P1633

Submitter Email: lougullo@comcast.net
Type of Project: Revision to IEEE Standard 1633-2008
PAR Request Date: 19-Mar-2013
PAR Approval Date: 14-Jun-2013
PAR Expiration Date: 31-Dec-2017
Status: PAR for a Revision to an existing IEEE Standard
Root Project: 1633-2008

1.1 Project Number: P1633
1.2 Type of Document: Recommended Practice
1.3 Life Cycle: Full Use

2.1 Title: Recommended Practice on Software Reliability

Changes in title: ~~IEEE~~ Recommended Practice on Software Reliability

3.1 Working Group: Software Reliability Working Group (RS/SC/1633_WG)
Contact Information for Working Group Chair
Name: Ann Neufelder
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3.2 Sponsoring Society and Committee: IEEE Reliability Society/IEEE Reliability (RS/SC)
Contact Information for Sponsor Chair
Name: Louis Gullo
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4.1 Type of Ballot: Individual
4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: 03/2017
4.3 Projected Completion Date for Submittal to RevCom: 10/2017

5.1 Approximate number of people expected to be actively involved in the development of this project: 40

5.2 Scope: This recommended practice defines the software reliability engineering processes, prediction models, growth models, tools and practices of an organization. This document and it's models and tools are useful to any development organization to identify the methods, equations and criteria for quantitatively assessing the reliability of a software or firmware subsystem or product. Organizations that acquire software subsystems or products developed with consideration to this recommended practice will benefit by knowing the reliability of the software prior to acquisition.
This document does not seek to certify either the software or firmware or the processes employed for developing the software or firmware.

Changes in scope: ~~Software~~This ~~reliability~~recommended ~~(SR)~~practice ~~models~~defines ~~have~~the ~~been~~software ~~evaluated~~reliability ~~and~~engineering ~~ranked~~processes, ~~for~~prediction ~~their~~models, ~~applicability~~growth ~~to~~models, ~~various~~tools ~~situations.~~and ~~Many~~practices ~~improvements~~of ~~have~~an ~~been~~organization. ~~made~~This ~~in~~document ~~SR modeling~~ and ~~prediction~~it's ~~since~~models ~~1992.~~and ~~This~~tools ~~revised~~are ~~recommended~~useful ~~practice~~to ~~reflects~~any ~~those~~development ~~advances~~organization ~~in~~to ~~SR~~identify ~~since~~the ~~1992~~methods, ~~including~~equations ~~modeling~~ and ~~prediction~~criteria for ~~distributed~~quantitatively ~~and~~assessing ~~network~~the ~~systems.~~reliability ~~Situation~~of ~~specific~~a ~~usage~~software ~~guidance~~or ~~was~~firmware ~~refined~~subsystem ~~and~~or ~~updated~~product. ~~The~~Organizations ~~methodologies~~that ~~and~~acquire ~~tools~~software ~~included~~subsystems ~~in~~or products developed with consideration to this recommended practice ~~are~~will ~~extended~~benefit ~~over~~by knowing the reliability of the software ~~life~~prior ~~cycle~~to ~~(SLC)~~acquisition. This document does not seek to certify either the software or firmware or the processes employed for developing the software or firmware.

5.3 Is the completion of this standard dependent upon the completion of another standard: No

5.4 Purpose: The purpose for assessing the reliability of a

Changes in purpose: The ~~recommended~~purpose ~~practice~~for

software or firmware subsystem or product is to determine whether the software has met an established reliability objective and facilitate improvement of product reliability. The document defines the recommended practices for predicting software reliability early in development so as to facilitate planning, sensitivity analysis and tradeoffs. This document also defines the recommended practices for estimating software reliability during test and operation so as to establish whether the software or firmware meets an established objective for reliability.

promotesassessing the reliability of a systemssoftware approachor firmware subsystem or product is to SRdetermine prediction.whether Althoughthe theresoftware arehas somemet distinctivean characteristicsestablished reliability objective and facilitate improvement of aerospaceproduct software,reliability. The document defines the principlesrecommended ofpractices for predicting software reliability areearly genericin development so as to facilitate planning, sensitivity analysis and tradeoffs. This document also defines the resultsrecommended canpractices beforbeneficialestimating software reliability during test and operation so as to practitionersestablish inwhether anythe industrysoftware or firmware meets an established objective for reliability.

5.5 Need for the Project: Reliability engineers may not have experience developing software while software engineers may not have experience predicting reliability. Hence, software reliabiity practitioners need step by step practical guidance and tools for applying software reliability prediction models, growth models, sensitivity analysis and assessment on real software or firmware projects during each of the software development activities. The software reliability models have been refined over the years. While the theory for these models has been available, the recommended practices to apply the models on a software or firmware project so as to improve the product and ensure that the software or firmware is delivered with the required reliability, needs to be established.

5.6 Stakeholders for the Standard: This standard will be usable by all organizations developing systems or subsystems that contain software and firmware. In particular, Reliability engineers, Software Quality engineers, and Software managers are stakeholders for this document as well as people/organizations who acquire software subsystems or components.

Intellectual Property
6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?: No
6.1.b. Is the Sponsor aware of possible registration activity related to this project?: No

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7.1 Are there other standards or projects with a similar scope?: Yes
If Yes please explain: The reliability growth standard will discuss methods for estimating reliability growth. However, the IEEE 1633 will primarily discuss predictive models developed especially for software reliability. These models are applicable for use only on software or firmware subsystems or products. The reliability growth standard may include software reliability growth models which may also be included in 1633.

and answer the following
Sponsor Organization: IEEE
Project/Standard Number: P61014
Project/Standard Date:
Project/Standard Title: Standard for Programmes for Reliability Growth
7.2 Joint Development
Is it the intent to develop this document jointly with another organization?: No

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8.1 Additional Explanatory Notes (Item Number and Explanation): 5.2 and 5.4: This standard is being revised to reflect current technology.