

Ballot Preview

Presentation – P627

April 8, 2008 (SC-2 Mtg 08-1)
By David A. Horvath (WG-2.10 Chair)

“Standard for Qualification of
Equipment Used in Nuclear
Facilities”

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1. PAR Summary

- **PAR** was approved May 7, 2007; Revision submitted at NPEC AdCom 08-1 (Jan. 2008) Expect approval by IEEE NesCom June 2008.
- **Scope of Proposed Standard:** This standard provides the basic principles for qualification of equipment used in nuclear facilities.

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1. PAR Summary (Continued)

Purpose of Proposed Standard:

- The purpose of this standard is to provide basic principles and guidance to demonstrate the qualification of equipment.
- Qualification is intended to confirm the adequacy of the equipment design to perform its required function or functions over the expected range of normal, abnormal, design basis event, post design basis event, and in-service test conditions.

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1. PAR Summary (Continued)

Need (Purpose) for the Project:

- Resurrect and update IEEE Std 627-1980 (R1996) because although withdrawn in 2002, still referenced in:
 - ASME's QME-1-2002 "Qualification of Active Mechanical Equipment Used in Nuclear Power Plants" (but removed in later version as a result of hiatus),
 - NRC's NUREG-0800 Standard Review Plan Section 3.11,
 - at least one reactor vendor's Design Certification Document (DCD),
 - international licensing documents, and
 - elsewhere.

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1. PAR Summary (Continued)

Need (Purpose) for the Project: (Continued)

- Provides high level approaches, criteria, guidance, and principles (bases) applicable to qualification of both electrical and mechanical equipment that appear in no other industry standard.
- Includes an informative (non-mandatory) annex clarifying various terms related to safety such as safety, safety-related, Class 1E, Category 1, important to safety and IROFS. The intent is that clarification of such terms will allow a Facility Owner to be able to make more informative decisions on which equipment needs to be qualified.

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1. PAR Summary (Continued)

- **Additional PAR Explanatory Notes:** A joint working group of IEEE & ASME worked on the original IEEE Std 627. No approaches existed for qualifying mechanical equipment and the ASME codes and standards did not use the term qualification. A compromise was reached to use the term design qualification.
- Later, ASME developed QME-1 for qualifying mechanical equipment. ASME reps on the current WG-2.10 requested removal of the term “*design qualification*” (because it is not used elsewhere) and to replace with “*qualification*” to allow consistency with other IEEE qualification related standards.
- This proposed standard is intended to be an upper tier document to both IEEE Std 323 and ASME Std QME-1. For this reason and consistent with other industry and regulatory requirements, qualification could be applied at a Facility Owners' discretion to other than safety system equipment and to facilities other than nuclear power generating stations.

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1. PAR Summary (Continued)

As a result:

- Old Title: Standard for Design Qualification of Safety-Related Equipment Used in Nuclear Power Generating Stations
- *New Title: Standard for Qualification of Equipment Used in Nuclear Facilities*
- However, high level elements of qualification remain unchanged with this revision.

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2. Working Group Membership

Formed in April 2007 & met 9 times. Now 19 members.
[Owner (6), NSSS (3), AE/Consultant (5), Regulator (2), Mfgr (3)]

Dave Horvath – Chair
Suresh Channarasappa – Vice Chair
Rebecca Steinman – Secretary

Chris Abernathy (Owner EQ)
Nissen Burstein (NSSS / Orig'l WG)
Walter Emerson (AE EQ)
Artur Faya (Canada Regulator)
Phil DiBenedetto (EQ Consultant)
Hamid Heidarisaifa (Owner EQ)
Peter Kang (US Regulator)
Mike Schaepkens (Manufacturer)

Frank Kloer (Manufacturer)
James Parello (NSSS)
Bob Queenan (Mfgr / ISA Liaison)
Doug Hart (Owner EQ)
John Richards (Owner / ASME Liaison)
Glen Schinzel (Owner / ASME Liaison)
Steve Benson (EQ Consultant)
Tom Ruggiero (Owner / ASME Liaison)

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3. P627 Table of Contents Comparison

<u>IEEE Std 627-1980 (R1996)</u>	<u>P627-D2</u>
1. Scope	1. Overview (Scope, Purpose)
2. Purpose	2. Normative References
3. Definitions	3. Definitions
4. Qualification Principles	4. Qualification Principles
5. Specification Criteria	5. Elements of an Equipment Qualification Program
6. Qualification Program	6. Selection of Qualification Methods
7. Documentation	7. Documentation
	Annex A: Safety Terminology
	Annex B: Bibliography

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4. Summary of Changes

This revision incorporates the following improvements to reflect current practices and user needs:

- Becomes an upper tier document to both IEEE Std 323 and ASME QME-1.
- Allows for Owner discretion to apply this standard to other than safety system equipment and to facilities other than nuclear power generating stations.
- Replaces design qualification with equipment qualification or just qualification (because the term design qualification is not widely used).
- Deletes, adds, and updates other definitions.

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4. Summary of Changes (Continued)

12 definitions being updated to current usage:

- Aging
- Auditable data
- Common-cause failure
- Common-mode failure
- Design-basis events
- Qualified condition
- Design life
- Engineered safety features
- Equipment qualification
- Installed life
- Margin
- DBE period of operability

[Also, design qualification being replaced by equipment qualification.]

