2] Quality Plan Template for Suppliers and Subcontractors, EDRM 8043657d

[3] Requirements for Producing a Quality Plan, ITER_D_22MFMW

[4] Design Readiness Review Procedure, EDRM 8041072c

[5] Design Review Procedure, ITER_D_2832CF

[6] Design Analyses and Calculations Procedure, EDRM 803f35ae

[7] Working Instruction and Template for a DCM, ITER_D_4GNQEZ

[8] Design and Analyses Calculation Template, EDRM 8040e7d2

[9] Inspection Plan (IP) Template, EDRM 80411682

[10] Requirements for Producing an Inspection Plan, ITER_D_22MDZD

[11] Manufacturing Readiness Review (MRR) Procedure, EDRM 804a455c

[12] Manufacturing Dossier Guide, EDRM 803f3d28

[13] Manufacturing Dossier Template, EDRM 804105ba

[14] Contractor Release Note Form, EDRM 803f4967

[15] Contractor Release Note Procedure, EDRM 8041191f

[16] Non-Conformance Report Form, EDRM 8043b412

[17] Nonconformance Reports Procedure, EDRM 803f913f

[18] Deviation Request Form, EDRM 803f59df

[19] Deviation Request Procedure, EDRM 803fee84

[20] ASTM SI10, American National Standard for Metric Practice

[21] Transportation Clauses for Procurement - Guide, EDRM 8043ea05

4. PERFORMANCE REQUIREMENTS

All work under this SOW is to be performed at the Seller's Company-approved facility. If work under this SOW is to be performed at a lower-tier subcontractor's facility, Company approval is required prior to the beginning of such work.

The Seller shall provide all shop facilities, fabrication machines, qualified shop personnel, management personnel, materials, inspection services, testing services, cleaning services, packaging services, required suppliers/subcontractors, software, hardware, and office space for completing this scope of work.

After Company approval of the Preliminary Design Package proposed in Part 1 and after successful qualification and factory acceptance testing of the prototype 50-ohm Matched Switch, the Seller shall ship to ORNL:

- one (1) prototype 50-ohm Matched Switch, and associated documentation in accordance with the task descriptions and requirements identified in Sections 4.2.1 – 4.2.15 of this SOW.

After Company approval of the Final Design Package proposed in Part 1 and after successful factory acceptance testing of the four (4) 50-ohm Matched Switches, the Seller shall ship to IO:

- four (4) 50-ohm Matched Switches, and associated documentation in accordance with the task descriptions and requirements identified in Sections 4.3.1 – 4.3.17 of this SOW.

4.1 Part 1 − Detailed Design

4.1.1 Task 1.1: Communications Protocol

The Seller shall designate an official Point of Contact (POC) to interface with the Company's Technical Project Officer (TPO) for discussions, clarification or other technical issues. The POC designation shall be in the form of an e-mail sent to the Company's TPO with a copy to the Company's Procurement Officer. The POC designation shall be completed within five (5) working days after Award of Contract (AOC).

4.1.2 Task 1.2: Project Kickoff Meeting

A project kickoff meeting for Part 1 of this SOW will be scheduled at a mutually agreed date, time, and location as soon as practical after AOC. The primary purpose for the kickoff meeting is to confirm that the project participants understand the terms and conditions of the subcontract, the SOW, the Technical Specification [1], and drawings, the quality assurance requirements, and the work activities involved with each task.

The Seller shall prepare written kickoff meeting minutes, including the agreed itemization of the Design Package contents, and submit them to the Company's TPO for review within three (3) working days after the meeting.

4.1.3 Task 1.3: Preparation of Quality Plan (QP) for Part 1

The Seller shall prepare a Quality Plan (QP) specifically for Part 1 of this SOW in accordance with the requirements and guidelines in *Quality Plan Template for Suppliers and Subcontractors* [2] and *Requirements for Producing a Quality Plan* [3].

The QP for Part 1 shall include design specific details, existing Seller's procedures for design and analysis, design review, etc.

The QP for Part 1 of this SOW shall be submitted to the Company's TPO for review and approval within two (2) weeks after AOC. Company approval may take two (2) to four (4) weeks.

Work on Part 1 of this SOW may not begin until the Seller receives notice from the Company's TPO that the QP for Part 1 has been approved by the Company.

Any revised QP for Part 1 during work for Part 1 is subject to the same approval procedure as the original QP for Part 1.

Unless otherwise directed by the Company's TPO, in case of a QP revision during work for Part 1, work should continue in accordance with the current approved QP for Part 1 until the revised QP for Part 1 is accepted.

Approval of the QP for Part 1 by the Company represents a hold point. Design, procurement, or manufacturing operations shall not commence until the hold point is released. Return of the signed QP for Part 1 by the Company's TPO to the Seller's POC constitutes a hold point release.

The requirement for a QP shall be flowed down contractually from the Seller to the Seller's suppliers and subcontractors unless the requirement is waived in writing on a case-by-case basis by the Company. Examples not requiring a QP:

1) Commercial off-the-shelf (COTS) items (not modified for ITER)
2) R&D activities
3) Supply of services (that are not quality related services)
4) Subcontractor working under the Seller's quality program

Basis and method of flow down criteria for special processes (ex. welding, NDE, testing, etc.) shall be identified by the Seller.

The QP for Part 1 shall include conditions for special non-conformance requirements per Section 5.4.

4.1.4 Task 1.4: Preparation of Project Schedule for Part 1, Part 2 and Part 3

The Seller shall prepare a project schedule for Part 1, Part 2 and Part 3 of this SOW. The project schedule shall identify the planned activities of the design and fabrication of one (1) prototype 50-ohm Matched Switch, and production of four (4) 50-ohm Matched Switches to meet the schedule defined in this section. At minimum, the schedule shall identify planned activities such as major design activities, material procurements, manufacturing steps, fabrication, cleaning, measurement, inspection, assembly, testing, packaging and delivery of one (1) prototype 50-ohm Matched Switch, and of four (4) 50-ohm Matched Switches.

The project schedule shall be used to track progress towards completion of each contract milestone. For each contract milestone, the start and end dates for work activities included in that milestone will be given along with reporting the percent complete for that milestone.

The project schedule for Part 1, Part 2 and Part 3 of this SOW shall be submitted to the Company's TPO for review and approval within two (2) weeks after AOC. Company approval may take one (1) to two (2) weeks.

The project schedule for Part 1, Part 2 and Part 3 of this SOW shall identify the critical path for completion of Part 1, Part 2 and Part 3 of this SOW.

Subcontract deliverables described in Sections 6.1, 6.2, 6.3 for Part 1, Part 2 and Part 3 of this SOW shall be identified in the project schedule.

The project schedule for Part 1, Part 2 and Part 3 of this SOW shall be updated throughout the work process.

At a minimum, schedule updates must be submitted to the Company's TPO with the monthly report in accordance with Section 6.4.

4.1.5 Task 1.5: Preparation of Preliminary Design Package and Final Design Package

The Seller shall produce a Preliminary Design Package and a Final Design Package for the 50-ohm Matched Switch that meet or exceed the design requirements as specified in the Technical Specification [1], [4] and [5], which shall include the following:

1. The Seller shall provide a Design Package Contents List and send it to the Company's TPO for comment at least five (5) working days prior to the project kickoff meeting. The Design Package Contents List will be approved as part of the kickoff meeting minutes in accordance with the process. Each document identified in the approved Design Package Contents List shall be included in the Preliminary Design Package and Final Design Package.
2. Design evolution shall include reviews at the preliminary and final design maturity levels.
3. The Seller shall produce calculations to demonstrate that the design meets the electrical, mechanical, and thermal performance of the prototype 50-ohm Matched Switch, as specified in the Technical Specification [1], using numerical and/or analytical methods as needed.

The Seller shall submit the Preliminary Design Package and Final Design Package to the Company's TPO for review and approval. Company approval may take two (2) to four (4) weeks for each of the Preliminary Design Package and the Final Design Package.

Design calculations shall comply with the requirements of the *Design Analyses and Calculations Procedure* [6].

The following types of documentation as well as any other related documents that serve as the design basis for the prototype 50-ohm Matched Switch shall be included as part of the Preliminary Design Package and Final Design Package:

- Completed Design Compliance Matrix (DCM) (see [7])
- Mechanical and RF/electrical designs
- Performance calculations
- Completed Design and Analyses Calculations (DAC) (see [6] and [8]), and associated reports
- 3D CAD models and 2D CAD drawings
- Manufacturing and/or construction drawings
- Technical Specifications
- Material Specifications
- Bills of material
- Procedures for special processes (welding, joining etc.)
- Deviation Requests (DRs)

- Material Approval Requests
- Native files for all document deliverables of the Design Package
- Qualification and Factory Acceptance Test (FAT) Plan for the prototype
- Factory Acceptance Test (FAT) Plan for production units

In this SOW, the First Article 50-ohm Matched Switch and the three (3) 50-ohm Matched Switches are referred to as "production units".

4.1.6 Task 1.6: Assembly Procedure

The Seller shall prepare an Assembly Procedure that defines the sequential operations necessary to build a 50-ohm Matched Switch assembly meeting the approved design, which shall include the following:

- Prerequisite operations/conditions
- Consumable parts
- Assembly diagrams
- 2D Assembly drawings
- Sequential steps
- Special tooling
- Required materials and special processes (welding, joining etc.)
- Torques/sequence
- Test/acceptance criteria as appropriate for each step of the assembly procedure

The Assembly Procedure shall be submitted to the Company's TPO for review and approval.

Company approval may take one (1) to two (2) weeks.

4.1.7 Task 1.7: Maintenance Procedure

The Seller shall prepare a Maintenance Procedure that defines the operations/frequency necessary to maintain the 50-ohm Matched Switch assembly in safe operating condition, which shall include the following:

- Prerequisite operations/conditions
- Consumable parts
- Spares/critical spares
- Tooling and fixturing
- Test/acceptance criteria as appropriate for each step of the maintenance operation
- Return-to-service criteria

The Maintenance Procedure shall be submitted to the Company's TPO for review and approval.

