

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TESLA, INC.,
Petitioner,

v.

INTELLECTUAL VENTURES II LLC,
Patent Owner.

Case IPR2025-00221

U.S. PATENT NO. 11,664,889

**DECLARATION OF SYLVIA D. HALL-ELLIS, PH.D.
UNDER 37 C.F.R. § 1.68 IN SUPPORT OF PETITION
FOR *INTER PARTES* REVIEW**

I. INTRODUCTION

1. My name is Sylvia D. Hall-Ellis. I have been retained as an expert by Counsel for Tesla (referred to herein as “Tesla”).

2. I have written this declaration at the request of Tesla to provide my expert opinion regarding the authenticity and public availability of a publication. My declaration sets forth my opinions in detail and provides the basis for my opinions regarding the public availability of this publication.

3. I reserve the right to supplement or amend my opinions, and basis for them, in response to any additional evidence, testimony, discovery, argument, and/or other additional information that may be provided to me after the date of this declaration. If called to testify in the above-captioned matter, I will testify with regard to the opinions and bases set forth below.

4. I am being compensated for my time spent working on this matter at my normal consulting rate of \$400 per hour, plus reimbursement for any additional reasonable expenses. My compensation is not in any way tied to the content of this declaration, the substance of my opinions, or the outcome of this proceeding. I have no other interests in this proceeding or with any of the parties.

5. All of the materials that I considered are discussed explicitly in this declaration.

II. QUALIFICATIONS

6. I am currently an Adjunct Professor in the School of Information at San José State University. I obtained a Master of Library Science from the University of North Texas in 1972 and a Ph.D. in Library and Information Science from the University of Pittsburgh in 1985. Over the last fifty years, I have held various positions in the field of library and information resources. I was first employed as a librarian in 1966 and have been involved in the field of library sciences since, holding numerous positions.

7. I am a member of the American Library Association (“ALA”) and its Association for Library Collections & Technical Services (“ALCTS”) Division, and I served on the Committee on Cataloging: Resource and Description (which wrote the new cataloging rules) and 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 served as the Chair for the ALA Office of Diversity’s Committee on Diversity, as a member of the REFORMA National Board of Directors, and as a member of the Editorial Board for the ALCTS premier cataloging journal, *Library Resources and Technical Services*, as a Co-Chair of the Membership Committee for the Library Research Round Table (LRRT) of the American Library

Association, and as a member of the LRRT Nominating Committee. Currently I serve as a member of the CORE Margaret Mann Citation Committee.

8. I have also given over one-hundred presentations in the field, including several on library cataloging systems and Machine-Readable Cataloging (“MARC”) standards. My current research interests include library cataloging systems, metadata, and organization of electronic resources.

9. I have been deposed thirty-eight times: (1) *Symantec Corp. vs. Finjan, Inc.*, Petition for *Inter Partes Review* of U.S. Patent No. 7,613,926, May 26, 2016, on behalf of Symantec Corp.; (2) *Symantec Corp. vs. Finjan, Inc.*, Northern District of California, 14-cv-299-HSG, on behalf of Symantec Corp., September 14, 2017; (3) one deposition for ten matters: *Intellectual Ventures I LLC vs. AT&T Mobility LLC*; AT&T Mobility II LLC, New Cingular Wireless Services, Inc., SBC Internet Services, Inc., Wayport, Inc., and Cricket Wireless LLC, C.A. No. 12-193 (LPS); *Intellectual Ventures II LLC vs. AT&T Mobility LLC*; AT&T Mobility II LLC, New Cingular Wireless Services, Inc., SBC Internet Services, Inc., Wayport, Inc., and Cricket Wireless LLC, C.A. No. 13-1631 (LPS); *Intellectual Ventures I LLC vs. T-Mobile USA, Inc. and T-Mobile US, Inc.*, C.A. No. 13-1632 (LPS); *Intellectual Ventures II LLC vs. T-Mobile USA, Inc. and T-Mobile US, Inc.*, C.A. No. 13-1633 (LPS); *Intellectual Ventures I LLC, vs. Nextel Operations, Inc., Sprint Spectrum L.P., Boost Mobile, LLC and Virgin Mobile USA, L.P.*, C.A. No. 13-1634

(LPS); *Intellectual Ventures II LLC vs. Nextel Operations, Inc., Sprint Spectrum L.P., Boost Mobile, LLC and Virgin Mobile USA, L.P.*, C.A. No. 13-1635 (LPS); *Intellectual Ventures I LLC, vs. United States Cellular Corporation*, C.A. No. 13-1636 (LPS); *Intellectual Ventures I LLC vs. United States Cellular Corporation*, C.A. No. 13-1637 (LPS); *Intellectual Ventures II LLC vs. AT&T Mobility LLC, AT&T Mobility II LLC, New Cingular Wireless Services, Inc.*, C.A. No. 15-799 (LPS); *Intellectual Ventures I LLC vs. T-Mobile USA, Inc. and T-Mobile US, Inc.*, C.A. No. 15-800 (LPS), on behalf of AT&T Mobility LLC; AT&T Mobility II LLC, Boost Mobile, LLC Cricket Wireless LLC, Nextel Operations, Inc., New Cingular Wireless Services, Inc., SBC Internet Services, Inc., Sprint Spectrum L.P., T-Mobile USA, Inc., T-Mobile US, Inc., United States Cellular Corporation Virgin Mobile USA, L.P., and Wayport, Inc., November 15, 2016; (4) *Hitachi Maxell, LTD., v. Top Victory Electronics (Taiwan) Co. Ltd., et al.*, Eastern District of Texas, 2:14-cv-1121 JRG-RSP (E.D. Texas), on behalf of Top Victory Electronics (Taiwan) Co. LTD, *et. al.*, January 20, 2016; (5) *Sprint Spectrum, L.P. vs. General Access Solutions, Ltd.*, Petition for *Inter Partes* Review of U.S. Patent No. 7,173,916, on behalf of Sprint Spectrum L.P., July 13, 2018; (6) *Nichia Corporation vs. Vizio, Inc.*, Central District of California, 8:16-cv-00545; on behalf of Vizio, Inc., October 12, 2018; (7) *Intellectual Ventures I LLC, vs. T-Mobile USA, Inc., T-Mobile US, Inc., Ericsson Inc., and Telefonaktiebolaget LM Ericsson*,

Middle District of Florida, 2:17-cv-00557 (JRG), on behalf of T-Mobile USA, Inc., T-Mobile US, Inc., Ericsson Inc., and Telefonaktiebolaget LM Ericsson, October 19, 2018; (8) Pfizer, Inc. vs. Biogen, Inc., Petition for *Inter Partes Review* of U.S. Patent No. 8,821,873, on behalf of Pfizer, November 3, 2018; (9) *Finjan, Inc. vs. ESET, LLC and ESET SPOL. S.R.O.*, Southern District of California, 3:17-cv-00183-CAB-BGS, on behalf of ESET, January 15, 2019; (10) *Finjan, Inc. vs. Cisco Systems, Inc.*, Northern District of California, 5:17-cv-00072-BLF-SVK, on behalf of Cisco Systems, Inc., September 6, 2019; (11) *Facebook, Inc., Instagram, LLC and Whatsapp Inc. vs. Blackberry Limited*, Petition for *Inter Partes Review* of U.S. Patent No. 9,349,120 B2, on behalf of Facebook, Inc., Instagram, LLC and Whatsapp Inc. December 20, 2019; (12) *3Shape A/S and Shape Inc. v. Align Technology, Inc.*, Petition for *Inter Partes Review* of U.S. Patent No. 7,156,661, IPR2020-00222 and IPR2020-00223, August 10, 2020, on behalf of 3Shape A/S and 3Shape Inc.; (13) *Finjan Inc. v. Rapid7, Inc. and Rapid7 LLC*, District of Delaware, 1:18-cv-01519-MN, September 15, 2020; (14) *VLSI Technology LLC v. Intel Corporation*, Western District of Texas, 6:19-cv-00254, 6:19-cv-00255, 6:19-cv-00256, on behalf of Intel Corporation, September 23, 2020; (15) *Finjan Inc. v. Sonicwall, Inc.*, Northern District of California, 5:17-cv-04467-BLF-HRL, on behalf of Sonicwall, Inc., October 27, 2020; (16) *VLSI Technology, LLC v. Intel Corporation*, District of Delaware, 1:18-cv-00966-CFC-CJB, February 5, 2021, on

behalf of the Intel Corporation; (17) *Unified Patents, LLC v. Good Kaisha IP Bridge 1*, Petition for *Inter Partes* Review of U. S. Patent 7,817,868, February 11, 2021, on behalf of Unified Patents; (18) *Finjan, Inc. v. Qualsys, Inc.*, Northern District of California, 4:18-cv-07229-YGR, March 1, 2021, on behalf of Qualsys, Inc.; (19) *Qualcomm, Inc. v. Monterey Research LLC*, Petition for *Inter Partes* Review of U. S. Patent 6,534,805, May 6, 2021, on behalf of Qualcomm, Inc.; (20) *Hulu, LLC v. Sound View Innovations, LLC*, Petition for *Inter Partes* Review of U. S. Patent 5,806,062, May 14, 2021, on behalf of Hulu, LLC; (21) *VLSI Technology LLC v. Intel Corporation*, Western District of Texas, 6:19-cv-00254, 6:19-cv-00255 and 6:19-cv-00256, August 3, 2021, on behalf of Intel Corporation; (22) *Liquidia Technologies, Inc. v. United Therapeutics Corporation*, Petition for *Inter Partes* Review of U. S. Patent 10,716,793 B2, October 20, 2021, on behalf of Liquidia Technologies, Inc.; (23) *EcoFactor, Inc. v. Google, Inc.*, Western District of Texas, 6:20-cv-00075 (ADA), 6:20-0078-ADA, and 6:20-cv-00080 ADA, October 27, 2021, on behalf of Google, Inc.; (24) *Liquidia Technologies, Inc. v. United Therapeutics Corporation*, Petition for *Inter Partes* Review of U. S. Patent 10,716,793 B2, March 11, 2022, on behalf of Liquidia Technologies, Inc.; (25) *Juniper Networks, Inc. v. Swarm Technology LLC*, Petition for *Inter Partes* Review of U. S. Patent 9,852,004, May 5, 2022, on behalf of Juniper Networks, Inc.; (26) *ParkerVision, Inc. v. Intel Corporation*, Western District of Texas, 6:20-cv-108

(ADA), October 26, 2022, on behalf of the Intel Corporation; (27) *CommScope v. TQ Delta*, Petition for *Inter Partes Review* of U. S. Patents 9,094,348 and 10,833,809, February 16, 2023, on behalf of CommScope; (28) *WSOU Investments d/b/a Brazos v. Salesforce.com, Inc.* for Western District of Texas, 6:20-cv-01164-ADA and 6:20-cv-01170-ADA, April 18, 2023, on behalf of Salesforce; (29) *Regents of the University of Minnesota v. AT&T Mobility LLC*, District of Minnesota, 14:cv-4999-JRT-TNL & 14-cv-4669-JRT-TNL, May 18, 2023, on behalf of AT & T Mobility LLC; (30) *VLSI Technology LLC v. Intel Corporation*, Northern District of California, 5:17-cv-0571-BLF-NC, July 11, 2023, on behalf of Intel Corporation; (31) *Trustees of Purdue University v. ST Microelectronics*, Western District of Texas, 6:21-cv-00727-ADA, July 27, 2023, on behalf of ST Microelectronics; (32) *Advanced Micro Devices, Inc. v. Realtek Semiconductor Corp.*, Petition for *Inter Partes Review* of U. S. Patents 7,936,245 & 9,590,582, August 10, 2023, on behalf of Advanced Micro Devices, Inc.; (33) *Motif Foodworks, Inc. v. Impossible Foods, Inc.*, Petition for *Inter Partes Review* of U. S. Patent 9,943,096, August 24, 2023, on behalf of Motif Foodworks, Inc.; (34) *Network System Technologies, LLC v. Texas Instruments, Inc.*, Eastern District of Texas, 2:22-cv-00482-RWS, March 20, 2024, on behalf of Texas Instruments, Inc.; (35) *Pardalis Technology Licensing, LLC v. International Business Machines Corporation*, Eastern District of Texas, 2:22-cv-00452, May 23, 2024, on behalf of

International Business Machines, Corporation; (36) *Pardalis Technology Licensing, LLC v. International Business Machines, Corporation*, Eastern District of Texas, 2:22-cv-00452, May 23, 2024, on behalf of International Business Machines, Corporation; (37) *Meta Platforms, InstaGram, Inc., Whatsapp LLC, Facebook Technologies LLC, and Giphy, Inc. v. VL Collective IP LLC*, Petition for *Inter Partes Review* of U. S. Patent 7,436,980, July 18, 2024, on behalf of Meta Platforms, InstaGram, Inc., Whatsapp LLC, Facebook Technologies LLC, and Giphy, Inc.; and, (38) *LCY Biotechnology Holding, Inc. v. RadiciChimica S.p.A*, Petition for *Inter Partes Review* of U. S. Patent 11,781,148, August 6, 2024, on behalf of LCY Biotechnology Holding, Inc. I have testified at trial three times: (1) *Advanced Micro Devices, Inc. v. Realtek Semiconductor Corp.*, U. S. Patents 7,936,245 & 9,590,582, October 20, 2023, International Trade Commission, Washington, DC, on behalf of Advanced Micro Devices, Inc.; (2) *Trustees of Purdue University v. ST Microelectronics*, Western District of Texas, 6:21-cv-00727-ADA, November 29, 2023, on behalf of ST Microelectronics; and, (3) *Certain Power Converter Modules and Computing Systems Containing the Same*, Investigation ITC-337-TA-1370, International Trade Commission, May 1, 2024, on behalf of Delta Electronics, Inc.

10. My full *curriculum vitae* is submitted herewith as Appendix A.

III. PRELIMINARIES

A. Scope of this declaration.

11. I have been asked to offer an opinion on the public availability dates of the following document:

- a. Chitrapu, Prabhakar. *Wideband TDD: WCDMA for the Unpaired Spectrum*. Chichester, West Sussex, England: John Wiley, c2004.
("Chitrapu," Exhibit 1008).

12. I am informed by counsel that the alleged priority date for the patent at issue is October 13, 2006. As I will explain below, it is my opinion that the publications discussed in my declaration were publicly accessible before the alleged October 13, 2006, priority date.

13. I am not an attorney and will not offer opinions on the law. I am, however, rendering my expert opinion on the authenticity of the documents referenced herein and on when and how each of these documents was disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable diligence, could have located the documents before October 13, 2006.

14. I am informed by counsel that an item is considered authentic if there is sufficient evidence to support a finding that the item is what it is claimed to be. I am also informed that authenticity can be established based on the contents of the

documents themselves, such as the appearance, contents, substance, internal patterns, or other distinctive characteristics of the item, taken together with all of the circumstances. I am further informed that an item is considered authentic if it is at least 20 years old, in a condition that creates no suspicion of its authenticity, and in a place where, if authentic, it would likely be. Lastly, I have been informed that a document's authenticity can be established by comparison with an authentic specimen.

15. I am informed by counsel that a printed publication qualifies as publicly accessible as of the date it was disseminated or otherwise made available such that a person interested in and ordinarily skilled in the relevant subject matter could locate it through the exercise of ordinary diligence.

16. While I understand that the determination of public accessibility under the foregoing standard rests on a case-by-case analysis of the facts particular to an individual publication, I also understand that a printed publication is rendered "publicly accessible" if it is cataloged and indexed by a library such that a person interested in the relevant subject matter could locate it (*i.e.*, I understand that cataloging and indexing by a library is sufficient, though there are other ways that a printed publication may qualify as publicly accessible). One manner of sufficient indexing is indexing according to subject matter category. I understand that the cataloging and indexing by a single library of a single instance of a particular

printed publication is sufficient, even if the single library is in a foreign country. I understand that, even if access to a library is restricted, a printed publication that has been cataloged and indexed therein is publicly accessible so long as a presumption is raised that the portion of the public concerned with the relevant subject matter would know of the printed publication. I also understand that the cataloging and indexing of information that would guide a person interested in the relevant subject matter to the printed publication, such as the cataloging and indexing of an abstract for the printed publication, is sufficient to render the printed publication publicly accessible.

17. I understand that routine business practices, such as general library cataloging and indexing practices, can be used to establish an approximate date on which a printed publication became publicly accessible.

B. Person of Ordinary Skill in the Art

18. I am told by counsel that the subject matter of this proceeding relates to communications in a wireless network and user equipment “configured to receive a control message over a physical control channel.” ’889 Patent, Abstract.

19. I am informed by counsel that a “person of ordinary skill in the art at the time of the invention” (“POSITA”) is a hypothetical person who is presumed to be familiar with the relevant field and its literature at the time of invention. This

hypothetical person is also a person of ordinary creativity, capable of understanding the scientific principles applicable to the pertinent field.

20. I was told by counsel that a POSITA in October 2006 would have had a working knowledge of the wireless communication art that is pertinent to the '889 patent, including transmission power control procedures in 3GPP systems. A POSITA would have had a bachelor's degree in electrical engineering, computer engineering, computer science, or a related field and 2-3 years of experience in digital wireless communications protocols. Lack of professional experience can be remedied by additional education, and vice versa.

21. It is my opinion that such a person would have been engaged in research, learning through study, and practice in the field and possibly through formal instruction the bibliographic resources relevant to his or her research. By no later than the mid 2000s (and more specifically, before October 13, 2006), such a person would have had access to a vast array of long-established print resources in the field, as well as to a rich set of online resources providing indexing information, abstracts, and full text services for publications relevant to the field of this dispute, including at least the publication discussed in this declaration.

C. Authoritative Databases

22. In preparing this declaration, I used authoritative databases, such as the OCLC WorldCat, the Library of Congress Online Catalog, and the U. S. Copyright Office database, to confirm citation details of the publications discussed.

23. *OCLC WorldCat Database*. 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.”¹ Among other services, OCLC and its members are responsible for maintaining the WorldCat database,² used by independent and institutional libraries throughout the world.

