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23 September 2005

Ronald C Petersen
R C Petersen Associates, LLC
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Re: P1528.1 - Recommended Practice for Determining the Peak Spatial Average Specific Absorption Rate (SAR) in the Human Body from Wireless Communications Devices, 30 MHz - 6 GHz: General Requirements for using the Finite Difference Time Domain (FDTD) Method for SAR Calculations

Dear Ronald:

I am pleased to inform you that on 22 September 2005 the IEEE-SA Standards Board approved the above referenced project until 31 December 2009. A copy of the file can be found on our website at <http://standards.ieee.org/board/nes/projects/1528-1.pdf>.

Now that your project has been approved, please forward a roster of participants involved in the development of this project. This request is in accordance with the IEEE-SA Operations Manual, Clause 5.1.2i under Duties of the Sponsor which states:

"Submit annually to the IEEE Standards Department an electronic roster of individuals participating on standards projects"

For your convenience, an Excel spreadsheet for your use has been posted on our website at <http://standards.ieee.org/guides/par/roster.xls>. Please forward this list to me via e-mail at j.haasz@ieee.org no later than 21 December 2005.

Please visit our website, IEEE Standards Development Online (<http://standards.ieee.org/resources/development/index.html>), for tools, forms and training to assist you in the standards development process. Also, we strongly recommend that a copy of your draft be sent to this office for review prior to the final vote by the working group to allow for a quick review by editorial staff before sponsor balloting begins.

If you should have any further questions, please contact me at 732-562-6367 or by email at j.haasz@ieee.org.

Sincerely,

Jodi Haasz
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PAR FORM

PAR Status: New PAR

PAR Approval Date: 2005-09-22

PAR Signature Page on File: Yes

1. Assigned Project Number: P1528.1

2. Sponsor Date of Request: 2005-07-04

3. Type of Document:

4. Title of Document:

Draft: Recommended Practice for Determining the Peak Spatial Average Specific Absorption Rate (SAR) in the Human Body from Wireless Communications Devices, 30 MHz - 6 GHz: General Requirements for using the Finite Difference Time Domain (FDTD) Method for SAR Calculations

5. Life Cycle: Full-Use

6. Type of Project:

6a. Is this an update to an existing PAR? No

6b. The Project is a: New Standard

7. Working Group Information:

Name of Working Group: Computational Techniques Working Group

Approximate Number of Expected Working Group Members:25

8. Contact information for Working Group Chair:

Name of Working Group Chair: Wolfgang Kainz

Telephone: +1 301 827 4972 **FAX:** +1 301 827 4947

Email: wolfgang.kainz@fda.hhs.gov

9. Contact information for Co-Chair/Official Reporter, Project Editor or Document Custodian if different from the Working Group Chair:

Name of Co-Chair/Official Reporter, Project Editor or Document Custodian:

Telephone: **FAX:**

Email:

10. Contact information for Sponsoring Society or Standards Coordinating Committee:

Name of Sponsoring Society and Committee: SCC39-International Committee on Electromagnetic Safety International Committee on Electromagnetic Safety

Name of Sponsoring Committee Chair: Ronald C Petersen

Telephone: 908-234-0373 **FAX:** 908-470-9230

Email: r.c.petersen@ieee.org

Name of Liaison Rep. (if different from the Sponsor Chair):

Telephone: FAX:

Email:

Name of Co-Sponsoring Society and Committee:

Name of Co-Sponsoring Committee Chair:

Telephone: FAX:

Email:

Name of Liaison Rep. (if different from the Sponsor Chair):

Telephone: FAX:

Email:

11. The Type of ballot is: Individual Sponsor Ballot

Expected Date of Submission for Initial Sponsor Ballot: July 2008

12. Projected Completion Date for Submittal to RevCom: July 2009

Target Extension Request Information for a Modified PAR whose completion date is being extended past the original four-year life of the PAR:

13. Scope of Proposed Project:

This recommended practice describes the concepts, anatomical models for compliance assessments, techniques, validation procedures, uncertainties and limitations of the finite-difference time-domain technique (FDTD) when used for determining the spatial peak specific absorption rate (SAR) in standardized human anatomical models exposed to wireless communication devices. Recommendations for standardized anatomical models and general benchmark data for these models are provided. Specific SAR limit values (basic restrictions) are not included since these are found in other documents, e.g., IEEE C95.1-200X.

Is the completion of this document contingent upon the completion of another document?

No

14. Purpose of Proposed Project:

The purpose of this recommended practice is to specify numerical techniques and standardized anatomical models used for determining the spatial peak specific absorption rates (SAR) in the human body of users for wireless communication devices. SAR is determined by applying Finite Difference Time Domain (FDTD) techniques to simulate the field conditions produced by wireless devices in anatomically correct models of the human anatomy. Intended users of this practice will be (but will not be limited to) wireless communication device manufacturers and wireless service providers that are required to certify that their products comply with the applicable SAR limits, and government agencies.

15. Reason for the Proposed Project:

Computational techniques have reached a level of maturity which allows their use in compliance assessments of professional and consumer wireless communication devices. Especially FDTD has demonstrated its applicability in various aspects of electromagnetic computations under research settings during the last 3 decades. FDTD has also been used to model the SAR of antennas and small transmitters to facilitate product development. The increasing costs of

assessing product compliance with exposure standards using traditional (measurement) techniques calls for new compliance techniques. This technique should be time efficient and cost effective. Some wireless communication devices are used in situations where experimental compliance assessments are extremely complex or not possible at all. Certain exposure conditions that cannot be easily evaluated with measurement techniques due to transmitter, antenna or phantom setup constraints may be assessed with numerical modeling. FDTD may also be used in conjunction with measurements to evaluate the exposure of certain configurations. The FCC, FDA and industry encourage the development of consensus standards and encouraged the establishment of this subcommittee. The benefits include applying standardized and accepted computational protocols and standardized anatomical models, validation techniques, benchmark data, reporting format and means for estimating the overall uncertainty in order to produce valid, repeatable, and reproducible data for compliance assessment.

16. Intellectual Property:

- a. Has the IEEE-SA policy on intellectual property been presented to those responsible for preparing/submitting this PAR?** Yes 2005-06-02
- b. Is the sponsor aware of copyright permissions needed for this project?** No
- c. Is the sponsor aware of trademarks that apply to this project?** No
- d. Is the sponsor aware of possible registration activity related to this project?** No

17. Are there other documents or projects with a similar scope? No

Similar Scope Project Information:

18. Is there potential for this document (in part or in whole) to be adopted by another national, regional or international organization? Do not know at this time

If yes, the following questions must be answered:

Organization Name?

Technical

Committee

International

Contact

Information?

19. Will this project result in any health, safety, or environmental guidance that affects or applies to human health or safety? Yes

If yes, please explain:

This recommended practice does not focus directly on safety and health but can be used for assessing compliance of certain communications devices with established safety criteria of contemporary standards and guidelines, e.g., IEEE Std C95.1, the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines, and the requirements adopted by various government agencies. It does not recommend or endorse any specific safety limits for human exposure.

20. Sponsor Information

- a. Is the scope of this project within the approved/scope/definition of the Sponsor's Charter? Yes**
If no, please explain:
- b. The Sponsor's procedures have been accepted by the IEEE-SA Standards Board Audit Committee? Yes**

21. Additional Explanatory Notes: (Item Number and Explanation)