Company approval may take one (1) to two (2) weeks.

4.1.8 Task 1.8: Preliminary Design Review and Final Design Review

4.1.8.1 Definitions

These definitions are extracted from [5]:

- Preliminary Design Review meeting

  ''A formal design review meeting conducted during the development phase of the design to monitor the progress of the design and to assure that the requirements are properly defined, verified and properly documented in the sub-system requirement specification (sub-SRD); the layout and interfaces have been fixed; a design concept that meets those requirements has been developed and supporting analyses and R&D are being carried out; outstanding design, construction and operation risks are identified and mitigated; and a firm basis exists to proceed with final (detailed) design.''

- Final Design Review meeting

  ''A formal design review meeting conducted to assure that the detailed design solution is complete, verified and properly documented in lower level requirement specifications (product specification), according to the planned maturity.
  The detailed criteria for passing design gates for each design document are given in Appendix 1 of [5]''.

4.1.8.2 Design Review Meetings

A Preliminary Design Review meeting will be held after submission of the detailed Preliminary Design Package completed in Task 1.5. The purpose of this meeting is for the Seller to present their preliminary design solution and to demonstrate that it meets the design requirements. The Seller shall prepare written meeting minutes for this meeting and submit them to the Company's TPO for review within three (3) working days after the meeting.

A Final Design Review meeting will be held after submission of the detailed Final Design Package completed in Task 1.5. The purpose of this meeting is for the Seller to present their final design solution and to demonstrate that it meets the design requirements. The Seller shall prepare written meeting minutes for this meeting and submit them to the Company's TPO for review within three (3) working days after the meeting.

The Preliminary Design Review and Final Design Review will be scheduled by the Company's TPO.

The Preliminary Design Review must be completed before *Part 2 – Option: Prototype Fabrication and Delivery*.

The Final Design Review must be completed before *Part 3 – Option: Production and Delivery*.

4.1.9 Seller's Deliverables for Part 1 − Detailed Design

Seller's deliverables for *Part 1 − Detailed Design* are listed in Section 6.1.

4.2 Part 2 − Option: Prototype Fabrication and Delivery

After Company approval of the Preliminary Design Package submitted in Part 1, and after Company acceptance to proceed with Part 2, the Seller shall deliver a prototype 50-ohm Matched Switch, and associated documentation in accordance with the task descriptions and requirements identified in Sections 4.2.1 – 4.2.15.

If the option to proceed with Part 2 is exercised, the Company's Procurement Officer will contractually authorize the fabrication work of the prototype 50-ohm Matched Switch.

4.2.1 Task 2.1: Preparation of Quality Plan (QP) for Part 2

Prior to beginning fabrication of the prototype, the Seller shall prepare a Quality Plan (QP) specifically for Part 2 of this SOW in accordance with the requirements and guidelines in *Quality Plan Template for Suppliers and Subcontractors* [2] and *Requirements for Producing a Quality Plan* [3].

The QP for Part 2 of this SOW shall be submitted to the Company's TPO for review and approval within two (2) weeks after Company approval of the Preliminary Design Package submitted in Part 1. Company approval may take two (2) to four (4) weeks.

Work on Part 2 of this SOW may not begin until the Seller receives notice from the Company's TPO that the QP for Part 2 has been approved by the Company.

Any revised QP for Part 2 during work for Part 2 is subject to the same approval procedure as the original QP for Part 2.

Unless otherwise directed by the Company's TPO, in case of a QP revision during work for Part 2, work should continue in accordance with the current approved QP for Part 2 until the revised QP for Part 2 is accepted.

Approval of the QP for Part 2 by the Company represents a hold point. Design, procurement, or manufacturing operations shall not commence until the hold point is released. Return of the signed QP for Part 2 by the Company's TPO to the Seller's POC constitutes a hold point release.

The requirement for a QP shall be flowed down contractually from the Seller to the Seller's suppliers and subcontractors unless the requirement is waived in writing on a case-by-case basis by the Company. Examples not requiring a QP:

1) Commercial off-the-shelf (COTS) items (not modified for ITER)
2) R&D activities
3) Supply of services (that are not quality related services)
4) Subcontractor working under the Seller's quality program

Basis and method of flow down criteria for special processes (ex. welding, NDE, testing, etc.) shall be identified by the Seller.

The QP for Part 2 shall include conditions for special non-conformance requirements per Section 5.4.

4.2.2 Task 2.2: Update of Project Schedule for Part 2 and Part 3

The Seller shall update the project schedule to reflect the work scope in Part 2 and Part 3 of this SOW.

The updated project schedule for Part 2 and Part 3 of this SOW shall be submitted to the Company's TPO for review and approval within two (2) weeks after Company acceptance to proceed with Part 2. Company approval may take one (1) to two (2) weeks.

The project schedule for Part 2 and Part 3 of this SOW shall be updated throughout the work process.

At a minimum, updates must be submitted to the Company's TPO with the monthly report in accordance with Section 6.4.

4.2.3 Task 2.3: Preparation of Cleaning Procedure

The Seller shall prepare a Cleaning Procedure for the prototype 50-ohm Matched Switch in accordance with the requirements of the Technical Specification [1].

The Cleaning Procedure shall be submitted to the Company's TPO for review and approval. Company approval may take one (1) to two (2) weeks.

The Cleaning Procedure shall include evidence that all cleaning requirements of [1] are clearly satisfied. No manufacturing of prototype components may begin prior to Company approval of this document.

4.2.4 Task 2.4: Preparation of Dimensional Measurement Plan

The Seller shall prepare a Dimensional Measurement Plan for the prototype 50-ohm Matched Switch in accordance with the requirements of the Technical Specification [1], and its referenced documents and shall submit the plan to the Company's TPO for review and approval. Company approval may take one (1) to two (2) weeks.

The Dimensional Measurement Plan shall describe how all dimensional acceptance criteria will be verified, including a description of how dimensions will be measured. The plan shall include evidence that all dimensional requirements of [1], and its referenced documents are to be measured.

The Dimensional Measurement Plan shall address measurement uncertainty in determining conformance to the dimensions and tolerances shown on the Company drawings.

The Dimensional Measurement Plan must be approved by the Company before dimensional measurement activities occur.

4.2.5 Task 2.5: Preparation of Visual Inspection Plan

The Seller shall prepare a Visual Inspection Plan for the prototype 50-ohm Matched Switch in accordance with the requirements of the Technical Specification [1], and shall submit the plan to the Company's TPO for review and approval. Company approval may take one (1) to two (2) weeks.

The Visual Inspection Plan must be approved by the Company before visual inspection activities occur.

The plan shall include evidence that all requirements of [1] are clearly satisfied.

4.2.6 Task 2.6: Preparation of Welding and Joining Procedures

The Seller shall prepare a qualified welding procedure specification (WPS), and associated documentation in accordance with the requirements of the Technical Specification [1] for required welding operations and shall submit the procedure to the Company's TPO for review and approval. Company approval may take two (2) to four (4) weeks. Approval of the WPS, and associated documentation for each welding activity must be approved by the Company before welding activities occur.

The Seller shall also prepare procedures for all other joining operations proposed to be used and shall submit the procedures to the Company's TPO for review and approval. Company approval may take two (2) to four (4) weeks. Approval of the joining procedures, and associated documentation for each joining activity must be approved by the Company before joining activities occur.

4.2.7 Task 2.7: Preparation of Pressure Test Procedure

The Seller shall prepare an assembly-level pressure test procedure for the prototype 50-ohm Matched Switch in accordance with the requirements of the Technical Specification [1], and shall submit the procedure to the Company's TPO for review and approval. Company approval may take one (1) to two (2) weeks.

The pressure test procedure must be approved by the Company before pressure testing activities occur.

The procedure shall include evidence that all requirements of [1] are clearly satisfied.

4.2.8 Task 2.8: Preparation of Hydrostatic Test Procedure

The Seller shall prepare a hydrostatic test procedure for the prototype 50-ohm Matched Switch in accordance with the requirements of the Technical Specification [1], and shall submit the procedure to the Company's TPO for review and approval. Company approval may take one (1) to two (2) weeks.

The hydrostatic test procedure must be approved by the Company before hydrostatic testing activities occur.

The procedure shall include evidence that all requirements of [1] are clearly satisfied.

4.2.9 Task 2.9: Preparation of Voltage Standing Wave Ratio (VSWR) and Scattering Parameters Test Procedure

The Seller shall prepare a VSWR and scattering parameters test procedure for the prototype 50-ohm Matched Switch in accordance with the requirements of the Technical Specification [1], and shall submit the procedure to the Company's TPO for review and approval. Company approval may take one (1) to two (2) weeks.

The VSWR and scattering parameters test procedure must be approved by the Company before VSWR and scattering parameters testing activities occur.

The procedure shall include evidence that all requirements of [1] are clearly satisfied.

4.2.10 Task 2.10: Preparation of Hi-Pot Test Procedure

The Seller shall prepare a hi-pot test procedure for the prototype 50-ohm Matched Switch in accordance with the requirements of the Technical Specification [1], and shall submit the procedure to the Company's TPO for review and approval. Company approval may take one (1) to two (2) weeks.

The hi-pot test procedure must be approved by the Company before hi-pot testing activities occur.

The procedure shall include evidence that all requirements of [1] are clearly satisfied.

4.2.11 Task 2.11: Preparation of Inspection Plan (IP) for Part 2

Prior to beginning fabrication of the prototype 50-ohm Matched Switch, the Seller shall prepare an Inspection Plan (IP) for the prototype 50-ohm Matched Switch, specifically for Part 2 of this SOW in accordance with the requirements and guidelines in *Inspection Plan (IP) Template* [9] and *Requirements for Producing an Inspection Plan* [10].

The Seller shall submit the IP for Part 2 of this SOW to the Company's TPO for review and approval. Company approval may take two (2) to four (4) weeks.

The Company may add intervention points as deemed necessary to accurately monitor the processes of Part 2 of this SOW and to conform to ITER requirements.

