knowledgeable readers who are not necessarily specialists in the subjects being treated. The papers are of long-range interest and broad significance. Applications and technological issues, as well as theory, are emphasized. The topics include all aspects of electrical and computer engineering and science. From time to time, papers on managerial, historical, economic, and ethical aspects of technology are published. Papers are authored by recognized authorities and reviewed by experts. They include extensive introductions written at a level suitable for the nonspecialist, with ample references for those who wish to probe further. Several issues a year are devoted to a single subject of special importance.

Prospective authors, before preparing a full-length manuscript, are urged to submit a proposal containing a description of the topic and its importance to Proceedings readers, a detailed outline of the proposed paper and its type of coverage, and a brief biography showing the authors' qualifications for writing the paper. A proposal can be reviewed most efficiently if it is sent electronically to the Managing Editor at j.calder@ieee.org. If the proposal receives a favorable review, the author will be encouraged to prepare the paper for publication consideration through the normal review process.

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IV. GENERAL MANUSCRIPT PREPARATION

A. Consecutive Numbering of Parts

All manuscript pages, footnotes, equations, and references should be labeled in consecutive numerical order. Illustrations and tables should be cited in text in numerical order. See Section IV-G of this guide.

B. Manuscript Formats

See copies of the publications for examples of proper paper formats and requirements for the types of papers accepted for each publication (i.e., Full Papers, Letters, Short Papers, etc.).

Full length papers generally consist of the title, byline, author affiliation, footnote (including any financial support acknowledgment), index terms, abstract, nomenclature if present, introduction, body, conclusions, reference list, list of figures and table captions, and original figures and tables for reproduction. A paper may also include appendixes, a glossary of symbols, and an acknowledgment of nonfinancial support.

C. Abstract

The abstract should be limited to 50–200 words and should concisely state what was done, how it was done, principal results, and their significance. The abstract will appear later in various abstracts journals and should contain the most critical

information of the paper.

D. References

A numbered list of references must be provided at the end of the paper. The list should be arranged in the order of citation in text, not in alphabetical order. List only one reference per reference number.

In text, each reference number should be enclosed by square brackets. Citations of references may be given simply as "in [1] ...", rather than as "in reference [1] ...". Similarly, it is not necessary to mention the authors of a reference unless the mention is relevant to the text. It is almost never useful to give dates of references in text. These will usually be deleted by Staff Editors if included.

Footnotes or other words and phrases that are not part of the reference format do not belong on the reference list. Phrases such as "For example," should not introduce references in the list, but should instead be given in parentheses in text, followed by the reference number, i.e., "For example, see [5]."

Sample correct formats for various types of references are as follows.

Books:

- [1] G. O. Young, "Synthetic structure of industrial plastics," in *Plastics*, 2nd ed., vol. 3, J. Peters, Ed. New York: McGraw-Hill, 1964, pp. 15–64.
- [2] W.-K. Chen, *Linear Networks and Systems*. Belmont, CA: Wadsworth, 1993, pp. 123–135.

Periodicals:

- [3] J. U. Duncombe, "Infrared navigation—Part I: An assessment of feasibility," *IEEE Trans. Electron Devices*, vol. ED-11, pp. 34–39, Jan. 1959.
- [4] E. P. Wigner, "Theory of traveling-wave optical laser," *Phys. Rev.*, vol. 134, pp. A635–A646, Dec. 1965.
- [5] E. H. Miller, "A note on reflector arrays," *IEEE Trans. Antennas Propagat.*, to be published.

Articles from Conference Proceedings (published):

[6] D. B. Payne and J. R. Stern, "Wavelength-switched passively coupled single-mode optical network," in *Proc. IOOC-ECOC*, 1985, pp. 585–590.

Papers Presented at Conferences (unpublished):

[7] D. Ebehard and E. Voges, "Digital single sideband detection for interferometric sensors," presented at the 2nd Int. Conf. Optical Fiber Sensors, Stuttgart, Germany, Jan. 2-5, 1984.

Standards/Patents:

[8] G. Brandli and M. Dick, "Alternating current fed power supply," U.S. Patent 4 084 217, Nov. 4, 1978.

Technical Reports:

[9] E. E. Reber, R. L. Mitchell, and C. J. Carter, "Oxygen absorption in the Earth's atmosphere," Aerospace Corp., Los Angeles, CA, Tech. Rep. TR-0200 (4230-46)-3, Nov. 1968.

E. References—Electronic Sources

The guidelines for citing electronic information as offered below are a modified illustration of the adaptation by the International Standards Organization (ISO) documentation system and the American Psychological Association (APA) style. Three pieces of information are required to complete each reference: 1) protocol or service; 2) location where the item is to be found; and 3) item to be retrieved. It is not necessary to repeat the protocol (i.e., http) in Web addresses after "Available" since that is stated in the URL.

Books: Author. (year, month day). *Title*. (edition) [Type of medium]. *volume (issue)*. Available: site/path/file *Example*:

[1] J. Jones. (1991, May 10). *Networks*. (2nd ed.) [Online]. Available: http://www.atm.com

Journals: Author. (year, month). Title. *Journal*. [Type of medium]. *volume (issue)*, pages. Available: site/path/file *Example:*

[2] R. J. Vidmar. (1992, Aug.). On the use of atmospheric plasmas as electromagnetic reflectors. *IEEE Trans. Plasma Sci.* [Online]. *21(3)*, pp. 876–880. Available: http://www.halcyon.com/pub/journals/21ps03-vidmar

Papers Presented at Conferences: Author. (year, month). Title. Presented at Conference title. [Type of Medium]. Available: site/path/file

Example:

[3] PROCESS Corp., MA. Intranets: Internet technologies deployed behind the firewall for corporate productivity. Presented at INET96 Annu. Meeting. [Online]. Available: http://home.process.com/Intranets/wp2.htp

Reports and Handbooks: Author. (year, month). Title. Company. City, State or Country. [Type of Medium]. Available: site/path/file

Example:

[4] S. L. Talleen. (1996, Apr.). The Intranet Architecture: Managing information in the new paradigm. Amdahl Corp., CA. [Online]. Available: http://www.amdahl.com/doc/products/bsg/intra/infra/html

Computer Programs and Electronic Documents: ISO recommends that capitalization follow the accepted practice for the language or script in which the information is given.

Example:

[5] A. Harriman. (1993, June). Compendium of genealogical software. Humanist. [Online]. Available e-mail: HUMANIST@NYVM.ORG Message: get GENEALOGY REPORT

F. Figures, Tables, and Captions List

For production purposes, any line art, graphs, charts, drawings, tables, and photographs will be treated as a graphic for final production. The IEEE Transactions/Journals Department does not provide drafting or art services. Thus, the

better the quality of the material submitted, the better the published result.

Graphic files may be submitted electronically in Postscript (PS), and Encapsulated Postscript (EPS), Tagged Image File Format (TIFF), Microsoft Word, Microsoft PowerPoint, Microsoft Excel, and Portable Document Format (PDF). As part of the production process, all submitted files are converted to TIFF format. (see Section V-D for more information on electronic graphics). Detailed instructions on the preparation of high-quality electronic graphics can be found at http://www.ieee.org/documents/eic-guide.pdf

All line drawings and photos should be in black and white, unless special arrangements have been made to process them in color. If color is to be reproduced in print, the author must agree to accept responsibility for payment of the costs for separations and printing *before* any processing is performed. The author must provide a method of payment as well, either through their organization or by credit card. The current cost for color reproduction is a flat printing fee of US\$1,045.00 (4 pages or less with color) plus US\$62.50 per piece of color artwork. (Please note that this cost does not include the ordering of reprints.)

Please use consistent typefaces on all your figures. Figures will be reduced to make the smallest type size 8 points. Generally, one or two typefaces should suffice. It is suggested that you use either Times Roman or Sans Serif. For best results, all of your figures should be the same size (width × length) whenever possible.

On graphs, show only the coordinate axes, or at most the major grid lines, to avoid a dense result after reduction. Do not put boxes around your figures to enclose them.

Captions should be included as a separate list at the end of the paper.

If corrections cannot be that to a graphic at IEEE, a new corrected graphic (including tables) must be submitted by the author when returning the proofs.

G. Section Headings

Primary section headings within papers are enumerated by Roman numerals and are centered above the text. For the purpose of typing the manuscript only, primary headings should be capital letters. Sample:

I. PRIMARY HEADING

(TEXT)

Secondary section headings are enumerated by capital letters followed by periods ("A.", "B.", etc.) and are flush left above their sections. The first letter of each word is capitalized. In print, the headings will be in italics. Sample:

A. Second<mark>ary Heading</mark>

(TEXT)

Tertiary section headings are enumerated by Arabic numerals followed by a parenthesis. They are indented, run into the text in their sections, and are followed by a colon. The first letter