¹ Third Article, Amended Articles of Incorporation of OCLC Online Computer Library Center, Incorporated (available at <https://www.oclc.org/content/dam/oclc/membership/articles-of-incorporation.pdf>)

² <http://www.worldcat.org/>

24. *U. S. Copyright Office.* Created by Congress in 1897, the Copyright Office is responsible for administering a complex and dynamic set of laws, which include registration, the recordation of title and licenses, a number of statutory licensing provisions, and other aspects of the *1976 Copyright Act* and the *1998 Digital Millennium Copyright Act*. The public catalog in the Copyright Office includes information filed since 1978.³ Individuals can search by title, personal or corporate name, key word, registration number, and document number. Works filed before 1978 can be located through the Copyright Public Records Reading Room.⁴ A researcher can find the date on which an item was published and deposited for copyright.

D. Indexing

25. A researcher may discover material relevant to his or her topic in a variety of ways. One common means of discovery is to search for relevant information in an index of periodical and other publications. Having found relevant material, the researcher will then normally obtain it online, look for it in libraries, or purchase it from a publisher, a bookstore, a document delivery service, or other provider. Sometimes, the date of a document's public accessibility will

³ <https://cocatalog.loc.gov/cgi-bin/Pwebrecon.cgi?DB=local&PAGE=First>

⁴ <https://www.copyright.gov/circs/circ23.pdf>

involve both indexing and library date information. However, date information for indexing entries is often unavailable. This is especially true for online indices.

26. Indexing services use a wide variety of controlled vocabularies to provide subject access and other means of discovering the content of documents. The formats in which these access terms are presented vary from service to service.

27. Before the widespread development of online databases to index articles in journals, magazines, conference papers, and technical declarations, libraries purchased printed volumes of indices. Graduate library school education mandated that students learn about the bibliographic control of disciplines, the prominent indexing volumes, and searching strategies required to use them effectively and efficiently. Half of the courses that I studied in library school were focused on bibliography and resources in academic disciplines.

28. Librarians consulted with information seekers to verify citations, check availability in union catalogs, printed books catalogs, and the OCLC database, and make formal requests for materials, *e.g.*, books, conference proceedings, journal articles. Requests were transmitted using Telex machines, rudimentary email systems, and the United States Postal Service. During my career, I have performed and supervised staff who handled these resource sharing tasks.

29. A major firm known for the breadth of subjects and comprehensive treatment in the preparation of index volumes, the H. W. Wilson Company offered these reference resources since the firm was founded in 1898. The *Reader's Guide to Periodical Literature* is one of the best-known titles available from H. W. Wilson. Each volume includes a comprehensive index for 300 of the most popular and important periodicals published in the United States and Canada. Information seekers have subject access expressed in plain language terminology, author access, and cross references to find the desired results from their searches. The family of index titles included *Science & Technology Index*, *Business Periodicals*, *Applied Science & Technology Index*, *Humanities Index*, *Biological & Agricultural Index*, and *Industrial Arts Index*. These printed indices have been superseded by digital database offerings available to information seekers through Ebsco.

30. Online indexing services commonly provide bibliographic information, abstracts, and full-text copies of the indexed publications, along with a list of the documents cited in the indexed publication. These services also often provide lists of publications that cite a given document. A citation of a document is evidence that the document was publicly available and in use no later than the publication date of the citing document.

IV. LIBRARY CATALOGING PRACTICES

A. MARC RECORDS AND THE ONLINE LIBRARY CATALOG

31. I am fully familiar with the library cataloging standard known as the MARC standard, which is an industry-wide standard method of storing and organizing library catalog information.⁵ MARC was first developed in the 1960s 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 communications protocol for the transfer and storage of bibliographic metadata in libraries.⁶

32. MARC is a framework into which descriptive bibliographic data are transcribed to interact with the software in online library catalogs to provide access

⁵ The full text of the standard is available from the Library of Congress at <http://www.loc.gov/marc/bibliographic/>.

⁶ Almost every major library in the world is MARC-compatible. *See, e.g., MARC Frequently Asked Questions (FAQ)*, Library of Congress, <https://www.loc.gov/marc/faq.html> (last visited October 29, 2024) (“MARC is the acronym for MACHine-Readable Cataloging. It defines a data format that emerged from a Library of Congress-led initiative that began nearly forty years ago. It provides the mechanism by which computers exchange, use, and interpret bibliographic information, and its data elements make up the foundation of most library catalogs used today.”). MARC is the ANSI/NISO Z39.2-1994 (reaffirmed 2016) standard for Information Interchange Format.

to books, journals, and other resources in the collection. The bibliographic data provide points of access and can be searched by a person of ordinary skill in the art (“POSITA”) to identify and obtain resources in the library collection. An information seeker (or POSITA) can search a local online library catalog or the holdings of a group of libraries in a state or region or in the global catalog WorldCat.

33. MARC records are not designed for public viewing. Although a significant number of libraries provide access to the MARC version of a bibliographic record, the public display is designed to show information in a succinct manner that is quickly understood and useful to the information seeker. Libraries determine the default search for the online catalog to make the entry of search terms efficient and result in a successful search. Information seekers can enter a keyword, title, author, or standard number for the item. Libraries may also provide a search capability called “Summon” that allows the information seeker to enter known information about the item to conduct a search.

34. Since at least the early 1970s and continuing to the present day, MARC has been the primary communications protocol for the transfer and storage of bibliographic metadata in libraries.⁷ As explained by the Library of Congress:

⁷ A complete history of the development of MARC can be found in *MARC: Its History and Implications* by Henrietta D. Avram (Washington, DC: Library of

You could devise your own method of organizing the bibliographic information, but you would be isolating your library, limiting its options, and creating much more work for yourself. Using the MARC standard prevents duplication of work and allows libraries to better share bibliographic resources. Choosing to use MARC enables libraries to acquire cataloging data that is predictable and reliable. If a library were to develop a “home-grown” system that did not use MARC records, it would not be taking advantage of an industry-wide standard whose primary purpose is to foster communication of information.

Using the MARC standard also enables libraries to make use of commercially available library automation systems to manage library operations. Many systems are available for libraries of all sizes and are designed to work with the MARC format. Systems are maintained and improved by the vendor so that libraries can benefit from the latest advances in computer technology. The MARC standard also allows libraries to replace one system with another with the assurance that their data will still be compatible.

Why Is a MARC Record Necessary? LIBRARY OF CONGRESS,
<http://www.loc.gov/marc/umb/um01to06.html#part2> (last visited October 29, 2024).