The IP shall clearly identify who is performing each intervention point (the Seller, the Company, IO, etc.).

Intervention points marked on the IP must be signed off and dated by the person performing the intervention (the Seller, the Company, IO, etc.). No new approval of the IP is required after the intervention points marked on the IP have been signed off.

Compliance with the IP shall be checked and recorded as work progresses.

The identification of records generated during the performance of the particular operation (e.g. inspection report, test report, non-conformance report, etc.) must be recorded on the IP.

For welding operations identified in the IP, the Seller and its suppliers/subcontractors may create a separate Weld Inspection Record to document individual weld records rather than list each welding operation in the IP.

Work on Part 2 of this SOW may not begin until the Seller receives notice from the Company's TPO that the IP for Part 2 has been approved by the Company.

Any revised IP for Part 2 during work for Part 2 is subject to the same approval procedure as the original IP for Part 2.

Unless otherwise directed by the Company's TPO, in case of an IP revision during work for Part 2, work should continue in accordance with the current approved IP for Part 2 until the revised IP for Part 2 is accepted.

The requirement for an IP shall be flowed down contractually from the Seller to the Seller's suppliers and subcontractors unless the requirement is waived in writing on a case-by-case basis by the Company. Examples not requiring an IP:

1) Commercial off-the-shelf (COTS) items (not modified for ITER)
2) R&D activities
3) Supply of services (that are not quality related services)
4) Subcontractor working under the Seller's quality program

The IP for Part 2 will list the sequence of operations encompassing the whole scope of the Part 2 of the SOW, Sections 4.2.1 – 4.2.15.

All inspection operations performed by the Seller for Part 2 should be sufficiently detailed on the IP. These operations shall be listed with sign off verification in the IP and/or in the Seller's traveler. Seller's travelers are to be referenced in the IP.

The Seller shall notify the Company, in writing, ten (10) working days in advance of all tests, hold points, and witness points.

4.2.12 Task 2.12: Manufacturing Readiness Review (MRR)

The Seller shall participate in a MRR [11] to confirm the Seller's readiness to produce the prototype 50-ohm Matched Switch. This review will ensure that the Seller understands the technical requirements, recognizes the hazards associated with manufacturing, has properly planned the manufacturing operations (including personnel, suppliers/subcontractors, and equipment), has fully qualified each manufacturing activity, and has a fully integrated quality assurance program prior to beginning manufacturing operations. Manufacturing activities may not begin until the Company approves the MRR and the TPO has authorized the start of manufacturing. The Seller's responsibility relative to the MRR is to supply the documents requested in this SOW, provide records and evidence demonstrating each manufacturing activity has been fully qualified, and to revise these documents as necessary based on TPO feedback from the MRR.

The Seller shall include the MRR approval as the first line in the IP for prototype fabrication (IP of Part 2; Section 4.2.11) to include fabrication activities. This is not required for IPs covering the purchase of long-lead materials and Commercial off-the-shelf (COTS) hardware, which can begin before the MRR with TPO approval. Where implementation of an IP before the MRR will be sought, this will be identified in the Seller's Quality Plan.

4.2.13 Task 2.13: Design of Packaging

The Seller shall design packaging in accordance with the requirements of the Technical Specification [1], and shall submit the proposed packaging design to the Company's TPO for review and approval. Company approval may take two (2) to three (3) weeks.

The packaging design must be approved by the Company before packaging activities occur.

The packaging design must consider shipping by Sealand container. The Seller shall address in the packaging design how the packaging is to be loaded and stacked into a Sealand container giving consideration to the most efficient and complete use of space in a container. The Seller shall also address in the packaging design how the packaging is to be loaded and stacked into a truck or in a container loaded on a truck. For example, smaller packages may require palletizing, long packaging may require forklift access on all four sides, packaging may require stacking for efficient loading of the Sealand container and efficient use of space. The packaging is required to be water resistant to protect the prototype 50-ohm Matched Switch from water damage if the crate is left out in the rain. This does not require the crate to be watertight when submersed.

Upon approval of the packaging design, the Seller shall fabricate packaging in a manner that facilitates movement, loading, and unloading by fork truck or crane. Any lifting fixtures or related hardware required to move, load, or unload the equipment shall be considered part of the equipment. All components necessary for equipment assembly shall be packed in a separate crate.

The Seller's proposed packaging design documentation shall, as a minimum, include drawings, calculations, and/or descriptions as evidence that all packaging requirements in [1] are clearly satisfied. The Seller shall include a generalized loading plan describing how their packaging shall be loaded, stacked and/or arranged in a Sealand container or on a truck or in a container loaded on a truck, and include a listing of equipment needed for loading and unloading., e.g., standard forklift, forklift with extra-long forks, crane etc. If the Seller proposes a non-standard Sealand container, this must also be identified in the plan. Standard Sealand containers have external dimensions of 8' wide x 8.5' high and 20' or 40' long.

The packaging design documentation shall provide a drawing of the crate with the prototype or their components inside the crate, dimensions of the crate, the location of the acceleration monitors/accelerometers inside the crate and the items that are used in the crate such as foam or wooden parts, etc.

Completion of Task 2.13 is not required for the MRR in Task 2.12. The packaging design must be approved by the Company at least 3 months prior to the use of that packaging.

4.2.14 Task 2.14: Storage Plan

The Seller shall prepare a Storage Plan that will show how the equipment will be protected from exposure to heat, rain and snow during transport or storage outdoors. Provisions for ensuring that all water is drained and blown dry from the equipment prior to movement to prevent damage due to freezing shall be identified and implemented.

The Seller shall submit the Storage Plan to the Company's TPO for review and approval. Company approval may take one (1) to two (2) weeks.

The Storage Plan must be approved by the Company before storage activities occur.

4.2.15 Task 2.15: Prototype

4.2.15.1 Fabricate the Prototype

After the Company's TPO issues direction to proceed with the prototype, the Seller shall begin fabrication activities for the prototype 50-ohm Matched Switch in accordance with the approved design in Part 1 (Section 4.1.8) of this SOW, the requirements stated in this SOW, the Technical Specification [1], and the approved IP of Part 2 of this SOW (see Section 4.2.11).

The Seller shall ensure that manufacturing processes achieve the physical characteristics, dimensions, and tolerances in accordance with the Technical Specification [1], and shall include these processes in the IP of Part 2 of this SOW (see Section 4.2.11).

The Seller shall ensure that all equipment is supplied unpainted.

4.2.15.2 Clean the Prototype

The Seller shall clean the prototype components in accordance with the requirements in [1], referenced drawing(s), and the approved cleaning procedure. Results of tests required by the cleaning procedure shall be recorded and provided to the Company.

4.2.15.3 Inspect the Prototype

The Seller shall visually inspect all prototype components in accordance with the requirements in [1], referenced drawing(s), and the approved visual inspection procedure. The Seller shall record results of inspections and shall provide a visual inspection report to the Company.

4.2.15.4 Measure the Prototype

The Seller shall perform a complete (100%) dimensional inspection on the prototype components in accordance with the requirements in [1], referenced drawing(s), and the approved Dimensional Measurement Plan. The Seller shall record measurements and shall provide a dimensional measurement report for each unit to the Company.

4.2.15.5 Assemble the Prototype

The Seller shall perform the final assembly of the prototype components in accordance with the requirements in [1], and the referenced drawing(s).

4.2.15.6 Qualification and Factory Acceptance Tests (FATs) for the Prototype

After the final assembly of the prototype components, the Seller shall perform the tests described in the Qualification and Factory Acceptance Test (FAT) Plan prepared as part of each Design Package (see Section 4.1.5), and associated approved test procedures prepared in Sections 4.2.7 – 4.2.10. The Seller shall record results of all tests and shall provide a test report to the Company for review and approval. Company approval may take one (1) to two (2) weeks.

At a minimum, the tests to be performed for the prototype are the pressure test, the hydrostatic test, the VSWR and scattering parameters test, and the hi-pot test.

4.2.15.6.1 Pressure Test for the Prototype

After the final assembly of the prototype components, the Seller shall perform pressure testing in accordance with the requirements in [1], referenced drawing(s), and the approved pressure test procedure. The Seller shall record test results and shall provide a test report to the Company.

4.2.15.6.2 Hydrostatic Test for the Prototype

After fabrication of the prototype 50-ohm Matched Switch, the Seller shall perform hydrostatic testing in accordance with the requirements in [1], referenced drawing(s), and the approved hydrostatic test procedure. The Seller shall record test results and shall provide a test report to the Company.

4.2.15.6.3 VSWR and Scattering Parameters Test for the Prototype

After fabrication of the prototype 50-ohm Matched Switch, the Seller shall perform VSWR and scattering parameters testing in accordance with the requirements in [1], referenced drawing(s), and the approved VSWR and scattering parameters test procedure. The Seller shall record test results and shall provide a test report to the Company.

4.2.15.6.4 Hi-Pot Test for the Prototype

After fabrication of the prototype 50-ohm Matched Switch, the Seller shall perform hi-pot testing in accordance with the requirements in [1], referenced drawing(s), and the approved hi-pot test procedure. The Seller shall record test results and shall provide a test report to the Company.

4.2.15.7 Package and Prepare for Delivery of the Prototype

The Seller shall package the prototype 50-ohm Matched Switch in accordance with the requirements in [1], referenced drawing(s), and the approved packaging design. The Seller shall prepare the packaged assembly for shipment in accordance with the requirements and instructions in Section 7.1, *Transportation Arrangements*.

4.2.15.8 Labeling of the Prototype

The prototype 50-ohm Matched Switch shall be labeled as specified in [1], and the drawings referenced therein.

All reports, material certifications, and other reportable results shall identify the prototype 50-ohm Matched Switch and/or its subcomponents by serial number, if applicable.

4.2.15.9 Documentation Requirements for the Prototype

The Seller shall provide the documentation specified in this section.

4.2.15.9.1 Material Certifications for the Prototype

Material certifications compliant with the requirements in [1] shall be provided. Where Certificates of Conformity are allowed, they must be from the manufacturer. Certificates of Conformity created by resellers or distributors are not acceptable, except by approved deviation requests.

