

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NEC CORPORATION (JAPAN)  
Petitioner

v.

ADAPTIX, INC.  
Patent Owner

Patent 8,934,445

**TITLE: MULTI-CARRIER COMMUNICATIONS WITH ADAPTIVE  
CLUSTER CONFIGURATION AND SWITCHING**

**DECLARATION OF DR. SYLVIA HALL-ELLIS**  
**UNDER 37 C.F.R. § 1.68**

I, Sylvia Hall-Ellis, do hereby declare:

1. I have personal knowledge of the facts set forth herein, and am competent to testify to the same.

2. In the preparation of this declaration, I have studied:

- a. Van Nee, *et al.*, "OFDM for Wireless Multimedia Communications" (1999) ("*Van Nee*"), Ex. 1011;

- b. MARC record for Van Nee, Ex. 1012;
- c. Lajos Hanzo *et al.*, “Single- and Multi-carrier Quadrature Amplitude Modulation: Principles and Applications for Personal Communications, WLANs and Broadcasting” (1999) (“*Hanzo*”), Ex. 1014;
- d. MARC record for Hanzo, Ex. 1015;
- e. Theodore Rappaport, “Wireless Communications: Principles & Practice” (1995) (“*Rappaport*”), Ex. 1016; and
- f. MARC record for *Rappaport*, Ex. 1017.

3. I was asked to investigate the references Ex. 1011, Ex. 1014, and Ex. 1016, and to determine their respective dates of public availability, if any, and specifically, to determine whether those references were published before December 15, 2000. This declaration sets forth my findings, as well as the bases for those findings.

## **I. BACKGROUND AND QUALIFICATIONS**

4. I am currently an Adjunct Professor in the School of Information at San José State University and the Director of Grants and Resource Development for the Colorado Community College System. I was previously the Senior Grant Administrator for the Morgridge College of Education at the University of Denver. I was also previously an Associate Professor and lecturer at the University of

Denver, where I received tenure in 2007. I obtained a Masters of Library Sciences from the University of North Texas in 1972, and a Ph.D in Library Sciences from the University of Pittsburgh in 1985. I was first employed as a librarian in 1966, and have been involved in the field of library sciences since, holding numerous positions.

5. I have also given over one hundred presentations in the field, including several on library cataloging systems and MARC standards. My current research interests include library cataloging systems, metadata, and organization of electronic resources.

6. My full curriculum vitae is set forth in Ex. 1009. I am being compensated at a rate of \$300.00 per hour, with reimbursement for actual expenses, for my work related to this Petition for *Inter Partes* Review. My compensation is not dependent on and in no way affects the substance of my statements in this Declaration.

7. I am a member of the American Library Association (ALA) and its Association for Library Collections & Technical Services (ALCTS) Division, and I served as the chair of the Committee for Education and Training of Catalogers and the Competencies and Education for a Career in Cataloging Interest Group. I also served as the Chair of the ALCTS Division's Task Force on Competencies and

Education for a Career in Cataloging. Additionally, I have served as the Chair for the ALA Office of Diversity's Committee on Diversity.

## **II. LIBRARY CATALOGING USING MARC**

8. In general, libraries make purchases of newly published books throughout the year as the books are published, and libraries then catalog and shelve the books as soon thereafter as possible in order to make the books available to their patrons. Thus, books are typically generally available at libraries across the country within just a few days of publication and arrival in the library.

9. I am fully familiar with a library cataloging standard known as the "Machine Readable Cataloging" standard, also known as "MARC," which is an industry-wide standard method of organizing library catalog information. MARC was first developed in the 1960's by the Library of Congress. A MARC-compatible library is one that has a catalog consisting of individual MARC records for each of its items. Today, MARC is the primary communication protocol for the transfer and storage of bibliographic metadata in libraries.