Congress, 1975) and available online from the Hathi Trust
(<https://babel.hathitrust.org/cgi/pt?id=mdp.39015034388556;view=1up;seq=1>; last visited October 29, 2024).

35. Examining the MARC records for a specific item reveals the comprehensive data transcribed about a particular item at the time that cataloging and classification occurred. In addition to the creator, title, subjects, and standard numbers, additional information may provide additional and relevant data depending on the type of resource. Understanding the full extent of bibliographic data for an item and the points of access associated with it provides essential information that can be used to determine the indexing and public availability for documents described in this Declaration.

B. MARC RECORDS

36. 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 follow. For example, a work's title is recorded in field 245, the primary author or creator of the work is recorded in field 100, an item's International Standard Book Number ("ISBN") is recorded in field 020, an item's International Standard Serial Number ("ISSN") is recorded in field 022, an item's Library of Congress call number is recorded in field 050, and the publication date is recorded in field 260 under the subfield "c." *Id.*⁸ If a work is a periodical, then its publication frequency is recorded in field

⁸ In some MARC records, field 264 is used rather than field 260 to record publication information. See <http://www.loc.gov/marc/bibliographic/bd264.html>

310, alternate publication frequency is recorded in field 321, and the publication dates (*e.g.*, the first and last publication) are recorded in field 362, which is also referred to as the enumeration/chronology field. *See* <http://www.loc.gov/marc/bibliographic/bd3xx.html> (last visited October 29, 2024).

37. The library that created the record is recorded in Field 040 in subfield “a” with a unique library code. When viewing the MARC record online via Online Computer Library Center’s (“OCLC”) bibliographic database, hovering over this code with the mouse reveals the full name of the library. I used this method of “mousing over” the library codes in the OCLC database to identify the originating library for the MARC records discussed in this Declaration. Where this “mouse over” option was not available, I consulted the Directory of OCLC Libraries to identify the institution that created the MARC record.⁹

38. MARC records also include several fields that include subject matter classification information. An overview of MARC record fields is available through the Library of Congress at <http://www.loc.gov/marc/bibliographic/>. For example, 6XX fields are termed “Subject Access Fields.” *See*

(last visited September 2, 2024) (“Information in field 264 is similar to information in field 260 (Publication, Distribution, etc. (Imprint)). Field 264 is useful for cases where the content standard or institutional policies make a distinction between functions”).

⁹ <https://www.oclc.org/en/contacts/libraries.html>

<http://www.loc.gov/marc/bibliographic/bd6xx.html>. Among these, for example, is the 650 field; this is the “Subject Added Entry – Topical Term” field. See <http://www.loc.gov/marc/bibliographic/bd650.html>. The 650 field is a “[s]ubject added entry in which the entry element is a topical term.” *Id.* These authenticated subject entries “are assigned to a bibliographic record to provide access according to generally accepted thesaurus-building rules (*e.g.*, *Library of Congress Subject Headings* (LCSH), *Medical Subject Headings* (MeSH)).” *Id.*

39. Further, MARC records include call numbers, which themselves indicate a subject and physical location within the library collections. For example, the 050 field is the “Library of Congress Call Number.” See <http://www.loc.gov/marc/bibliographic/bd050.html> (last visited October 29, 2024). A defined portion of the Library of Congress Call Number is the classification number, and “source of the classification number is *Library of Congress Classification* and the *LC Classification-Additions and Changes*.” *Id.* Thus, included in the 050 field is a subject matter classification. Each item in a library has a single classification number. A library selects a classification scheme (*e.g.*, the Library of Congress Classification scheme just described or a similar scheme such as the Dewey Decimal Classification scheme or the National Library of Medicine Classification scheme) and uses it consistently. When the Library of Congress assigns the classification number, it appears as part of the 050 field. If a

local library assigns the classification number, it appears in a 090 field. In either scenario, the MARC record includes a classification number that represents a subject matter classification.

40. Each item in a library has a single classification number. A library selects a classification scheme (*e.g.*, the Library of Congress Classification scheme just described or a similar scheme such as the Dewey Decimal Classification scheme) and uses it consistently. When the Library of Congress assigns the classification number, it appears as part of the 050 field, as discussed above. For MARC records created by libraries other than the Library of Congress (*e.g.*, a university library or a local public library), the classification number may appear in a 09X (*e.g.*, 090) field. See <http://www.loc.gov/marc/bibliographic/bd09x.html> (last visited October 29, 2024).

C. OCLC

41. 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.”¹⁰ 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.

42. OCLC also provides its members online access to MARC records through its OCLC bibliographic 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 were initially 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 therefore made available to the public. Accordingly, once the MARC record is created by a cataloger at an OCLC member institution or is tape-loaded from the Library of Congress or another library anywhere in the world, any publication corresponding to the MARC record has been cataloged and indexed according to its subject matter such that a person

¹⁰ Third Article, Amended Articles of Incorporation of OCLC Online Computer Library Center, Incorporated (available at <https://www.oclc.org/content/dam/oclc/membership/articles-of-incorporation.pdf>).

interested in that subject matter could, with reasonable diligence, locate and access the publication through any library with access to the OCLC bibliographic database or through the Library of Congress.

43. When an OCLC member institution creates a new MARC record, OCLC automatically supplies the date of creation for that record. The date of creation for the MARC record appears in the fixed field (008), characters 00 through 05. The MARC record creation date reflects the date on which the item was first acquired or cataloged. Initially, field 005 of the MARC record is automatically populated with the date the MARC record was created in year, month, day format (YYYYMMDD) (some of the newer library catalog systems also include hour, minute, second (HHMMSS)). Thereafter, the library's computer system may automatically update the date in field 005 every time the library updates the MARC record (*e.g.*, to reflect that an item has been moved to a different shelving location within the library). Field 005 is visible when viewing a MARC record via an appropriate computerized interface. The initial field 005 date (*i.e.*, the date the MARC record was created) does appear. The date upon which the most recent update to field 005 occurred also appears in field 005. Thus, when an item's MARC record has been printed to hardcopy—as is the case with the exhibits to this declaration—the date reflected next to field 008 is necessarily on or after the date the library first cataloged and indexed the underlying item.