4.2.15.9.2 Visual Inspection and Dimensional Measurement Reports for the Prototype

Visual inspection and dimensional measurement reports shall include all drawing dimensions, surface finish, and workmanship requirements, as applicable.

At a minimum, each entry must include the drawing number, sheet, zone, nominal dimension or requirement, actual measurement, the Seller ID for the measuring or test equipment used, and whether the article meets or fails the referenced requirement.

4.2.15.9.3 Welding Documentation for the Prototype

The Seller shall use qualified welders for fabrication and shall qualify each welder and welding procedure in accordance with [1]. The Seller shall submit to the Company all welding records, including welding procedure specifications, welding procedure qualification, and welder certification records.

4.2.15.9.4 Test Reports for the Prototype

At a minimum, each test report entry must include the drawing number, the Seller ID and calibration status for the measuring or test equipment used, name(s) and qualification(s) of personnel performing the test, allowable values, test parameters, recorded results, and whether the article meets or fails the referenced requirement. Each test report shall include the part number and serial number of the prototype unit.

4.2.15.9.5 Operation and Maintenance Manual for the Prototype

The Seller shall prepare an operation and maintenance manual that as a minimum includes installation instructions, preventive maintenance procedures and schedule, repair, parts diagram, inspection procedures and schedule, operation, and storage and handling requirements for the prototype 50-ohm Matched Switch. The Seller shall submit the operation and maintenance manual to the Company's TPO for review and approval. Company approval may take one (1) to two (2) weeks.

4.2.15.9.6 Prototype Manufacturing Dossier

The Seller shall prepare an electronic version of the prototype 50-ohm Matched Switch Manufacturing Dossier in accordance with the guidance in *Manufacturing Dossier Guide* [12] and *Manufacturing Dossier Template* [13]. The prototype Manufacturing Dossier shall be submitted to the Company's TPO for review and approval. Company approval may take two (2) to six (6) weeks.

The Seller shall not proceed to *Part 3 − Option: Production and Delivery* until authorization is given by the Company.

4.2.15.9.7 Contractor Release Note (CRN) for the Prototype

Prior to final packaging for shipment of the prototype 50-ohm Matched Switch to ORNL, the Seller shall conduct a quality review to verify that all applicable requirements of this SOW have been met. The results of this review shall be documented in the Contractor Release Note (CRN), which shall be submitted to the Company's TPO for review and approval before the assembly is packaged in preparation for shipment. Company approval may take two (2) to six (6) weeks.

The Seller shall prepare the CRN in accordance with *Contractor Release Note Form* [14], completed in accordance with *Contractor Release Note Procedure* [15].

4.2.16 Seller's Deliverables for Part 2 − Option: Prototype Fabrication and Delivery

Seller's deliverables for *Part 2 − Option: Prototype Fabrication and Delivery* are listed in Section 6.2.

4.3 Part 3 − Option: Production and Delivery

After Company approval of the Final Design Package submitted in Part 1, after successful qualification and acceptance testing of the prototype unit, and after Company acceptance to proceed with Part 3, the Seller shall deliver four (4) 50-ohm Matched Switches, and associated documentation in accordance with the task descriptions and requirements identified in Sections 4.3.1 – 4.3.17.

If the option to proceed with Part 3 is exercised, the Company's Procurement Officer will contractually authorize the production work of the four (4) 50-ohm Matched Switches.

4.3.1 Task 3.1: Preparation of Quality Plan (QP) for Part 3

Prior to beginning fabrication of the four (4) 50-ohm Matched Switches, the Seller shall update the Quality Plan (QP) specifically for Part 3 of this SOW in accordance with the requirements and guidelines in *Quality Plan Template for Suppliers and Subcontractors* [2] and *Requirements for Producing a Quality Plan* [3].

The QP for Part 3 of this SOW shall be submitted to the Company's TPO for review and approval within two (2) weeks after Company acceptance to proceed with Part 3. Company approval may take two (2) to four (4) weeks.

Work on Part 3 of this SOW may not begin until the Seller receives notice from the Company's TPO that the QP for Part 3 has been approved by the Company.

Any revised QP for Part 3 during work for Part 3 is subject to the same approval procedure as the original QP for Part 3.

Unless otherwise directed by the Company's TPO, in case of a QP revision during work for Part 3, work should continue in accordance with the current approved QP for Part 3 until the revised QP for Part 3 is accepted.

Approval of the QP for Part 3 by the Company represents a hold point. Design, procurement, or manufacturing operations shall not commence until the hold point is released. Return of the signed QP for Part 3 by the Company's TPO to the Seller's POC constitutes a hold point release.

The requirement for a QP shall be flowed down contractually from the Seller to the Seller's suppliers and subcontractors unless the requirement is waived in writing on a case-by-case basis by the Company. Examples not requiring a QP:

1) Commercial off-the-shelf (COTS) items (not modified for ITER)
2) R&D activities
3) Supply of services (that are not quality related services)

4) Subcontractor working under the Seller's quality program

Basis and method of flow down criteria for special processes (ex. welding, NDE, testing, etc.) shall be identified by the Seller.

The QP for Part 3 shall include conditions for special non-conformance requirements per Section 5.4.

4.3.2 Task 3.2: Update of Project Schedule for Part 3

The Seller shall update the project schedule to reflect the work scope in Part 3 of this SOW.

The updated project schedule for Part 3 of this SOW shall be submitted to the Company's TPO for review and approval within two (2) weeks after Company acceptance to proceed with Part 3. Company approval may take one (1) to two (2) weeks.

The project schedule for Part 3 of this SOW shall be updated throughout the work process.

At a minimum, updates must be submitted to the Company's TPO with the monthly report in accordance with Section 6.4.

4.3.3 Task 3.3: Preparation of Cleaning Procedure

The Seller shall prepare a Cleaning Procedure for the 50-ohm Matched Switches in accordance with the requirements of the Technical Specification [1].

The Cleaning Procedure shall be submitted to the Company's TPO for review and approval. Company approval may take one (1) to two (2) weeks.

The Cleaning Procedure shall include evidence that all cleaning requirements of [1] are clearly satisfied. No manufacturing of component production units may begin prior to Company approval of this document.

4.3.4 Task 3.4: Preparation of Dimensional Measurement Plan

The Seller shall prepare a Dimensional Measurement Plan for the 50-ohm Matched Switches in accordance with the requirements of the Technical Specification [1], and its referenced documents and shall submit the plan to the Company's TPO for review and approval. Company approval may take one (1) to two (2) weeks.

The Dimensional Measurement Plan shall describe how all dimensional acceptance criteria will be verified, including a description of how dimensions will be measured. The plan shall include evidence that all dimensional requirements of [1], and its referenced documents are to be measured.

The Dimensional Measurement Plan shall address measurement uncertainty in determining conformance to the dimensions and tolerances shown on the Company and Seller's drawings.

The Dimensional Measurement Plan must be approved by the Company before dimensional measurement activities occur.

4.3.5 Task 3.5: Preparation of Visual Inspection Plan

The Seller shall prepare a Visual Inspection Plan for the 50-ohm Matched Switches in accordance with the requirements of the Technical Specification [1], and shall submit the plan to the Company's TPO for review and approval. Company approval may take one (1) to two (2) weeks.

The Visual Inspection Plan must be approved by the Company before visual inspection activities occur.

The plan shall include evidence that all requirements of [1] are clearly satisfied.

4.3.6 Task 3.6: Preparation of Welding and Joining Procedures

The Seller shall prepare a qualified welding procedure specification (WPS), and associated documentation in accordance with the requirements of the Technical Specification [1] for required welding operations and shall submit the procedure to the Company's TPO for review and approval. Company approval may take two (2) to four (4) weeks. Approval of the WPS, and associated documentation for each welding activity must be approved by the Company before welding activities occur.

The Seller shall also prepare procedures for all other joining operations proposed to be used and shall submit the procedures to the Company's TPO for review and approval. Company approval may take two (2) to four (4) weeks. Approval of the joining procedures, and associated documentation for each joining activity must be approved by the Company before joining activities occur.

4.3.7 Task 3.7: Preparation of Pressure Test Procedure

The Seller shall prepare an assembly-level pressure test procedure for the 50-ohm Matched Switches in accordance with the requirements of the Technical Specification [1], and shall submit the procedure to the Company's TPO for review and approval. Company approval may take one (1) to two (2) weeks.

The pressure test procedure must be approved by the Company before pressure testing activities occur.

The procedure shall include evidence that all requirements of [1] are clearly satisfied.

4.3.8 Task 3.8: Preparation of Hydrostatic Test Procedure

The Seller shall prepare a hydrostatic test procedure for the 50-ohm Matched Switches in accordance with the requirements of the Technical Specification [1], and shall submit the procedure to the Company's TPO for review and approval. Company approval may take one (1) to two (2) weeks.

The hydrostatic test procedure must be approved by the Company before hydrostatic testing activities occur.

The procedure shall include evidence that all requirements of [1] are clearly satisfied.

4.3.9 Task 3.9: Preparation of Voltage Standing Wave Ratio (VSWR) and Scattering Parameters Test Procedure

The Seller shall prepare a VSWR and scattering parameters test procedure for the 50-ohm Matched Switches in accordance with the requirements of the Technical Specification [1], and shall submit the procedure to the Company's TPO for review and approval. Company approval may take one (1) to two (2) weeks.

The VSWR and scattering parameters test procedure must be approved by the Company before VSWR and scattering parameters testing activities occur.

The procedure shall include evidence that all requirements of [1] are clearly satisfied.

4.3.10 Task 3.10: Preparation of Hi-Pot Test Procedure

The Seller shall prepare a hi-pot test procedure for the 50-ohm Matched Switches in accordance with the requirements of the Technical Specification [1], and shall submit the procedure to the Company's TPO for review and approval. Company approval may take one (1) to two (2) weeks.

The hi-pot test procedure must be approved by the Company before hi-pot testing activities occur.

The procedure shall include evidence that all requirements of [1] are clearly satisfied.

4.3.11 Task 3.11: Preparation of Inspection Plan (IP) for Part 3

Prior to beginning fabrication of the four (4) 50-ohm Matched Switches, the Seller shall prepare an Inspection Plan (IP) specifically for Part 3 of this SOW in accordance with the requirements and guidelines in *Inspection Plan (IP) Template* [9] and *Requirements for Producing an Inspection Plan* [10].

The Seller shall submit the IP for Part 3 of this SOW to the Company's TPO for review and approval. Company approval may take two (2) to four (4) weeks.

The Company may add intervention points as deemed necessary to accurately monitor the processes of Part 3 of this SOW and to conform to ITER requirements.

The IP shall clearly identify who is performing each intervention point (the Seller, the Company, IO, etc.).

Intervention points marked on the IP must be signed off and dated by the person performing the intervention (the Seller, the Company, IO, etc.). No new approval of the IP is required after the intervention points marked on the IP have been signed off.

Compliance with the IP shall be checked and recorded as work progresses.

The identification of records generated during the performance of the particular operation (e.g. inspection report, test report, non-conformance report, etc.) must be recorded on the IP.

For welding operations identified in the IP, the Seller and its suppliers/subcontractors may create a separate Weld Inspection Record to document individual weld records rather than list each welding operation in the IP.

Work on Part 3 of this SOW may not begin until the Seller receives notice from the Company's TPO that the IP for Part 3 has been approved by the Company.

Any revised IP for Part 3 during work for Part 3 is subject to the same approval procedure as the original IP for Part 3.

Unless otherwise directed by the Company's TPO, in case of an IP revision during work for Part 3, work should continue in accordance with the current approved IP for Part 3 until the revised IP for Part 3 is accepted.

The requirement for an IP shall be flowed down contractually from the Seller to the Seller's suppliers and subcontractors unless the requirement is waived in writing on a case-by-case basis by the Company. Examples not requiring an IP:

1) Commercial off-the-shelf (COTS) items (not modified for ITER)
2) R&D activities
3) Supply of services (that are not quality related services)
4) Subcontractor working under the Seller's quality program

The IP for Part 3 will list the sequence of operations encompassing the whole scope of the Part 3 of the SOW, Sections 4.3.1 – 4.3.17.

All inspection operations performed by the Seller for Part 3 should be sufficiently detailed on the IP. These operations shall be listed with sign off verification in the IP and/or in the Seller's traveler. Seller's travelers are to be referenced in the IP.

The Seller shall notify the Company, in writing, ten (10) working days in advance of all tests, hold points, and witness points.

4.3.12 Task 3.12: Manufacturing Readiness Review (MRR)

The Seller shall participate in a MRR [11] to confirm the Seller's readiness to produce four (4) 50-ohm Matched Switches. This review will ensure that the Seller understands the technical requirements, recognizes the hazards associated with manufacturing, has properly planned the manufacturing operations (including personnel, suppliers/subcontractors, and equipment), has fully qualified each manufacturing activity, and has a fully integrated quality assurance program prior to beginning manufacturing operations. Manufacturing activities may not begin until the Company approves the MRR and the TPO has authorized the start of manufacturing. The Seller's responsibility relative to the MRR is to supply the documents requested in this SOW, provide records and evidence demonstrating each manufacturing activity has been fully qualified, and to revise these documents as necessary based on TPO feedback from the MRR.

The Seller shall include the MRR approval as the first line in the IP for production (IP of Part 3; Section 4.3.11) to include fabrication activities. This is not required for IPs covering the purchase of long-lead materials and Commercial off-the-shelf (COTS) hardware, which can begin before the MRR with TPO approval. Where implementation of an IP before the MRR will be sought, this will be identified in the Seller's Quality Plan.

4.3.13 Task 3.13: Design of Packaging

The Seller shall design packaging specific to each component type in accordance with the requirements of the Technical Specification [1], and shall submit the proposed packaging design to the Company's TPO for review and approval. Company approval may take two (2) to three (3) weeks.

The packaging design must be approved by the Company before packaging activities occur.

The packaging design must consider shipping by Sealand container(s). The Seller shall address in the packaging design how the packaging is to be loaded and stacked into a Sealand container giving consideration to the most efficient and complete use of space in a container. The Seller shall also address in the packaging design how the packaging is to be loaded and stacked into a truck or in a container loaded on a truck. For example, smaller packages may require palletizing, long packaging may require forklift access on all four sides, packaging may require stacking for efficient loading of the Sealand container and efficient use of space. The packaging is required to be water resistant to protect the 50-ohm Matched Switches from water damage if the crate is left out in the rain. This does not require the crate to be watertight when submersed.

Upon approval of the packaging design, the Seller shall fabricate packaging in a manner that facilitates movement, loading, and unloading by fork truck or crane. Any lifting fixtures or related hardware required to move, load, or unload the equipment shall be considered part of the equipment. All components necessary for equipment assembly shall be packed in a separate crate.

The Seller's proposed packaging design documentation shall, as a minimum, include drawings, calculations, and/or descriptions as evidence that all packaging requirements in [1] are clearly satisfied. The Seller shall include a generalized loading plan describing how their packaging shall be loaded, stacked and/or arranged in a Sealand container or on a truck or in a container loaded on a truck, and include a listing of equipment needed for loading and unloading., e.g., standard forklift, forklift with extra-long forks, crane etc. If the Seller proposes a non-standard Sealand container, this must also be identified in the plan. Standard Sealand containers have external dimensions of 8' wide x 8.5' high and 20' or 40' long.

The packaging design documentation shall provide a drawing of the crate with the 50-ohm Matched Switches or their components inside the crate, dimensions of the crate, the location of the acceleration monitors/accelerometers inside the crate and the items that are used in the crate such as foam or wooden parts, etc.

Completion of Task 3.13 is not required for the MRR in Task 3.12. The packaging design must be approved by the Company at least 3 months prior to the use of that packaging.

4.3.14 Task 3.14: Storage Plan

The Seller shall prepare a Storage Plan that will show how the equipment will be protected from exposure to heat, rain and snow during transport or storage outdoors. Provisions for ensuring that all water is drained and blown dry from the equipment prior to movement to prevent damage due to freezing shall be identified and implemented.

The Seller shall submit the Storage Plan to the Company's TPO for review and approval. Company approval may take one (1) to two (2) weeks.

The Storage Plan must be approved by the Company before storage activities occur.

4.3.15 Task 3.15: First Article

4.3.15.1 Fabricate the First Article

After the Company's TPO issues direction to proceed with the First Article 50-ohm Matched Switch, the Seller shall begin fabrication activities for the First Article 50-ohm Matched Switch in accordance with the requirements stated in this SOW, the Technical Specification [1], and the approved IP of Part 3 of this SOW (see Section 4.3.11).

The Seller shall ensure that manufacturing processes achieve the physical characteristics, dimensions, and tolerances in accordance with the Technical Specification [1], and shall include these processes in the IP of Part 3 of this SOW (see Section 4.3.11).

The Seller shall ensure that all equipment is supplied unpainted.

4.3.15.2 Clean the First Article

The Seller shall clean the First Article 50-ohm Matched Switch components in accordance with the requirements in [1], referenced drawing(s), and the approved cleaning procedure. Results of tests required by the cleaning procedure shall be recorded and provided to the Company.

4.3.15.3 Inspect the First Article

The Seller shall visually inspect the First Article 50-ohm Matched Switch components in accordance with the requirements in [1], referenced drawing(s), and the approved visual inspection procedure. The Seller shall record results of inspections and shall provide a visual inspection report for each unit to the Company.

4.3.15.4 Measure the First Article

The Seller shall perform a complete (100%) dimensional inspection on the First Article 50-ohm Matched Switch components in accordance with the requirements in [1], referenced drawing(s), and the approved Dimensional Measurement Plan. The Seller shall record measurements and shall provide a dimensional measurement report for each unit to the Company.

4.3.15.5 Assemble the First Article

The Seller shall perform the final assembly of First Article 50-ohm Matched Switch components in accordance with the requirements in [1], and the referenced drawing(s).

4.3.15.6 Factory Acceptance Tests (FATs) for the First Article

After the final assembly of the First Article 50-ohm Matched Switch, the Seller shall perform the tests described in the Factory Acceptance Test (FAT) Plan prepared as part of the Design Package (see Section 4.1.5), and associated approved test procedures prepared in Sections 4.3.7 – 4.3.10. The Seller shall record results of all tests and shall provide a test report to the Company for review and approval. Company approval may take one (1) to two (2) weeks.

At a minimum, the tests to be performed for the First Article are the pressure test, the hydrostatic test, the VSWR and scattering parameters test, and the hi-pot test.

4.3.15.6.1 Pressure Test for the First Article

After the final assembly of the First Article 50-ohm Matched Switch components, the Seller shall perform pressure testing in accordance with the requirements in [1], referenced drawing(s), and the approved pressure test procedure. The Seller shall record test results and shall provide a test report to the Company.

4.3.15.6.2 Hydrostatic Test for the First Article

After fabrication of the First Article 50-ohm Matched Switch, the Seller shall perform hydrostatic testing in accordance with the requirements in [1], referenced drawing(s), and the approved hydrostatic test procedure. The Seller shall record test results and shall provide a test report to the Company.

4.3.15.6.3 VSWR and Scattering Parameters Test for the First Article

After fabrication of the First Article 50-ohm Matched Switch, the Seller shall perform VSWR and scattering parameters testing in accordance with the requirements in [1], referenced drawing(s), and the approved VSWR and scattering parameters test procedure. The Seller shall record test results and shall provide a test report to the Company.

4.3.15.6.4 Hi-Pot Test for the First Article

After fabrication of the First Article 50-ohm Matched Switch, the Seller shall perform hi-pot testing in accordance with the requirements in [1], referenced drawing(s), and the approved hi-pot test procedure. The Seller shall record test results and shall provide a test report to the Company.

4.3.15.7 Package and Prepare for Delivery of the First Article

The Seller shall package the First Article 50-ohm Matched Switch in accordance with the requirements in [1], referenced drawing(s), and the approved packaging design. The Seller shall prepare the packaged assembly for shipment in accordance with the requirements and instructions in Section 7.1, Transportation Arrangements.

4.3.15.8 Labeling of the First Article

The First Article 50-ohm Matched Switch shall be labeled as specified in [1], and the drawings referenced therein.

All reports, material certifications, and other reportable results shall identify the First Article 50-ohm Matched Switch, and/or its subcomponents by serial number, if applicable.

4.3.15.9 First Article Manufacturing Dossier

The Seller shall prepare an electronic version of the First Article 50-ohm Matched Switch Manufacturing Dossier in accordance with the guidance in *Manufacturing Dossier Guide* [12] and

Manufacturing Dossier Template [13]. The First Article Manufacturing Dossier shall be submitted to the Company's TPO for review and approval. Company approval may take two (2) to six (6) weeks.

The Seller shall not proceed to Task 3.16 until authorization is given by the Company.

After approval of the First Article Manufacturing Dossier, the First Article 50-ohm Matched Switch becomes the first production unit.

4.3.16 Task 3.16: 3 Production Units

4.3.16.1 Fabricate the 3 Production Units

After the Company's TPO issues direction to proceed with the three (3) production units, the Seller shall begin fabrication activities for the three (3) production units in accordance with the requirements stated in this SOW, the Technical Specification [1], and the approved IP of Part 3 of this SOW (see Section 4.3.11).

The Seller shall ensure that manufacturing processes achieve the physical characteristics, dimensions, and tolerances in accordance with the Technical Specification [1], and shall include these processes in the IP of Part 3 of this SOW (see Section 4.3.11).

The Seller shall ensure that all equipment is supplied unpainted.

4.3.16.2 Clean the 3 Production Units

The Seller shall clean each production unit's components in accordance with the requirements in [1], referenced drawing(s), and the approved cleaning procedure. Results of tests required by the cleaning procedure shall be recorded and provided to the Company.

4.3.16.3 Inspect the 3 Production Units

The Seller shall visually inspect each production unit's components in accordance with the requirements in [1], referenced drawing(s), and the approved visual inspection procedure. The Seller shall record results of inspections and shall provide a visual inspection report for each unit to the Company.

4.3.16.4 Measure the 3 Production Units

The Seller shall perform a complete (100%) dimensional inspection on each production unit's components in accordance with the requirements in [1], referenced drawing(s), and the approved Dimensional Measurement Plan. The Seller shall record measurements and shall provide a dimensional measurement report for each unit to the Company.

4.3.16.5 Assemble the 3 Production Units

The Seller shall perform the final assembly of each production unit's components in accordance with the requirements in [1], and the referenced drawing(s).

4.3.16.6 Factory Acceptance Tests (FATs) for the 3 Production Units

After the final assembly of the three (3) production units, the Seller shall perform the tests described in the Factory Acceptance Test (FAT) Plan prepared as part of the Design Package (see Section 4.1.5), and associated approved test procedures prepared in Sections 4.3.7 – 4.3.10. The Seller shall record results of all tests and shall provide a test report to the Company for review and approval. Company approval may take one (1) to two (2) weeks.

At a minimum, the tests to be performed for each of the three (3) production units are the pressure test, the hydrostatic test, the VSWR and scattering parameters test, and the hi-pot test.

4.3.16.6.1 Pressure Test for the 3 Production Units

After the final assembly of each production unit's components, the Seller shall perform pressure testing for each production unit in accordance with the requirements in [1], referenced drawing(s), and the approved pressure test procedure. The Seller shall record test results and shall provide a test report to the Company.

4.3.16.6.2 Hydrostatic Test for the 3 Production Units

After fabrication of the three (3) production units, the Seller shall perform hydrostatic testing for each production unit in accordance with the requirements in [1], referenced drawing(s), and the approved hydrostatic test procedure. The Seller shall record test results and shall provide a test report to the Company.

4.3.16.6.3 VSWR and Scattering Parameters Test for the 3 Production Units

After fabrication of the three (3) production units, the Seller shall perform VSWR and scattering parameters testing for each production unit in accordance with the requirements in [1], referenced drawing(s), and the approved VSWR and scattering parameters test procedure. The Seller shall record test results and shall provide a test report to the Company.

4.3.16.6.4 Hi-Pot Test for the 3 Production Units

After fabrication of the three (3) production units, the Seller shall perform hi-pot testing for each production unit in accordance with the requirements in [1], referenced drawing(s), and the approved hi-pot test procedure. The Seller shall record test results and shall provide a test report to the Company.

4.3.16.7 Package and Prepare for Delivery of the 3 Production Units

The Seller shall package the three (3) production units in accordance with the requirements in [1], referenced drawing(s), and the approved packaging design. The Seller shall prepare the packaged assembly for shipment in accordance with the requirements and instructions in Section 7.1, Transportation Arrangements.

4.3.16.8 Labeling of the 3 Production Units

The three (3) production units shall be labeled as specified in [1], and the drawings referenced therein.

All reports, material certifications, and other reportable results shall identify each production unit and/or its subcomponents by serial number, if applicable.

4.3.17 Documentation Requirements for the First Article and 3 Production Units

The Seller shall provide the documentation specified in this section.

4.3.17.1 Material Certifications for the First Article and 3 Production Units

Material certifications compliant with the requirements in [1] shall be provided. Where Certificates of Conformity are allowed, they must be from the manufacturer. Certificates of Conformity created by resellers or distributors are not acceptable, except by approved deviation requests.

4.3.17.2 Visual Inspection and Dimensional Measurement Reports for the First Article and 3 Production Units

Visual inspection and dimensional measurement reports shall include all drawing dimensions, surface finish, and workmanship requirements, as applicable.

At a minimum, each entry must include the drawing number, sheet, zone, nominal dimension or requirement, actual measurement, the Seller ID for the measuring or test equipment used, and whether the article meets or fails the referenced requirement.

4.3.17.3 Welding Documentation for the First Article and 3 Production Units

The Seller shall use qualified welders for fabrication and shall qualify each welder and welding procedure in accordance with [1]. The Seller shall submit to the Company all welding records, including welding procedure specifications, welding procedure qualification, and welder certification records.

4.3.17.4 Test Reports for the First Article and 3 Production Units

At a minimum, each test report entry must include the drawing number, the Seller ID and calibration status for the measuring or test equipment used, name(s) and qualification(s) of personnel performing the test, allowable values, test parameters, recorded results, and whether the article meets or fails the referenced requirement. Each test report shall include the part number and serial number of the First Article and three (3) production units.

4.3.17.5 Final Drawings

Any design changes made during the fabrication of the production units must be updated on revised final drawings.

4.3.17.6 Operation and Maintenance Manual for the First Article and 3 Production Units

The Seller shall prepare an operation and maintenance manual that as a minimum includes installation instructions, preventive maintenance procedures and schedule, repair, parts diagram, inspection procedures and schedule, operation, and storage and handling requirements for the First Article and

three (3) production units. The Seller shall submit the operation and maintenance manual to the Company's TPO for review and approval. Company approval may take one (1) to two (2) weeks.

4.3.17.7 Manufacturing Dossier for the 3 Production Units

The Seller shall prepare an electronic version of the three (3) production units Manufacturing Dossier in accordance with the guidance in *Manufacturing Dossier Guide* [12] and *Manufacturing Dossier Template* [13]. The Manufacturing Dossier of the three (3) production units shall be submitted to the Company's TPO for review and approval. Company approval may take two (2) to six (6) weeks.

4.3.17.8 Contractor Release Note (CRN) for the First Article and 3 Production Units

Prior to final packaging for shipment of the four (4) production units (First Article 50-ohm Matched Switch and three (3) 50-ohm Matched Switches) to IO, the Seller shall conduct a quality review to verify that all applicable requirements of this SOW have been met. The results of this review shall be documented in the CRN, which shall be submitted to the Company's TPO for review and approval before the assembly is packaged in preparation for shipment. Company approval may take two (2) to six (6) weeks.

The Seller shall prepare the CRNs in accordance with *Contractor Release Note Form* [14], completed in accordance with *Contractor Release Note Procedure* [15].

4.3.18 Seller's Deliverables for Part 3 − Option: Production and Delivery

Seller's deliverables for *Part 3 − Option: Production and Delivery* are listed in Section 6.3.

5. QUALITY ASSURANCE

The quality of work performed under this SOW will be controlled by the Seller assigning the appropriate, knowledgeable, and qualified personnel and suppliers/subcontractors to this task, providing appropriate facilities and manufacturing equipment, and following a rigorous quality assurance plan.

5.1 Quality Assurance (QA) Program

The Seller and key suppliers/subcontractors are to have Quality Assurance (QA) programs that meet or exceed the requirements of ISO 9000 (or Company-approved equivalent).

The QA program shall be implemented as provided in the Company-approved QP (prepared per Tasks 1.3, 2.1 and 3.1 respectively in Sections 4.1.3, 4.2.1 and 4.3.1), sufficient to ensure that the quality of items produced or services provided will meet all the requirements as stated in this SOW and in the Technical Specification [1].

5.2 Access for Source Surveillance Inspections

As part of the Company's QA program, source surveillance activities may be conducted at the Seller's facility or any suppliers/subcontractors' Seller facility that the Company determines necessary to ensure that quality objectives are met.

Representatives of IO may accompany the Company inspectors as observers.

IO representatives may be U.S. citizens or foreign nationals.

Such surveillance may include auditing and monitoring of CAD software, preparation of drawings and documents, performance of studies, inspection and tests, weld and welder qualification, and all other manufacturing steps.

The Seller is to provide the Company representatives access to all data and operating areas pertinent to this subcontract to assure that items or services are being furnished in accordance with specified requirements.

Source surveillance by the Company representative does not constitute product acceptance by the Company and will in no way relieve the Seller of the responsibility to furnish acceptable deliverables.

