DECLARATION OF JUNE ANN MUNFORD

1. My name is June Ann Munford. I am over the age of 18, have personal knowledge of the facts set forth herein, and am competent to testify to the same.

2. I earned a Master of Library and Information Science (MLIS) from the University of Wisconsin-Milwaukee in 2009. I have over ten years of experience in the library/information science field. Beginning in 2004, I have served in various positions in the public library sector including Assistant Librarian, Youth Services Librarian and Library Director. I have attached my Curriculum Vitae as Appendix CV.

3. During my career in the library profession, I have been responsible for materials acquisition for multiple libraries. In that position, I have cataloged, purchased and processed incoming library works. That includes purchasing materials directly from vendors, recording publishing data from the material in question, creating detailed material records for library catalogs and physically preparing that material for circulation. In addition to my experience in acquisitions, I was also responsible for analyzing large collections of library materials, tailoring library records for optimal catalog

search performance and creating lending agreements between libraries during my time as a Library Director.

4. I am familiar with the Internet Archive, a digital library accessible to the general public. Among other services that the Internet Archive makes available to the general public is the Wayback Machine, an online archive of the web. The Internet Archive's Wayback Machine service archives webpages as of a certain capture date to track changes in the web over time. The Internet Archive has been in operation as a nonprofit library since 1996 and has hosted the Wayback Machine service since its inception in 2001. During my time as a librarian, I frequently used the Internet Archive's Wayback Machine for research and instruction purposes. This includes teaching instructional classes on using the Wayback Machine to library patrons and using the Wayback Machine to research reference inquiries that require hard-to-find online resources. I consider the Internet Archive's recordskeeping to be as rigorous and detailed as other formal library recordskeeping practices such as MARC records, OCLC records and Dublin Core.

5. I have reviewed Exhibit 1009, a document entitled 802.11-2016 - IEEE Standard for Information technology—Telecommunications and information

exchange between systems Local and metropolitan area networks—Specific requirements - Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications (hereto referred to as 'the 802.11-2016 standard').

6. Attached hereto as Appendix IEEE02 is a screen capture of a webpage entitled Official IEEE 802.11 Working Group Project Timelines as hosted on the IEEE 802.11 Working Group website. I secured these screen captures myself from https://grouper.ieee.org/groups/802/11/Reports/802.11_Timelines.htm.

7. Appendix IEEE02 captures a document created by the IEEE 802.11 Working Group describing the drafting and approval process of the 802.11-2016 standard. According to the 802.11-2016 entry found on page 2 of this document, the final draft of 802.11-2016 standard was completed as of September 8, 2016 and the standard was granted final approval as of December 7, 2016.

8. Attached hereto as Appendix IEEE03 is a screen capture of the Internet Archive Wayback Machine entry for http://standards.ieee.org:80/develop/wg/WG802.11.html. I secured these

screen captures myself from https://web.archive.org/web/20161220121725/http://standards.ieee.org:80/develop/wg/WG802.11.html. This record was captured as of December 20, 2016.

9. Appendix IEEE03 is an Internet Archive capture of a web page entitled WG802.11 - Wireless LAN Working Group as hosted on the IEEE Standards Association website. This page contains a list of active and superseded IEEE standards as of December 20, 2016. Page 2 of Appendix IEEE03 contains an entry for the 802.11-2016 standard, listing the standard as active.

10. Attached hereto as Appendix IEEE04 is a screen capture of the Internet Archive Wayback Machine entry for http://standards.ieee.org/develop/project/802.11.html. I secured these screen captures myself from https://web.archive.org/web/20161110051147/http://standards.ieee.org/develop/project/802.11.html. This record was captured as of November 10, 2016.

11. Appendix IEEE04 is an Internet Archive capture of a web page entitled P802.11 - IEEE Draft Standard for Information technology as hosted on the

IEEE Standards Association website. This page describes a draft edition of the 802.11-2016 standard prior to the standard's formal publication as of December 2016. Page 2 of Appendix IEEE04 contains the following passage: 'This DRAFT standards is currently available for sale: Buy IEEE SA - Standards Store | IEEE P802.11'. This passage indicates draft copies of the 802.11-2016 standard were available for purchase prior to the formal publication date of December 14, 2016.

12. Appendix IEEE02 indicates the final draft of the 802.11-2016 standard was completed as of September 8, 2016. Appendix IEEE04 indicates draft copies of this standard were available for purchase from the IEEE as of November 10, 2016. Appendix IEEE04 is a capture of an IEEE standards page confirming the standard was adopted by the IEEE certainly no later than December 20, 2016. In conclusion, it is my determination 802.11-2016 - IEEE Standard for Information technology—Telecommunications and information exchange between systems Local and metropolitan area networks—Specific requirements - Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications was likely made available to the public in draft form as of November 10, 2016, formally published via IEEE Xplore as of December 14, 2016 and available certainly no later than December 20, 2016.

13. I have been retained on behalf of the Petitioner to provide assistance in the above-illustrated matter in establishing the authenticity and public availability of the documents discussed in this declaration. I am being compensated for my services in this matter at the rate of $200.00 per hour plus reasonable expenses. My statements are objective, and my compensation does not depend on the outcome of this matter.

14. I declare under penalty of perjury that the foregoing is true and correct. 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 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.

Dated: 6/20/2025

June Ann Munford

Appendix CV

June A. Munford
Curriculum Vitae

Education

University of Wisconsin-Milwaukee - MS, Library & Information Science, 2009
Milwaukee, WI

- Coursework included cataloging, metadata, data analysis, library systems, management strategies and collection development.
- Specialized in library advocacy, cataloging and public administration.

Grand Valley State University - BA, English Language & Literature, 2008
Allendale, MI

- Coursework included linguistics, documentation and literary analysis.
- Minor in political science with a focus in local-level economics and government.

Professional Experience

Researcher / Expert Witness, October 2017 – present
Freelance ● Pittsburgh, Pennsylvania & Grand Rapids, Michigan

- Material authentication and public accessibility determination. Declarations of authenticity and/or public accessibility provided upon research completion. Experienced with appeals and deposition process.

- Research provided on topics of public library operations, material publication history, digital database services and legacy web resources.

- Past clients include Alston & Bird, Arnold & Porter, Baker Botts, Fish & Richardson, Erise IP, Irell & Manella, O'Melveny & Myers, Perkins-Coie, Pillsbury Winthrop Shaw Pittman and Slayden Grubert Beard.

Library Director, February 2013 - March 2015
Dowagiac District Library ● Dowagiac, Michigan

- Executive administrator of the Dowagiac District Library. Located in Southwest Michigan, this library has a service area of 13,000, an annual operating budget of over $400,000 and total assets of approximately $1,300,000.

● Developed careful budgeting guidelines to produce a 15% surplus during the 2013-2014 & 2014-2015 fiscal years while being audited.

● Using this budget surplus, oversaw significant library investments including the purchase of property for a future building site, demolition of existing buildings and building renovation projects on the current facility.

● Led the organization and digitization of the library's archival records.

● Served as the public representative for the library, developing business relationships with local school, museum and tribal government entities.

● Developed an objective-based analysis system for measuring library services - including a full collection analysis of the library's 50,000+ circulating items and their records.

November 2010 - January 2013
Librarian & Branch Manager, Anchorage Public Library ● Anchorage, Alaska

● Headed the 2013 Anchorage Reads community reading campaign including event planning, staging public performances and creating marketing materials for mass distribution.

● Co-led the social media department of the library's marketing team, drafting social media guidelines, creating original content and instituting long-term planning via content calendars.

● Developed business relationships with The Boys & Girls Club, Anchorage School District and the US Army to establish summer reading programs for children.

June 2004 - September 2005, September 2006 - October 2013
Library Assistant, Hart Area Public Library
Hart, MI

● Responsible for verifying imported MARC records and original MARC cataloging for the local-level collection as well as the Michigan Electronic Library.

● Handled OCLC Worldcat interlibrary loan requests & fulfillment via ongoing communication with lending libraries.

Professional Involvement

Alaska Library Association - Anchorage Chapter

● Treasurer, 2012

Library Of Michigan
● Level VII Certification, 2008
● Level II Certification, 2013

Michigan Library Association Annual Conference 2014
● New Directors Conference Panel Member

Southwest Michigan Library Cooperative
● Represented the Dowagiac District Library, 2013-2015

Professional Development

Library Of Michigan Beginning Workshop, May 2008
Petoskey, MI
● Received training in cataloging, local history, collection management, children's literacy and reference service.

Public Library Association Intensive Library Management Training, October 2011
Nashville, TN
● Attended a five-day workshop focused on strategic planning, staff management, statistical analysis, collections and cataloging theory.

Alaska Library Association Annual Conference 2012 - Fairbanks, February 2012
Fairbanks, AK
● Attended seminars on EBSCO advanced search methods, budgeting, cataloging, database usage and marketing.

Depositions

2019 ● Fish & Richardson

Apple v. Qualcomm (Case No. IPR2018-001281, 39521-00421IP, IPR2018-01282 and 39521-00421IP2)

2019 ● Erise IP

Implicit, LLC v. Netscout Systems, Inc (Case No. 2:18-cv-53-JRG)

2019 ● Perkins-Coie

Adobe Inc. v. RAH Color Technologies LLC (Case No. IPR2019-00627, IPR2019-00628, IPR2019-00629 and IPR2019-00646)

2020 ● O'Melveny & Myers

Maxell, Ltd. v. Apple Inc. (Case No. 5:19-cv-00036-RWS)

2021 ● Pillsbury Winthrop Shaw Pittman LLP

Intel v. SRC (Case No. IPR2020-1449)

2022 ● Perkins-Coie

Realtek v. Future Link (Case No. IPR2021-01182)

2023 ● Fish & Richardson

Neuroderm Ltd. v. Abbvie, Inc (Case No. PGR2022-00040)

2023 ● Fish & Richardson

Nearmap US Inc. v. Pictometry International Corp. (Case No. IPR2022-00735)

2023 ● Fish & Richardson

Samsung Electronics v. MemoryWeb LLC (Case No. 39843-0136PS1)

2023 ● Pillsbury Winthrop Shaw Whitman LLP

Gravel Rating Systems v. Costco Wholesale Corp. (Case No. 4:21-cv-149-ALM)

2024 ● Willkie-Farr

Netflix, Inc. v. VideoLabs. Inc. (Case No. IPR2023-00628)

2024 ● Quinn Emanuel Urquhart & Sullivan

Purdue University v. Wolfspeed (Case No. 1:21-CV-840)

2024 ● Fish & Richardson

Dish Network v. Entropic Communications (Case No. IPR2024-00393)

2025 ● Perkins Coie

Amazon.com, Inc. v. Nokia Technologies Oy (Case No. IPR2024-00572)

2025 ● Fish & Richardson

Dish Network v. Entropic Communications (Case No. IPR2024-00373)

Limited Case and Clientele History

Alston & Bird

● Ericsson

v. Collision Communications (Case No. IPR2022-01233)

● Nokia

v. Neptune Subsea, Xtera (Case No. 1:17-cv-01876)

● Universal Electronics Inc

v. Roku Inc (Case No. IPR2022-00818)

Alavi & Anaipakos PLLC

● Stingray Group Inc. and Stingray Music USA, Inc.

v. Edwin A. Hernandez-Mondragon and Egla Corp. (Case No. 1:24-cv-21226-RAR)

Arnold & Porter

● Ivantis

v. Glaukos (Case No. 8:18-cv-00620)

● Samsung

v. Jawbone (Case No. 2:21-cv-00186)

Benesch Friedlander Coplan & Aronoff

- Voyis

  v. Cathx (Case No. 5:21-cv-00077-RWS)

Buchanan, Ingersoll & Rooney PC

- Google LLC, AT&T Service Inc., T Mobile USA Inc., Cellco Partnership, Ericsson Inc. & Nokia of America Corp.

  v. KT Corp & Pegasus Wireless Innovation LLC (Case No. IPR2025-00293)

Deschert LLP

- Smaxtec Animal Care

  v. ST Reproductive Technologies, LLC (Case No. IPR2024-00885)

Duane Morris

- Kangxi Communication Technologies

  v. Skyworks Solutions Inc. (Case No. IPR2025-00373)

- Microsoft

  v. Edge Networking Systems LLC (Case No. 1:24-cv-00215)

Erise I.P.

- Apple

  v. Ericsson Inc. (Case No. IPR2022-00715)

  v. Future Link Systems (Case No. IPRs 6317804, 6622108, 6807505, and 7917680)

  v. INVT (Case No. 20-1881)

  v. Navblazer LLC (Case No. IPR2020-01253)

  v. Qualcomm (Case No. IPR2018-001281, 39521-00421IP, IPR2018-01282, 39521-00421IP2)

v. Quest Nettech Corp (Case No. 2:19-cv-00118-JRG)

v. Telefonaktiebolaget LM Ericsson (Case No. IPR2022-00275)

v. Theta IP, LLC (Case No. IPR2024-00818)

v. THL Holding Company LLC (Case No. 1:23-cv-00548)

- Fanduel

  v. CGT (Case No. 19-1393)

- Garmin

  v. Phillips North America LLC (Case No. 2:19-cv-6301-AB-KS)

- Netscout

  v. Longhorn HD LLC (Case No. 2:20-cv-00349)

  v. Implicit, LLC (Case No. 2:18-cv-53-JRG)

- Sony Interactive Entertainment LLC

  v. Bot M8 LLC (Case No. IPR2020-01288)

  v. Infernal Technology LLC (Case No. 2:19-CV-00248-JRG)

- Tesla

  v. Charge Fusion Technologies LLC (Case No. IPR2025-00032)

- