International Association of Oil & Gas Producers

SPECIFICATION
S-702Q

December
2019

Quality Requirements for DC UPS

JIP33
JOINT INDUSTRY PROGRAMME

Revision history

VERSION	DATE	PURPOSE
0.1	December 2019	Issued for Public Review

Acknowledgements

This IOGP Specification was prepared by a Joint Industry Project 33 Standardization of Equipment Specifications for Procurement organized by IOGP with support by the World Economic Forum (WEF).

Foreword

This specification was prepared under Joint Industry Programme 33 (JIP33) "Standardization of Equipment Specifications for Procurement" organized by the International Oil & Gas Producers Association (IOGP) with the support from the World Economic Forum (WEF). Companies from the IOGP membership participated in developing this specification to leverage and improve industry level standardization for projects globally in the oil and gas sector. The work has developed a minimized set of supplementary requirements for procurement, with life cycle cost in mind, resulting in a common and jointly approved specification, building on recognized industry and/or international standards.

Recent trends in oil and gas projects have demonstrated substantial budget and schedule overruns. The Oil and Gas Community within the World Economic Forum (WEF) has implemented a Capital Project Complexity (CPC) initiative which seeks to drive a structural reduction in upstream project costs with a focus on industry-wide, non-competitive collaboration and standardization. The CPC vision is to standardize specifications for global procurement for equipment and packages, facilitating improved standardization of major projects across the globe. JIP33 provides the oil and gas sector with the opportunity to move from internally to externally focused standardization initiatives and provide step change benefits in the sector's capital projects performance.

This specification has been developed in consultation with a broad user and supplier base to realize benefits from standardization and achieve significant project and schedule cost reductions.

The JIP33 work groups performed their activities in accordance with IOGP's Competition Law Guidelines (November 2014).

Table of Contents

Introduction

The purpose of this quality requirements specification (QRS) is to define quality management requirements for the supply of DC Uninterruptible Power Systems in accordance with IEC 62040-5-3, Uninterruptible power systems (UPS) - Part 5-3: DC output UPS - Performance and test requirements, for application in the petroleum and natural gas industries.

The QRS includes definition of a conformity assessment system (CAS) which specifies standardized purchaser interventions against quality management activities at four different levels. The applicable CAS level is specified by the purchaser in the equipment datasheet or purchase order.

This QRS shall be used in conjunction with the supplementary requirements specification (IOGP S-702), the information requirements specification (IOGP S-702L) and the equipment datasheet (IOGP S-702D) which together comprise the full set of specification documents. The introduction section in the supplementary requirements specification provides further information on the purpose of each of these documents and the order of precedence for their use.

JIP33 Specification for Procurement Documents
Quality Requirements Specification

1 Scope

To specify quality management requirements for the supply of DC UPS to IOGP S-702 Supplementary Specification to IEC 62040-5-3 Uninterruptible Power Systems (UPS) including:

a) manufacturer quality management system requirements;

b) purchaser conformity assessment (surveillance and inspection) activities;

c) traceability requirements;

d) evidence of conformance;

e) factory acceptance.

2 Normative References

ISO 9001:2015	Quality management systems - Requirements
API Specification Q1	Specification for Quality Management System Requirements for Manufacturing Organizations for the Petroleum and Natural Gas Industry
IEC 62040-5-3:2016	IEC 62040-5-3, Uninterruptible power systems (UPS) - Part 5-3: DC output UPS - Performance and test requirements
IOGP S-702	Supplementary Specification to IEC 62040-3 DC Uninterruptible Power Systems (UPS)

3 Terms and Definitions

For the purpose of this document, the terms and definitions given in IEC 62040-5-3:2016-10 and ISO 9000 (normative to ISO 9001) and the following shall apply.

3.1 Conformity assessment

Demonstration that requirements relating to a product, process, system, person or body are fulfilled.

NOTE 1 Conformity assessment (or referred to as assessment) includes but is not limited to review, inspection, verification and validation activities.

NOTE 2 Assessment activities may be undertaken at a supplier/sub-supplier's premises, virtually by video link, desktop sharing, etc. or by review of information formally submitted for acceptance or for information.

3.2 Conformity assessment system (CAS)

Systems providing different levels of assessment of the supplier's control activities by the purchaser (second party) or independent body (third party) based on evaluation of the supplier's capability to conform to the obligatory requirements.