5.3 Test and Inspection

Testing and inspection requirements are addressed in the Technical Specification [1].

The Seller shall notify the Company's TPO twenty-one (21) working days prior to start of Qualification and Factory Acceptance Tests (FATs) identified in Sections 4.2.15.6, 4.3.15.6 and 4.3.16.6. The Seller shall make reasonable effort to sequence Qualification and Factory Acceptance Tests to minimize overall test schedule duration (i.e. not partitioned over multiple weeks).

The Company has the right to witness all tests and inspections.

Calibration records shall be available for all measurement tools, and all measurements shall be taken with tools that have current calibration certifications.

5.4 Non-Conformance Report (NCR)

Note: The issuance and approval of a non-conformance report (NCR) in no way limits or affects the warranty provision of the subcontract.

The Company expects to receive equipment items, components, materials, and documentation that conform to all codes, standards, specifications, and procedures identified in the subcontract.

When a non-conformance is identified, the Seller is to:

i. Identify and segregate when practical, the non-conforming item,

ii. Stop any further work on the item until disposition is provided by the Company, and

iii. Record and report the occurrence to the Company in an NCR.

Identifying the need for an NCR will begin with a written notification (an email stating the discovery date and non-conformance identified, a Company non-conformance report (NCR) partially filled out, or a Seller internal NCR form) of the discovered non-conformance by the Seller to the Company's TPO, Company's Procurement Officer and Company's Quality Assurance Representative. This must be done by the identifier (Seller) as soon as possible but no later than five (5) working days from the discovery of the non-conforming condition.

The NCR is to contain or refer to all relevant material available to enable an informed decision on the definite course of action to be taken.

NCRs are to be submitted on the *Non-Conformance Report Form* [16], completed per the *Nonconformance Reports Procedure* [17].

NCRs shall be submitted to the Company's TPO for review and approval. Company approval may take two (2) to three (3) weeks.

An approved NCR does not establish a precedent or obligation to accept existing or future items not conforming to all provisions of the subcontract.

The Seller must report all out-of-tolerance dimensions and out-of-tolerance features to the Company.

5.5 Deviation Request (DR)

Note: The issuance and approval of a deviation request (DR) in no way limits or affects the warranty provision of the subcontract.

The Seller may propose deviations from the specifications, drawings, or other technical requirements of this procurement.

Where time is a consideration, the Seller may communicate the proposed deviation directly to the Company's TPO, with a copy to the Company's Procurement Officer.

The request is to identify the affected items, drawing/specification number and revision number, a description of the proposed deviation, and the justification for it.

The Company's TPO will evaluate the technical aspects and recommend approval/disapproval to the Company's Procurement Officer, who will communicate approval or disapproval to the Seller.

DRs are to be submitted on the *Deviation Request Form* [18], completed per the *Deviation Request Procedure* [19].

DRs shall be submitted to the Company's TPO for review and approval. Company approval may take two (2) to three (3) weeks.

An approved DR does not establish a precedent or obligation to accept existing or future items not conforming to all provisions of the subcontract.

5.6 Inspector Safety

To ensure the safety of Company and/or IO or regulatory representatives who visit the Seller's facilities, the Seller shall provide relevant information about their facility safety procedures including, for example, safety glasses, hearing and respiratory protection, emergency preparedness, rally point, and general safety rules; and shall review typical workplace hazards with the representative(s) upon their arrival.

5.7 Material Identification and Control

The Seller must ensure through their QA Program that materials under this scope of work maintain positive identification for items/parts ordered through manufacturing. Raw materials, in-process

components, and final assemblies shall be identified and labeled. The Seller's Quality Assurance program shall also maintain consistent identification of non-conformance items/parts so that the material and NCR process status is clearly identified. This applies to items/parts ordered by the Seller and those under the Seller's suppliers and subcontractors.

The Seller shall define appropriate methods for process control with material identification and status from receipt inspection through final assembly, so identification and traceability are maintained. In example, these methods could include work orders, work routers, or work travelers.

5.8 Receipt Inspection from the Seller

The Company may require some documentation from the Seller that provides evidence regarding the receipt inspection of each individual item/part received by the Seller and by the Seller's suppliers and subcontractors for this contract.

6. DELIVERABLES

The Seller shall provide the following deliverables in accordance with the Project Schedule. The format for documents and deliverables shall conform to the requirements provided in Section 6.5:

6.1 Seller's Deliverables for Part 1 − Detailed Design

Deliverables	Section	Title of the deliverable	Due
1	4.1.5	Design Package Contents List	Due at least five (5) working days prior to the project kickoff meeting
2	4.1.3	Quality Plan (QP) for Part 1	Due within two (2) weeks after AOC
3	4.1.4	Project Schedule for Part 1, Part 2 and Part 3	Due within two (2) weeks after AOC
4	4.1.5 4.1.8	Preliminary Design Package with associated documentation including Preliminary Design Review Minutes and Presentations	• Due before *Part 2 – Option: Prototype Fabrication and Delivery* • Due by September 2026
5	4.1.6	Assembly Procedure	Due before the Preliminary Design Review Meeting
6	4.1.7	Maintenance Procedure (including service life calculation)	Due before the Preliminary Design Review Meeting
7	4.1.5 4.1.8	Final Design Package with associated documentation including Final Design Review Minutes and Presentations	• Due before *Part 3 – Option: Production and Delivery* • Due by August 2027

6.2 Seller's Deliverables for Part 2 − Option: Prototype Fabrication and Delivery

Deliverables	Section	Title of the deliverable	Due
8	4.2.1	Quality Plan (QP) for Part 2	Due within two (2) weeks after authorization to proceed with Part 2
9	4.2.2	Update of Project Schedule for Part 2 and Part 3	Due within two (2) weeks after authorization to proceed with Part 2
10	4.2.3	Cleaning Procedure for Prototype	Due before the start of prototype fabrication work
11	4.2.4	Dimensional Measurement Plan for Prototype	Due before the start of prototype fabrication work
12	4.2.5	Visual Inspection Plan for Prototype	Due before the start of prototype fabrication work
13	4.2.6	Welding and Joining Procedures for Prototype	Due before the prototype welding activities occur
14	4.2.7	Pressure Test Procedure for Prototype	Due before the prototype testing activities occur
15	4.2.8	Hydrostatic Test Procedure for Prototype	Due before the prototype testing activities occur
16	4.2.9	VSWR and Scattering Parameters Test Procedure for Prototype	Due before the prototype testing activities occur
17	4.2.10	Hi-Pot Test Procedure for Prototype	Due before the prototype testing activities occur
18	4.2.11	Inspection Plan (IP) for Part 2, including all supporting documentation	Due before the start of prototype fabrication work
19	4.2.11	Signed Inspection Plan (IP) for Part 2, including all supporting documentation	Due before the submission of the Prototype Manufacturing Dossier for Company approval
20	4.2.12	Manufacturing Readiness Review (MRR) for Prototype	To be scheduled by Company's TPO before the start of prototype fabrication work
21	4.2.13	Design of Packaging for Prototype	Due at least 3 months before the prototype packaging activities occur
22	4.2.14	Storage Plan for Prototype	Due at least 3 months before the prototype shipment
23	7.1.2.1	Pre-Shipment Deliverable Package No. 1	Due no later than twelve (12) weeks prior to planned date of the prototype shipment
24	7.1.2.2	Pre-Shipment Deliverable Package No. 2	Due no later than eight (8) weeks prior to planned date of the prototype shipment
25	7.1.2.3	Pre-Shipment Deliverable Package No. 3	Due no later than two (2) weeks prior to planned date of the prototype shipment
26	7.1.2.4	Pre-Shipment Deliverable Package No. 4	Due no later than one (1) week prior to planned date of the prototype shipment

27	4.2.15	Prototype 50-ohm Matched Switch with associated documentation	Shipped by April 2027
28	6.4	Periodic Communication and Reporting for the Prototype 50-ohm Matched Switch	Due before *Part 3 – Option: Production and Delivery*

6.3 Seller's Deliverables for Part 3 − Option: Production and Delivery

Deliverables	Section	Title of the deliverable	Due
29	4.3.1	Quality Plan (QP) for Part 3	Due within two (2) weeks after authorization to proceed with Part 3
30	4.3.2	Update of Project Schedule for Part 3	Due within two (2) weeks after authorization to proceed with Part 3
31	4.3.3	Cleaning Procedure for Production Units	Due before the start of production work of the production units
32	4.3.4	Dimensional Measurement Plan for Production units	Due before the start of production work of the production units
33	4.3.5	Visual Inspection Plan for Production Units	Due before the start of production work of production units
34	4.3.6	Welding and Joining Procedures for Production Units	Due before the welding activities occur for the production units
35	4.3.7	Pressure Test Procedure for Production Units	Due before the testing activities occur for the production units
36	4.3.8	Hydrostatic Test Procedure for Production Units	Due before the testing activities occur for the production units
37	4.3.9	VSWR and Scattering Parameters Test Procedure for Production Units	Due before the testing activities occur for the production units
38	4.3.10	Hi-Pot Test Procedure for Production Units	Due before the testing activities occur for the production units
39	4.3.11	Inspection Plan (IP) for the First Article of Part 3, including all supporting documentation	Due before the start of production work of the First Article
40	4.3.11	Signed Inspection Plan (IP) for the First Article of Part 3, including all supporting documentation	Due before the submission of the First Article Manufacturing Dossier for Company approval
41	4.3.11	Inspection Plan (IP) for the three (3) Production Units of Part 3, including all supporting documentation	Due before the start of production work of the three (3) production units
42	4.3.11	Signed Inspection Plan (IP) for the three (3) Production Units of Part 3, including all supporting documentation	Due before the submission of the Manufacturing Dossier of the three (3) production units for Company approval

43	4.3.12	Manufacturing Readiness Review (MRR) for Production Units	To be scheduled by Company's TPO before start of production work of production units
44	4.3.13	Design of Packaging for Production Units	Due at least 3 months before the production units packaging activities occur for production units
45	4.3.14	Storage Plan for Production Units	Due at least 3 months before the shipment of production units
46	7.1.2.1	Pre-Shipment Deliverable Package No. 1	Due no later than twelve (12) weeks prior to planned date of the shipment of production units
47	7.1.2.2	Pre-Shipment Deliverable Package No. 2	Due no later than eight (8) weeks prior to planned date of the shipment of production units
48	7.1.2.3	Pre-Shipment Deliverable Package No. 3	Due no later than two (2) weeks prior to planned date of the shipment of production units
49	7.1.2.4	Pre-Shipment Deliverable Package No. 4	Due no later than one (1) week prior to planned date of the shipment of production units
50	4.3.15 4.3.16 4.3.17	Four (4) 50-ohm Matched Switches (production units) with associated documentation	Shipped by July 2029
51	6.4	Periodic Communication and Reporting for the four (4) 50-ohm Matched Switches (production units)	Due before the end of contract

6.4 Periodic Communication

The Seller shall participate in a weekly phone conference to be held with the Company's TPO to discuss any technical issues and schedule, personnel, and any other items pertinent to the work activities. The weekly phone conference will serve as a mechanism to get early visibility of problems and issues arising during the performance of this subcontract.