44. Once one library has cataloged and indexed a publication by creating a MARC record for that publication, other libraries that receive the publication do not create additional MARC records—the other libraries instead rely on the original MARC record. They may update or revise the MARC record to ensure accuracy, but they do not replace or duplicate it. This practice does more than save libraries from duplicating labor, it also enhances the accuracy of MARC records. It also allows librarians around the world to know that a particular MARC record is authoritative. In contrast, a hypothetical system wherein duplicative records were created would result in confusion as to which record is authoritative.

45. The date of creation of the MARC record by a cataloger at an OCLC member institution reflects when the underlying item is accessible to the public. Upwards of two-thirds to three-quarters of book sales to libraries come from a jobber or wholesaler for online and print resources. These resellers make it their business to provide books to their customers as fast as possible, often providing turnaround times of only a single day after publication. Libraries purchase a significant portion of the balance of their books directly from publishers themselves, which provide delivery on a similarly expedited schedule. In general, libraries make these purchases throughout the year as the books are published and shelve the books as soon thereafter as possible in order to make the books available to their patrons. Thus, books are generally available at libraries across the country

within just a few days of publication.

V. PUBLICATION IN THIS PROCEEDING

A. *Wideband TDD: WCDMA for the Unpaired Spectrum* by Prabhakar Chitrapu. (“Chitrapu”) [Exhibit 1008]

46. Attached hereto as Exhibit 1008 is a copy of a book titled *Wideband TDD: WCDMA for the Unpaired Spectrum* by Prabhakar Chitrapu (hereafter “Chitrapu”) and issued by John Wiley in 2004. Exhibit 1008 is a true and correct copy of the entire book including the title page, copyright page, contents, and nine chapters as held by the Penrose Library at the University of Denver (Denver, Colorado). The text in Exhibit 1008 is complete; no pages are missing, and the text on each page appears to flow seamlessly from one page to the next; further, there are no visible alterations to the document. Exhibit 1008 is a true and correct copy in a condition that creates no suspicion about its authenticity.

47. Attached hereto as Attachment 1A is a true and correct copy of the MARC record for this monograph from the Penrose Library at the University of Denver online catalog. The library ownership is indicated by the presence of the library’s code (“DVP”) in the 049 field. The library continues to update this MARC record and enhanced the MARC record to meet current cataloging rules. The most recent enhancement to the MARC record occurred on March 14, 2017, as shown in field 005 field (“20170314”). I personally identified and retrieved the library catalog record which is Attachment 1A.

48. The International Standard Book Number (ISBN) on Exhibit 1008 (0-470-86104-5) matches the ISBN in field 020 of Attachment 1A. Therefore, Exhibit 1008 is the same book as the one that the cataloger at the Penrose Library at the University of Denver used to create the MARC record that is Attachment 1A. Therefore, the book titled *Wideband TDD: WCDMA for the Unpaired Spectrum* (Exhibit 1008) was present and cataloged in the Penrose Library at the University of Denver on November 23, 2004, as shown in field 998 (“11-23-04”). Libraries define and use fields within the 9XX series to record data which is deemed appropriate to enhance the bibliographic record and better meet the needs of the primary clientele. As an example of local use for 9XX fields, a cataloger in the Penrose Library at the University of Denver records cataloging data including the cataloging date, classification notation, and bar code number in the 925 field; includes chapter titles that display in the online catalog in 970 fields; records acquisition data in field 907; and, cataloging date in field 998. It would have been able to be located by a person of ordinary skill in the art using the library catalog system and was thus publicly accessible as of this date.

49. Attached hereto as Attachment 1B is a true and correct copy of the MARC record for the Chitrapu book titled *Wideband TDD: WCDMA for the Unpaired Spectrum* obtained from the OCLC bibliographic database. I personally identified and retrieved the MARC record that is Attachment 1B. As previously

noted, the library that created the record is recorded in field 040 with a unique library code. For Attachment 1B, that library code is “UKM,” which means that the MARC record for this book was created at the British Library. As can be seen in field 008 (“Date entered on file”) of the MARC record for this exhibit, a cataloger at the British Library created OCLC record number 53155658 on September 26, 2003 (“030926”), as part of the Cataloging in Publication (CIP) Programme.¹¹ A cataloger prepares basic information about the forthcoming book which is included on the verso of the title page (also called the copyright page). The information is provided to save time needed for the cataloging process at the library after the book is purchased. The CIP data includes the author (field 100), title and subtitle (field 245), ISBN (field 020), suggested subject headings (field 650), classification numbers for the Library of Congress classification number (field 050), and the Dewey Decimal classification number (field 082). A MARC record prepared in the CIP Programme represents a book that is not yet published. The MARC record prepared in the CIP Programme may be noted or appear on the copyright page of the book when it is published. In the case of the Chitrapu book titled *Wideband TDD: WCDMA for the Unpaired Spectrum* a notation appears on

¹¹ <https://www.bdslive.com/bds-retains-british-library-cip-contract/#:~:text=The%20CIP%20programme%20records%20the,Whyte%2C%20Managing%20Director%20at%20BDS.>

the copyright page that indicates availability of the MARC record from the British Library. Librarians can see the CIP version of the MARC record in the OCLC bibliographic database. When the book is published and arrives at the British Library, missing data elements are added to the MARC bibliographic record. Additions may include the illustrative matter, height of the volume, pagination, and notes, as well as subjects, points of access, and pertinent data to increase the potential of finding the resource when searching in the library's online catalog. These data elements are included in the MARC record that the British Library contributes to the OCLC bibliographic database. The library continues to update and enhance this MARC record to meet current cataloging rules. The most recent enhancement to Attachment 1B occurred on November 6, 2024, as shown in field 005 ("20241106"). I personally identified and retrieved the MARC record that is Attachment 1B.