NOTE CAS A reflects the highest risk and associated extent of verification. CAS D is the lowest.

3.3 Conformity assessment - Hold point (H)

Point in the chain of activities beyond which an activity shall not proceed without the approval of the purchaser or purchaser's representative.

3.4 Conformity assessment - Witness point (W)

Point in the chain of activities that the supplier shall notify the purchaser or purchaser's representative before proceeding. The operation or process may proceed without witness if the purchaser does not attend after the agreed notice period.

3.5 Conformity assessment – Surveillance (S)

Observation, monitoring or review by the purchaser or purchaser's representative of an activity, operation, process, product or associated information.

3.6 Conformity assessment – Review (R)

Review of the supplier's information to verify conformance to requirements.

NOTE Information review requirements are managed on a surveillance basis and as such do not impose schedule constraints, unless specified as hold points in Annex A or as conditions specified in the associated IRS.

3.7 Critical

That deemed by the organization, product specification or purchaser as mandatory, indispensable or essential, needed for a stated purpose or task, and requiring specific action.

4 Symbols and abbreviations

CAS	Conformity assessment system
IRS	Information requirements specification
QRS	Quality requirements specification (this document)

5 Quality requirements

5.1 Quality management system

The supplier shall demonstrate that the quality management arrangements established for the supply of products and services conform to ISO 9001, ISO 29001, API Specification Q1 or an equivalent quality management system standard agreed with the purchaser.

5.2 Conformance assessment

5.2.1

Quality and inspection plans and test plans developed as outputs to operational planning and control for the products and services shall define the specific controls to be implemented by the supplier and when applicable, their sub-suppliers, to ensure conformance with the specified requirements.

5.2.2

Controls shall address both internally and externally sourced processes products and services.

5.2.3

Quality plans and inspection plans and test plans shall include provision for the purchaser conformity assessment system (CAS) as specified in the data sheet IOGP S-701D. See Annex A.

5.2.4

Supplier performance in meeting the requirements will be routinely assessed during execution of the scope and where appropriate, corrective action requested and conformity assessment activities increased or decreased consistent with criticality and risk.

NOTE 1 For industrial well proven solutions CAS level D is specified unless risk assessment indicates that a more stringent CAS level is required.

NOTE 2 Irrespective of conformity assessment requirements defined by the purchaser, either, by reference to standard or specification requirements or in the scope, the supplier remains responsible for operational planning and control and demonstration of the conformity of products and services with the requirements (see ISO 9001:2015, 8.1 and 8.2).

6 Control of nonconforming products and services

Nonconformance with specified requirements identified by or to supplier prior to or during the delivery of the products and services shall be corrected such that the specified requirements are satisfied or the purchaser's acceptance of the nonconformance agreed in accordance with purchase order conditions. See ISO 9001:2015, 8.2.3, 8.2.4, 8.5.6 and 8.7.

7 Evidence (records)

Plans, procedures, methods and resultant records shall be provided in accordance with the associated IRS.

Annex A Customer conformity assessment requirements (normative)

This annex defines four conformity assessment systems (CAS) or levels of customer assessment.

