

P1597.1

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Type of Project: Revision to IEEE Standard 1597.1-2008

PAR Request Date: 15-Sep-2015

PAR Approval Date: 05-Dec-2015

PAR Expiration Date: 31-Dec-2019

Status: PAR for a Revision to an existing IEEE Standard

Root Project: 1597.1-2008

1.1 Project Number: P1597.1

1.2 Type of Document: Standard

1.3 Life Cycle: Full Use

2.1 Title: Standard for Validation of Computational Electromagnetics Computer Modeling and Simulations

Changes in title: ~~IEEE~~ Standard for Validation of Computational Electromagnetics Computer Modeling and Simulations

3.1 Working Group: Computational Electromagnetics Working Group (EMC/SDCom/CEM_1597)

Contact Information for Working Group Chair

Name: Alistair Duffy

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Contact Information for Working Group Vice-Chair

None

3.2 Sponsoring Society and Committee: IEEE Electromagnetic Compatibility Society/Standards Development Committee (EMC/SDCom)

Contact Information for Sponsor Chair

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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: 12/2017

4.3 Projected Completion Date for Submittal to RevCom: 05/2018

5.1 Approximate number of people expected to be actively involved in the development of this project: 20

5.2 Scope: This standard defines a method to validate computational electromagnetics (CEM) computer modeling and simulation (M&S) techniques, codes and models. It is applicable to a wide variety of electromagnetic (EM) applications including, but not limited to, the fields of electromagnetic compatibility (EMC), radar cross section (RCS), signal and power integrity (SIPI) and antennas. Validation of a particular solution data set can be achieved by comparison to the data set obtained by measurements, alternate codes, canonical or analytical methods.

Changes in scope: This standard defines a method to validate computational electromagnetics (CEM) computer modeling and simulation (M&S) techniques, codes; and models. It is applicable to a wide variety of electromagnetic (EM) applications including, but not limited to, the fields of electromagnetic compatibility (EMC), radar cross section (RCS), signal **and power** integrity (~~SI~~**SIPI**); and antennas. Validation of a particular solution data set can be achieved by comparison to the data set obtained by measurements, alternate codes, canonical; or ~~analytic~~**analytical** methods.

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

5.4 Purpose: The purpose is to provide modelers and those requiring models to demonstrate and request validation of codes models for improved confidence building on the technical developments and understanding of usage since the original publication.

Changes in purpose: ~~This~~**The standard purpose provides is to** formal~~provide mechanism modelers for and comparing those~~ requiring results models of to various demonstrate CEM techniques, codes, and models request ~~in~~validation a repeatable way against a set of "golden" codes benchmarks, models including for standard improved validation confidence and building canonical problem sets. These data are based on theoretical the formulations, technical or developments

~~obtained and as a result of performing high quality measurements and, original in certain cases, based on accurate analyses that have undergone and withstood peer validation~~ **obtained as a result of performing high quality measurements and, original in certain cases, based on accurate analyses that have undergone and withstood peer validation.**

5.5 Need for the Project: This standard is needed to guide the validation of CEM application models. Concerns persist throughout the EM community that there are no well-defined methods that can be used to achieve code-to-code or simulation-to-measurement validations within a consistent level of accuracy. The proposed standard addresses these concerns and provides a method for the validation of CEM codes and models. The original publication has demonstrated that there is a need for this standard and, with a better understanding of how it is used and with the additional technical developments since the original publication in 2008, a thorough revision is required.

5.6 Stakeholders for the Standard: Stakeholders include virtually every industry that is involved in electrical, electronic and computer systems design for commercial and military users and applications, including but not limited to telecom, sensors, complex networks, large systems, medical, environmental, etc.

Intellectual Property

6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?: Yes

If yes please explain: It is likely that copyright permissions will be required for the use of material published in papers and theses.

6.1.b. Is the Sponsor aware of possible registration activity related to this project?: No

7.1 Are there other standards or projects with a similar scope?: No

7.2 Joint Development

Is it the intent to develop this document jointly with another organization?: No

8.1 Additional Explanatory Notes (Item Number and Explanation): The standard is coming to the end of its validity period. The standard itself has seen a good uptake (as evidenced by references to the standard in the Transactions on EMC, for example). The Working Group is better aware of how the community interacts with the standard and there has been some significant developments in the technology embedded in the standard, which all indicate that a revision is timely and required.