50. Attachment 1B further includes an entry in field 050 ("TK5103.452 \$b .C45 2004")—as described above, this includes a subject matter classification number consistent with the Library of Congress classification system (analogous to the Dewey Decimal classification system) and an entry in field 082 ("621.3845")—as described above, this includes a subject matter classification number consistent with the Dewey Decimal classification system. Attachment 1B further includes three descriptor terms reading "Code division multiple access"

(see Attachment 1C, Library of Congress subject heading sh93009277), “Mobile communication systems” (see Attachment 1D, Library of Congress subject heading sh85086371), and “Broadband communication systems” (see Attachment 1E, Library of Congress subject heading sh88002943) in the 650 fields. Thus, as of its cataloging, the publication corresponding to the MARC record attached hereto as Attachment 1B was indexed according to its subject matter by virtue of at least three independently sufficient classifications: the field 050 entry, the field 082 entry, and the field 650 entries. Further, as of September 26, 2003, the MARC record prepared as part of the Cataloging in Publication (CIP) Programme at the British Library and attached hereto as Attachment 1B was accessible to librarians with access to the OCLC bibliographic database.

51. WorldCat indicates that the Chitrapu book titled *Wideband TDD: WCDMA for the Unpaired Spectrum* as cataloged at the British Library is currently available from 342 libraries.¹² In view of above, the book titled *Wideband TDD: WCDMA for the Unpaired Spectrum* was publicly available by November 23, 2004, because by that date it had been cataloged and indexed at the British Library, made part of the OCLC bibliographic database, and received in the Penrose Library at the University of Denver. For these reasons, it is my opinion that Exhibit 1008 was published and accessible to the public by November 23, 2004.

¹² <https://search.worldcat.org/title/53155658>

VI. SUMMARY OF OPINIONS

52. In view of the foregoing, it is my opinion that the publication described above was publicly available no later than the corresponding date listed in the table below:

Exhibit	Publication	Publicly Available By
1008	Chitrapu, Prabhakar. <i>Wideband TDD: WCDMA for the Unpaired Spectrum</i> . Chichester, West Sussex, England: John Wiley, c2004.	November 23, 2004

53. In signing this Declaration, I recognize that the Declaration will be filed as evidence in a case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross-examination in the case and that cross-examination will take place within the United States. If cross-examination is required of me, I will appear for cross-examination within the United States during the time allotted for cross-examination.

54. I hereby declare that all statements made herein of 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 of Title 18 of the United States Code.

November 23, 2024


Sylvia D. Hall-Ellis, Ph.D.

Attachment 1A

leader 01782pam a2200505 a 4500
 001 991004972449702766
 005 20170314114423.0
 008 030926s2004 enka b 001 0 eng
 015 ##\$aGBA440352 \$2bnb
 016 7#\$a012900523 \$2Uk
 020 ##\$a0470861045
 035 ##\$a(CoDU)b29833164-01uode_inst
 035 ##\$a(OCOLC)ocm53155658 \$9ExL
 040 ##\$aUKM \$cUKM \$dC#P \$dUNA \$dOrLoB-B
 049 ##\$aDVPP
 050 #4\$aTK5103.452 \$b.C45 2004
 100 1#\$aChitrapu, Prabhakar.
 245 10\$aWideband TDD : \$bWCDMA for the unpaired spectrum / \$cPrabhakar Chitrapu ; with a
 foreword by Alain Briancon.
 260 ##\$aChichester : \$bWiley, \$cc2004.
 300 ##\$axxiv, 251 p. : \$bill. ; \$c26 cm.
 500 ##\$aFormerly CIP. \$5Uk.
 504 ##\$aIncludes bibliographical references and index.
 650 #0\$aCode division multiple access.
 650 #0\$aMobile communication systems.
 650 #0\$aBroadband communication systems.
 907 ##\$a.b29833164 \$b03-06-13 \$c08-24-04
 919 ##\$aMARCIVE \$dSpring 2011
 925 ##\$aTK5103.452 \$b.C45 2004 \$g1 \$h20 \$iU186013788968 \$j0 \$k0 \$lpbbkl \$o- \$p\$0.00 \$re
 \$s- \$t0 \$u0 \$v0 \$w0 \$x0 \$y.i3289613x \$z11-23-04
 970 01\$tList of figures
 970 01\$tList of tables
 970 01\$tPreface
 970 01\$tAcknowledgements
 970 01\$tForeword
 970 01\$tAcronyms
 970 11\$l1 \$tIntroduction \$p1
 970 11\$l2 \$tSystem architecture and services \$p5
 970 11\$l3 \$tFundamentals of TDD-WCDMA \$p21
 970 11\$l4 \$tTDD radio interface \$p43
 970 11\$l5 \$tTDD procedures \$p89
 970 11\$l6 \$tReceiver signal processing \$p151
 970 11\$l7 \$tRadio resource management \$p175
 970 11\$l8 \$tDeployment scenarios \$p209
 970 11\$l9 \$tAlternate technologies \$p229
 970 01\$tIndex \$p241
 998 ##\$apb \$b11-23-04 \$cm \$da \$e- \$feng \$genk \$h0 \$i0

Attachment 1B

Bibliographic Record - OCLC Number: 53155658

LDR	Record Status	'c' - Corrected or revised
	Type of Record	'a' - Language material
	Bibliographic Level	'm' - Monograph/Item
	Type of Control	' ' - No specified type of control
	Encoding Level	' ' - Full level
	Descriptive Cataloging Form	'a' - AACR2
001	53155658	
005	20241106212410.5	
008	Date Entered on File	'030926'
	Type of Date/Publication Status	's' - Single date
	Date1/Beginning Date of Publication	'2004'
	Date2/Ending Date of Publication	' '
	Place of Publication, Production, or Execution Code	'enk' - England
	Illustrations	'a '
	Target Audience	' ' - Unknown or unspecified
	Form of Item	' ' - None of the following
	Nature of Contents Code	'b '
	Government Publication	' ' - Not a government publication
	Conference Publication	'0' - Not a conference publication
	Festschrift	'0' - Not a festschrift
	Index	'1' - Index present
	Literary Form	'0' - Not fiction
	Biography	' ' - No biographical material
	Language Code	'eng' - English
	Modified Record	' ' - Record is not modified
	Cataloging Source Code	' ' - National bibliographic agency
010	2004558271	
040	UKM \$b eng \$c UKM \$d DLC \$d C#P \$d UNA \$d BAKER \$d BTCTA \$d YDXCP \$d LYU \$d OCLCQ \$d BDx \$d OCLCF \$d OCLCQ \$d OCLCO \$d UKMGB \$d UWO \$d OCLCQ \$d OCLCO \$d OCLCL \$d IG#	
015	GBA440352 \$2 bnb	
015	GBA3U2962 \$2 bnb	
016 7	012900523 \$2 Uk	
016 7	0470861045 \$2 Uk	
020	0470861045	
020	9780470861042	
050 0 0	TK5103.452 \$b .C45 2004	
082 0 4	621.3845 \$2 22	
100 1	Chitrapu, Prabhakar.	
245 1 0	Wideband TDD : \$b WCDMA for the unpaired spectrum / \$c Prabhakar Chitrapu ; with a foreword by Alain Briancon.	
260	Chichester : \$b Wiley, \$c 2004.	
300	xxxiv, 251 pages : \$b illustrations ; \$c 26 cm	

336 text **\$b** txt **\$2** rdacontent
 337 unmediated **\$b** n **\$2** rdamedia
 338 volume **\$b** nc **\$2** rdacarrier
 504 Includes bibliographical references and index.
 505 0 Introduction -- System architecture and services -- Fundamentals of TDD-WCDMA -- TDD radio inter
 face -- TDD procedures -- Receiver signal processing -- Radio resource management -- Deployment sc
 enarios -- Alternate technologies.
 520 1 "Written in an accessible manner this book will be highly popular with engineering and technical mark
 eting professionals from network operators, mobile equipment and component manufacturers, as well
 as industry regulators and academia. Postgraduates who are taking advanced courses in Mobile Wirele
 ss communications will also find Wideband TDD: WCDMA for the Unpaired Spectrum invaluable."--
 Jacket.
 650 0 Code division multiple access.
 650 0 Mobile communication systems.
 650 0 Broadband communication systems.
 650 6 Accès multiple par différence de code.
 650 6 Radiocommunications mobiles.
 650 6 Systèmes de télécommunications à large bande.
 650 7 Broadband communication systems. **\$2** fast **\$0** (OCoLC)fst00839147
 650 7 Code division multiple access. **\$2** fast **\$0** (OCoLC)fst00866205
 650 7 Mobile communication systems. **\$2** fast **\$0** (OCoLC)fst01024207
 758 **\$i** has work: **\$a** Wideband TDD (Text) **\$1** <https://id.oclc.org/worldcat/entity/E39PCGmv88xKkWRgPgFVJRgkDq> **\$4** <https://id.oclc.org/worldcat/ontology/hasWork>
 856 4 1 **\$3** Table of contents **\$u** <http://catdir.loc.gov/catdir/toc/wiley051/2004558271.html>
 856 4 2 **\$3** Publisher description **\$u** <http://catdir.loc.gov/catdir/enhancements/fy0621/2004558271-d.html>
 938 Ingram Library Services **\$b** INGR **\$n** in012513458
 938 Baker & Taylor **\$b** BKTY **\$c** 160.00 **\$d** 160.00 **\$i** 0470861045 **\$n** 0004374726 **\$s** active
 938 Brodart **\$b** BROD **\$n** 01286641 **\$c** \$165.00
 938 Baker and Taylor **\$b** BTCP **\$n** BK0006654771
 938 YBP Library Services **\$b** YANK **\$n** 2039600
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 029 1 AU@ **\$b** 000025913012
 029 1 NZ1 **\$b** 11922412
 029 1 UKMGB **\$b** 012900523

Attachment 1C

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000 01171cz a2200301n 450

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005 20130906055942.0

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010 __ |a sh 93009277

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035 __ |a (DLC)8111588

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035 __ |a (DLC)447528

040 __ |a ViB1bV |c DLC |d DLC

053 _0 |a TK5103.452

150 __ |a Code division multiple access

450 __ |a CDMA (Telecommunication)

450 __ |a Spread spectrum multiple access

550 __ |w g |a Cell phone systems

550 __ |w g |a Multiplexing

550 __ |w g |a Spread spectrum communications

670 __ |a Work cat.: Li, Y. Bit error rate simulation of a CDMA system for personal communications, 1993.

670 __ |a Elect. engr. handbk., 1993: |b p. 1552-53 (CDMA; code division multiple access; CDMA sytem; CDMA scheme)

670 __ |a McGraw-Hill encyc. sci. tech.: |b v. 11, p. 481 (code-division multiple access; CDMA; spread-spectrum multiple access) v. 17, p. 281 (Code division multiple access; CDMA; CDMA systems)

906 __ |t 0951 |u tc03 |v 0

910 __ |a Proposal saved by tc03 on 06/18/2013 at 11:35:31

953 __ |a yz00 |b xh12

906 __ |t 1308 |v 0

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	Press to SEND EMAIL

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Washington, DC 20540

Library of Congress AuthoritiesURL: <http://authorities.loc.gov/>**Library of Congress Online Catalog**URL: <https://catalog.loc.gov/>**Questions, comments, error reports:** [Contact Us](#)

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000 00558cz a2200205n 450

001 4736746

005 20120327094050.0

008 860211i| anannbabn |a ana

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040 __ |a DLC |c DLC |d DLC

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150 __ |a Mobile communication systems

450 __ |a Vehicles |x Communication systems

450 __ |a Vehicular communication systems

550 __ |w g |a Radio

550 __ |w g |a Wireless communication systems

906 __ |t 9604 |u te03 |v 1

953 __ |a xx00 |b td04

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005 20120329073815.0

008 880512i| anannbabn |a ana

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035 __ |a (DLC)sh 88002943

035 __ |a (DLC)162844

040 __ |a DLC |c DLC |d DLC

053 _0 |a TK5103.4 |b TK5103.45

150 __ |a Broadband communication systems

450 __ |a Wideband communication systems

550 __ |w g |a Telecommunication systems

670 __ |a Work cat.: Broadband communications buyers' guide, 1986.

670 __ |a INSPEC |b (Broadband networks)

670 __ |a NASA |b (Broadband)

670 __ |a Aries dict. telecom |b (Broadband)

670 __ |a Roberts. Dict. audio radio video |b (Broadband)

670 __ |a Sherman. Data comm. |b (Broadband)

670 __ |a McGraw-Hill dict. sci. tech. |b (Broad-band)

675 __ |a ASTI; |a Engr. index; |a McGraw-Hill encyc. sci. tech.

906 __ |t 8823 |u fk07 |v 0

952 __ |a 4 bib. record(s) to be changed

953 __ |a fg03

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