	PURCHASER ASSESSMENT ACTIVITIES	CAS			
		A	B	C	D
1	**Operational planning and control activities**				
1.1	Quality planning (ISO 9001, 8.1 and ISO 10005)	H	H	-	-
1.2	Inspection and test planning (ISO 9001, 8.1 and ISO 10005)	H	H	R	R
1.3	Pre-Inspection/Pre-production planning	H	H	W	S
2	**Design and development activities**				
2.1	Calculations (UPS Sizing, Battery capacity and back up time) 5.1.6 8.1.2.14	H	H	R	R
2.2	Verification of the design performance characteristics (data sheet) (S-702, 5.1.2, 5.2.1, 5.6, 5.1.1, 5.1.3.2, 5.1.4, 5.2.1, 5.2.2, 5.2.3, 5.3.2, 5.3.3, 5.3.4, 5.4.2.2, 5.4.2.3)	H	H	R	R
2.3	Verification of equipment layout design (General arrangement drawings) (S-702, 7.1.2, 7.2.5, 7.3.1, 7.3.2, 7.3.3, 7.3.4, 7.4.1, 7.5.4, 7.6.1, 7.6.2, 7.6.3, 7.6.4, 7.7.1, 7.7.2, 7.7.5, 8.2.2.1, 8.2.2.3)	H	H	R	R
2.4	Verification of equipment functional design (Wiring and interface schematics) (S-702, 7.5.2, 7.5.3, 7.7.4, 8.1.2.11, 8.2.1, 8.2.2.7, 8.2.4.4)	H	H	R	R
2.5	Verification of component selection (Bill of Materials) (S-702, 7.4.10, 7.4.11, 7.4.12, 7.4.2, 7.4.4, 7.4.5, 7.4.6, 7.4.8, 7.4.9, 8.1.1.2)	H	H	R	R
2.6	Review of certificates (Type test certification) (S-702, 7.5.1, 7.8.1, 7.8.2)	H	H	R	R
3	**Control of external supply**				
3.1	External supply scope, risk assessment and controls (ISO 9001, 8.4)	R	R	-	-
3.2	Nominated sub-suppliers of sub-assemblies, components and accessories	R	R	R	-
4	**Production and service provision**				
4.1	Verification of incoming materials (type, condition, quantity and certification)	H	S	-	-
4.2	Verification of assembly (including review of in process records) (IEC 62040-5-3, 6.1.1.2)	W	S	S	-
4.3	**Routine and special testing**				
4.3.1	Visual / dimension check (IEC 62040-5-3, 6.2.2.2, IEC 60146-2, 7.3.1) (S-702, 8.2.2.2, 8.2.3, 8.2.4.2)	H	W	S	-
4.3.2	Painting inspection (IEC 60146-2, 7.3.1)	W	S	S	-
4.3.3	Grounding test (IEC 62040-5-3, 6.2.2.1, IEC 60146-1-1, 7.2.2)	W	W	R	-
4.3.4	Insulation resistance measurement test (IEC 62040-5-3, 6.2.2.1, IEC 60146-1-1, 7.2.3)	H	W	R	-
4.3.5	Applied voltage test (IEC 62040-5-3, 6.2.2.1, IEC 60146-1-1, 7.2.2)	H	W	R	-
4.3.6	Functional test - light load (IEC 62040-5-3, 6.2.2.3, S-702, 8.1.2.1, 8.1.2.10, 8.1.2.13, 8.1.2.16, 8.1.2.18, 8.1.2.2, 8.1.2.3, 8.1.2.4, 8.1.2.5, 8.1.2.6, 8.1.2.7, 8.1.2.8, 8.2.2.4, 8.2.2.5, 8.2.2.6, 8.2.4.1, 8.2.4.3, 8.2.4.5, 8.2.5.1, 8.2.5.2, 8.2.5.3, 8.2.5.4, 8.2.5.5, Table 6)	H	H	W	W
4.3.7	Auxiliary equipment and control circuit test - no load (IEC 62040-5-3, 6.2.2.4)	W	W	R	-

4.3.8	Full load test (IEC 62040-5-3, 6.2.2.5, S-702, 7.7.3)	H	H	W	W
4.3.9	AC input failure test (IEC 62040-5-3, 6.2.2.6)	H	W	R	-
4.3.10	AC input return test (IEC 62040-5-3, 6.2.2.7)	H	W	R	-
4.3.11	Dynamic performance test (IEC 62040-5-3, 6.4.2.9)	H	W	R	R
4.3.12	Load Duration Test (IEC 60146-1-1, 7.4.2)	H	H	W	W
4.3.13	DC Ripple Measurement (IEC 62040-5-3, 6.4.4.3, IEC 60146-1-1, 7.3.5, S-702, 8.1.1.7)	H	W	R	-
4.3.14	Overload Test (IEC 62040-5-3, 6.4.2.8.1, 6.4.2.8.2)	H	W	R	R
4.4	Witness Test (IEC 62040-3, 6.1.4, Table 3)	H	W	W	W
5	**Release of product or service**				
5.1	Closeout of observations (if any) during factory acceptance test	H	W	R	R
5.2	Handling, packing, preservation and storage (S-702L, S-702, 9.1, 9.2, 9.3, 9.4, 9.5, 9.6)	W	W	R	R
5.3	Final documentation review; as per IRS (S702L)	H	H	H	R
5.4	Release equipment	H	H	H	H
6	**Integration testing**				
6.1	Site Test (IEC 62040-3, 6.1.3,6.3, Table 3, S-702, 8.1.1.6)	H	H	W	W
	H is hold point, W is witness point, S is surveillance and R is review. Note: Definitions for these terms are provided in Section 3 of this document.				

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