10. When an Online Computer Library Center (OCLC) participating institution acquires a work, it creates a MARC record for this work in its computer catalog system and OCLC automatically supplies the date of creation. The MARC record creation date reflects the date on or shortly after the item was first acquired and catalogued by the library that creates the MARC record. Once the MARC



record is created by a cataloger at an OCLC participating member institution, that record is instantaneously available to any OCLC participating members, and therefore available to the public.

11. A MARC record comprises several fields, each of which contains specific data about the work. Each field is identified by a standardized, unique, three-digit code corresponding to the type of data that follows. I summarize a few of the pertinent fields below:

- a. **Field 001 (“Control Number”).** Contains the control number assigned by the organization creating, using, or distributing the record.
- b. **Field 245 (“Title Statement”).** Information describing the title of the work is recorded in Field 245;
- c. **Field 246 (“Variant Title”).** Variations for the title appear in Field 246;
- d. **Field 100 (“Author”).** The primary author of the work is recorded in Field 100;
- e. **Field 008 (“General Information”).** This field comprises the date the MARC entry was entered on file and the date on which the MARC entry would have been searchable by other fields of the MARC record (*e.g.*, Title, Author, General subject matter).

Specifically, the date of creation is identified in the first six characters, in the format YYMMDD;

- f. **Field 020 (“International Standard Serial Number”).** A work’s International Standard Book Number (“ISBN”) is recorded in Field 020;
- g. **Field 050 (“Library of Congress Call Number”).** An item’s call number assigned by the Library of Congress is recorded in Field 050;
- h. **Field 260 (Bibliographic data).** Information such as the place of publication, name of the publisher, and the copyright year is recorded in Field 260;
- i. **Field 040 (“Cataloging Source”).** The library that created the record is recorded in field 040 in subfield “a” with a unique library code.<sup>1</sup> MARC Field 040 contains the OCLC symbols of institutions transcribing, creating, and modifying the record.

For example, the OCLC symbol for the Library of Congress is

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<sup>1</sup> For more information about MARC Field 040, please refer to <http://www.oclc.org/bibformats/en/0xx/040.html>. The symbol in subfield “a” corresponds to the symbol for the institution inputting the original record. For a list of OCLC symbols and their corresponding institutions, please refer to <http://www.oclc.org/contacts/libraries.en.html>.

“DLC.” Notably, this field may identify more than one institution; and

- j. **Field 650 (“Topical Subjects”).** This field includes the general subject matter of the work, and terms that would generally be used to search for and locate the subject of the work.

12. The OCLC was created “to establish, maintain and operate a computerized library network and to promote the evolution of library use, of libraries themselves, and of librarianship, and to provide processes and products for the benefit of library users and libraries, including such objectives as increasing availability of library resources to individual library patrons and reducing the rate of rise of library per-unit costs, all for the fundamental public purpose of furthering ease of access to and use of the ever-expanding body of worldwide scientific, literary and educational knowledge and information.”<sup>2</sup>

13. Among other services, OCLC and its members are responsible for maintaining the WorldCat database (<http://www.worldcat.org/>), used by independent and institutional libraries throughout the world. OCLC is the international cooperative into which libraries catalog records and others pay to access MARC records. MARC records that are contributed to the OCLC database

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<sup>2</sup> Third Article, Amended Articles of Incorporation of OCLC Online Computer Library Center, Incorporated (available at [http://www.oclc.org/en-US/councils/documents/amended\\_articles.html](http://www.oclc.org/en-US/councils/documents/amended_articles.html)).



are accessible by any OCLC member institution (and the patrons of those member institutions).

14. OCLC also provides its members online access to MARC records through its OCLC Connexion database. When an OCLC member institution acquires a work, it creates a MARC record for this work in its computer catalog system in the ordinary course of its business. MARC records created at the Library of Congress are tape-loaded into the OCLC database through a subscription to MARC Distribution Services daily or weekly. Once the MARC record is created by a cataloger at an OCLC member institution or is tape-loaded from the Library of Congress, the MARC record is then made available to any other OCLC members online, and the underlying work is then made available to the public. For example, once a MARC record has been entered, that work is indexed and searchable by author (Field 100), title (Fields 245 and 246), and general subject matter (Field 650) worldwide by members. A member of the public could therefore locate the work via the MARC record, and the owning library would typically make that work available on request.

15. When any OCLC member institution (such as the Library of Congress) creates a new MARC record, OCLC automatically supplies the date of creation for that MARC record in the first six characters of Field 008. The MARC record creation date reflects the date on which, or shortly after which, the item was



first acquired or cataloged. Initially, Field 008 of the MARC record is automatically populated with the date of creation in year, month, day format (YYMMDD) (some of the newer library catalog systems also include hour, minute, second (HHMMSS)). Notably, the date represented in this field is system-supplied, and cannot generally be changed after the MARC entry is created.

### III. FINDINGS WITH RESPECT TO PUBLIC AVAILABILITY

#### A. The Van Nee Textbook (Ex. 1011) Was Available To The Public As of October 7, 1999.

16. Ex. 1012 is true and correct printout of the electronic MARC record maintained by the Library of Congress for the book “OFDM for Wireless Multimedia Communications” by Richard Van Nee and Ramjee Prasad (“*Van Nee*,” Ex. 1011). Ex. 1012 is accessible as a web page via the Library of Congress website using a standard web browser (<https://catalog.loc.gov>), and I personally accessed and viewed this web page to confirm the accuracy of its contents.

17. Ex. 1012 is a true and correct copy of a web page maintained in the ordinary course of business by the Library of Congress, and contains MARC information that would be relied on by librarians such as myself, as well as members of the public at large. I have confirmed that Ex. 1012 is the MARC record containing information pertaining to Ex. 1011 by matching the various fields of the MARC record to identifying information of the reference, including, for example, making sure that the authors (Richard Van Nee and Ramjee Prasad),

title (“OFDM for Wireless Multimedia Communications”), Publisher (“Artech House”) and, ISBN (“0-89006-530-6”) are consistent as between the two documents. *See* Ex. 1011 (Cover, Copyright page); Ex. 1012 (Fields 245, 100, 260, 020). Accordingly, Ex. 1012 is a copy of the MARC record for Ex. 1011.

18. Ex. 1012 shows that a cataloguer at the Library of Congress created MARC control number 11805366 (Field 001) for this title. *See* Ex. 1012 (“DLC” in Field 040 indicates the Library of Congress). The cataloguer created the MARC entry on October 7, 1999, indicating that the cataloguer had possession of a physical copy of the *Van Nee* textbook (Ex. 1011) as of at least that date. *Id.* (“991007” in Field 008 indicates date created of October 07, 1999). Once the MARC entry was created on October 7, 1999, the *Van Nee* textbook (Ex. 1011) was effectively indexed in a worldwide electronic database catalog and was made available to the public. For example, a member of the public could locate the work (Ex. 1011) via the MARC record (Ex. 1012) in any library computer cataloging system, and the work could be requested for viewing in person at the Library of Congress.

**B. The Hanzo Textbook (Ex. 1014) Was Available To The Public As of December 17, 1999.**

19. Ex. 1015 is true and correct printout of the electronic MARC record maintained by the Library of Congress for the book “Single and multicarrier quadrature amplitude modulation: principles and applications for personal

communications, WLANs and Broadcasting” by Lajos Hanzo *et al.* (“Hanzo,” Ex. 1014). Ex. 1015 is accessible as a web page via the Library of Congress website using a standard web browser (<https://catalog.loc.gov>), and I personally accessed and viewed this web page to confirm the accuracy of its contents.