The Seller shall prepare and issue conference call minutes to the Company's TPO within two (2) working days after the weekly phone conference.

The Seller shall provide a written monthly status report containing an updated schedule and data to support the generation of the Company's Project monthly report.

Monthly report data shall include actual schedule progress, milestones reached, corrective actions needed, display of the present critical path for the Seller's work, and a brief narrative describing the status of work, significant accomplishments, actual and potential problems and risk mitigations or corrective actions.

The monthly report shall be submitted to the Company's TPO on the twentieth (20) calendar day of the month. If the twentieth (20) calendar day falls on a weekend or holiday of the country in which the

Seller is located, the monthly report may be submitted on the first working day after the twentieth (20) calendar day.

The period of the monthly report shall be from the twenty-first (21) calendar day of the previous month until the twentieth (20) calendar day of the month the report is done. The period of the first monthly report shall be from the start of the AOC until the twentieth (20) calendar day of the month the report is done.

At the project kickoff meeting, the Seller shall propose a new calendar day to send the monthly report. The same conditions mentioned above to submit the monthly report shall apply when a calendar day falls on a weekend or holiday of the country in which the Seller is located.

On the twentieth (20) calendar day of the month, the Seller shall send to the Company's PO the % of cost completed for deliverables 7, 28 and 52. If the twentieth (20) calendar day falls on a weekend or holiday of the country in which the Seller is located, the Seller may send the % of cost completed on the first working day after the twentieth (20) calendar day.

6.5 Format for Documents and Deliverables

Electronic distribution will be the standard method of transmitting all deliverables including quality plans, reports, meeting minutes, drawings, general correspondence etc.

All documents are to be identified by contract number and provided in a searchable PDF format.

All documentation must reference the part number (drawing number) and serial number associated with the data.

All documents are to use metric units as specified in *ASTM SI10, American National Standard for Metric Practice* [20].

Documents (including drawings) are not to bear any stamp (e.g., proprietary, confidential, business sensitive, etc.) that requires the document to be protected by the Company unless the document relates to intellectual property that the Seller disclosed on the Background Intellectual Property form submitted with the proposal.

Revisions of documents submitted to the Company's TPO for approval are to clearly identify substantive (non-editorial) changes made in the revision. The Seller's identification of the changes may be addressed in the document or in a summary accompanying the document (e.g., e-mail, letter, transmittal form).

Reports are to contain narratives, spreadsheets, calculations, illustrations, and drawings where necessary to supplement the text and improve understanding.

Reports and other narrative documents are to have a cover sheet stating the document number, document title, issue date, and subcontract number, as well as having a place to identify authors, checker, and approval signatures as required. Signatures must be electronic or digital.

All reports and narrative documents are to begin with an executive summary briefly describing the contents and conclusions of the document.

Manufacturing Dossiers are to include a table of contents.

Narrative documents are to be transmitted to the Company's TPO as the native file with an accompanying searchable PDF file for review and acceptance or approval.

Documentation created and delivered for this scope of work will become part of the official Company Document Management System (EDRM) and potentially the IO Document Management System (IDM).

Models and drawings created by the Seller and sent to the Company are to be created using electronic CAD software and provided to the Company in either STEP or IGES format and a PDF file. Any required signatures are to be electronically applied to the PDF file and physically to any hard copy.

Oral presentations are to use PowerPoint software.

7. TRANSPORTATION ARRANGEMENTS

The Seller is responsible for packaging, storage, and loading of all hardware/equipment covered by this SOW. The Company's TPO will specify where the prototype and production units shall be shipped or delivered. If shipping to destination within the United States, shipping arrangements will be jointly determined by the Company's TPO and the Seller. Reference [21] refers to version 2.0 in this SOW and in the *Current References List (CRL) for the Procurement of ICH 50-ohm Matched Switch,* EDRM 8093562e.

7.1 Transportation Arrangements

See Section *1. Introduction* of [21].

7.1.1 Loading

See Section *2.1 Loading* of [21].

7.1.2 Pre-shipment Documentation

NOTE: All shipment documentation must be completed in the English language.

The Seller shall provide information and documentation required for international shipment in accordance with the following schedule (see deliverables 23, 24, 25, 26 in Section 6.2 and deliverables 46, 47, 48, 49 in Section 6.3):

7.1.2.1 Pre-Shipment Deliverable Package No. 1

See Section *2.2.1 Pre-Shipment Deliverable Package No. 1* of [21] except for:

Pre-Shipment Deliverable Package #1 shall be provided no later than twelve (12) weeks prior to planned date of shipment.

7.1.2.2 Pre-Shipment Deliverable Package No. 2

A. Pre-Shipment Deliverable Package #2 shall be provided no later than eight (8) weeks prior to planned date of shipment.

B. Pre-Shipment Deliverable Package #2 is to contain the following items:

- Written confirmation of the date goods will be ready for shipment or submit revised shipment date for approval.
- Contact information for Seller's Shipping/Logistics coordinator
- Fabrication value of goods (for insurance purposes – should not include destination site support services)
- Transport drawings with sufficient detail to facilitate lifting/lashing/stowage and approval of the operators (e.g., steamship line, air carrier).
- The following business documents (in English language):
  1. Pro-forma/commercial invoice on Seller's letterhead listing, at a minimum:
     - Subcontract number
     - Description and quantity of goods
     - Value of goods
     - Incoterm 2010 rule
     - Schedule B number (for U.S. exports) or Harmonized System code
     - Country of origin
     - Export control determinations (e.g., "ECCN: EAR99, No Export Control License required")
     - **Consignees:**

NOTE:	If shipped to Oak Ridge National Laboratory (ORNL) or to ITER Organization (IO), use the addresses below.

The Seller shall arrange the shipping of the prototype 50-ohm Matched Switch to Oak Ridge National Laboratory (ORNL). The ORNL address is shown below:

Oak Ridge National Laboratory
Attn: Mike Morrow
Bldg. 7625
1 Bethel Valley Road
Oak Ridge, TN 37830
USA

Contact: Mike Morrow
E-mail: morrowmciii@ornl.gov

The Seller shall arrange the shipping of the four (4) 50-ohm Matched Switches to ITER Organization (IO). The IO address is shown below:

ITER Organization
Attn: Yanchun Qiao
Route de Vinon sur Verdon, CS 90 046
13067 St. Paul lez Durance CEDEX
FRANCE

Contact: Yanchun Qiao
Tel :+33-4-42-17-62-57; Cell: +33-6-26-31-29-96
E-mail: Yanchun.Qiao@iter.org

The First Article shall not be shipped prior to the shipment of the three (3) production units.

- **Duty Free Declaration**

  Shipments on behalf of the ITER International Fusion Energy Organization ("ITER Organization") for its official use are eligible to duty-free customs clearance under the Agreement on the Privileges and Immunities of the ITER International Fusion Energy Organization for the Joint Implementation of the ITER Project, done in Paris on 21 November 2006 and ratified, accepted, and approved by the People's Republic of China, EURATOM (for the European Union and Switzerland), the Republic of India, Japan, the Republic of Korea and the Russian Federation. DIPLOMATIC SHIPMENT on behalf of the ITER Organization. FOR DUTY-FREE CUSTOMS CLEARANCE.

- **Consignor** (Seller's name, address, and contact information)

2. Itemized packing list on Seller's letterhead detailing the following at a minimum for each package:
   - Subcontract Number
   - Package number (sequential number assigned to each package)
   - Package type (e.g., wooden crate, item on pallet, etc.)
   - IO Part Number(s) (PNIs) (if applicable)
   - Seller's 50-ohm Matched Switches' part numbers and serial numbers
   - Item Description
   - Quantity of each item

- Gross Weight (kg)
- Net Weight (kg)
- Dimensions (cm)
- Volume (m^3)
- Special Handling Instructions
- Storage Instructions (e.g., indoor, conditioned space)
- **Declaration of Integrity**

  The undersigned hereby certifies that the components and package(s) described on this Packing List meet the contractual requirements with the exception of any approved deviations and non-conformance reports specified in the associated documentation.

NOTE:	The invoice, packing list and other documents, where appropriate, must be acceptable to the importing country's Customs agency. The LSP will review submitted documents and request amendments where required. If amendments are requested, Seller must update and submit revised documents within seven (7) working days.

3. Export Control License(s) or other authorization documents if required.

7.1.2.3 Pre-shipment Deliverable Package No. 3

See Section *2.2.3 Pre-Shipment Deliverable Package No. 3* of [21].

7.1.2.4 Pre-shipment Deliverable Package No. 4

See Section *2.2.4 Pre-Shipment Deliverable Package No. 4* of [21].

7.1.3 Package/Crate Marking

See Section *2.3 Package Marking* of [21].

7.1.4 Deviations from Planned Date of Shipment

See Section *3. Deviations from Planned Date of Shipment* of [21].

7.1.5 Storage of Finished Products

See Section *4. Storage of Finished Products* of [21].