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4. Summary of Changes (Continued)

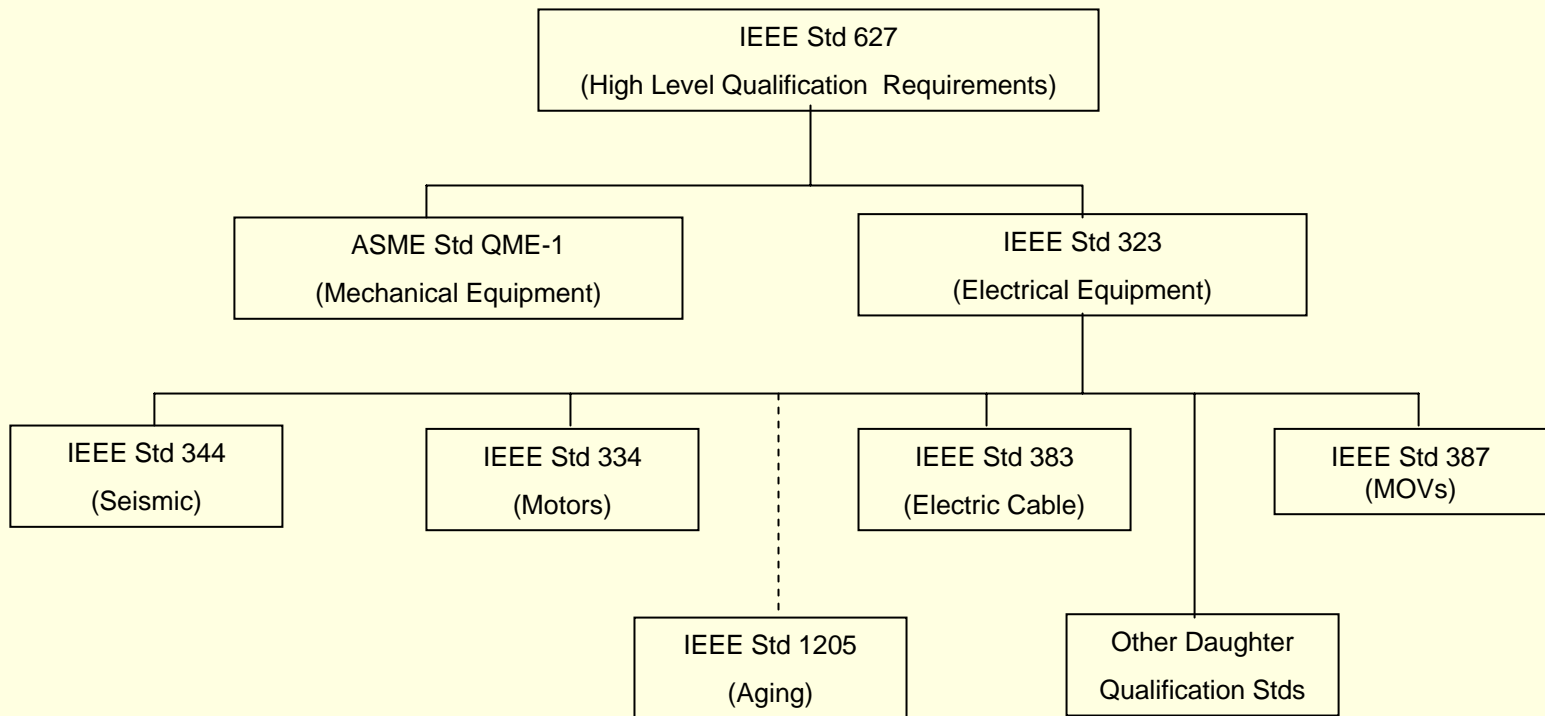
Other improvements:

- Makes minor change to the names of Clauses 5 and 6 and rearranges wording to match the clause titles to facilitate future reference.
- Adds an informative block diagram to clarify the relationship between this standard and other qualification references.
- Adds an informative annex clarifying various terms related to safety for possible use by facility Owners in determining when qualification should be invoked.
- Adds an informative bibliographical annex with a comprehensive list of qualification references.

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4. Summary of Changes (Continued)

IEEE Std 627 Relationship to Other Standards



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4. Summary of Changes (Continued)

Changes resulting from WG-2.10 meeting on April 7, 2008:

- Made several changes to delete “safety” or change to “required” to be consistent with revised PAR direction.
- Relaxed qualified life requirement to allow use of qualified condition.
- Changed /simplified title of Clause 5.
- Further streamlined Clauses 4, 5, and 6 by removing redundancy and consolidation. No real technical changes of note.
- Corrected other minor spelling and grammatical errors.

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4. Schedule

- 4 / 2008: Preview Draft 2 at SC-2 meeting
- 6 / 2008: Resolve SC-2 comments, complete IEEE editor review, and issue Draft 3.
- 7 / 2008: Preview at NPEC; request permission to ballot.
- 9 / 2008: Complete ballot pool.
- Late 10/ 2008: Complete ballot
- 11 / 2008: Resolve ballot comments in Tucson
- 12/ 2008: Recirc ballot, if needed
- 01 / 2009: Submit Form for proposed standard
- Early – Mid 2009 Publish!

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5. Conclusion

- WG-2.10 has developed a draft revision to IEEE Std 627-1980, which meets the requirements of the approved PAR.
- SC-2 is requested to approve a preview at NPEC 08-2 and subsequent ballot.