20. Ex. 1015 is a true and correct copy of a web page maintained in the ordinary course of business by the Library of Congress, and contains MARC information that would be relied on by librarians such as myself, as well as members of the public at large. I have confirmed that Ex. 1015 is the MARC record containing information pertaining to Ex. 1014 by matching the various fields of the MARC record to identifying information of the reference, including, for example, making sure that the authors (L. Hanzo, W. Webb, T. Keller), title (“Single and multicarrier quadrature amplitude modulation: principles and applications for personal communications, WLANs and Broascasting [sic]”), Publisher (“John Wiley & Sons”) and, ISBN (“0-471-49239-6”) are consistent as between the two documents. *See* Ex. 1014 (Cover, Copyright page); Ex. 1015 (Fields 245, 100, 260, 020). Accordingly, Ex. 1015 is a copy of the MARC record for Ex. 1014.

21. Ex. 1015 shows that a cataloguer at the Library of Congress created MARC control number 11871275 (Field 001) for this title. *See* Ex. 1015 (“DLC” in Field 040 indicates the Library of Congress). The cataloguer created the MARC



entry on December 17, 1999, indicating that the cataloguer had possession of a physical copy of the *Hanzo* textbook (Ex. 1014) as of at least that date. *Id.* (“991217” in Field 008 indicates date created of December 17, 1999). Once the MARC entry was created on December 17, 1999, the *Hanzo* textbook (Ex. 1014) was effectively indexed in a worldwide electronic database catalog and was made available to the public. For example, a member of the public could locate the work (Ex. 1014) via the MARC record (Ex. 1015) in any library computer cataloging system, and the work could be requested for viewing in person at the Library of Congress.

**C. The Rappaport Textbook (Ex. 1016) Was Available To The Public As Of November 30, 1995.**

22. Ex. 1017 is true and correct printout of the electronic MARC record maintained by the Library of Congress for the book “Wireless Communications: Principles & Practice” by Theodore Rappaport (“Rappaport,” Ex. 1016). Ex. 1017 is accessible as a web page via the Library of Congress website using a standard web browser (<https://catalog.loc.gov>), and I personally accessed and viewed this web page to confirm the accuracy of its contents.

23. Ex. 1017 is a true and correct copy of a web page maintained in the ordinary course of business by the Library of Congress, and contains MARC information that would be relied on by librarians such as myself, as well as members of the public at large. I have confirmed that Ex. 1017 is the MARC

record containing information pertaining to Ex. 1016 by matching the various fields of the MARC record to identifying information of the reference, including, for example, making sure that the author (Theodore Rappaport), title (“Wireless Communications: Principles & Practice”), Publisher (“Prentice Hall PTR”) and, ISBN (“0-13-375536-3”) are consistent as between the two documents. *See* Ex. 1016 (Cover, Copyright page); Ex. 1017 (Fields 245, 100, 260, 020). Accordingly, Ex. 1017 is a copy of the MARC record for Ex. 1016.

24. Ex. 1017 shows that a cataloguer at the Point Loma Nazarene University Library created MARC control number 3061473 (Field 001) for this title. *See* Ex. 1017 (“CPT” in Field 040 indicates the Point Loma Nazarene University Library). The cataloguer created the MARC entry on November 30, 1995, indicating that the cataloguer had possession of a physical copy of the *Rappaport* textbook (Ex. 1016) as of at least that date. *Id.* (“951130” in Field 008 indicates date created of November 30, 1995). Once the MARC entry was created on November 30, 1995, the *Rappaport* textbook (Ex. 1016) was effectively indexed in a worldwide electronic database catalog and was made available to the public. For example, a member of the public could locate the work (Ex. 1016) via the MARC record (Ex. 1017) in any library computer cataloging system, and the work could be requested for viewing in person at the Point Loma Nazarene University Library.

#### IV. CONCLUSION

25. This declaration and my opinions herein are made to the best of my knowledge and understanding, and based on the material available to me, at the time of signing this declaration. I declare that all statements made herein on my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 or Title 18 of the United States Code.

DATED: May 23, 2016

  
Dr. Sylvia Hall-Ellis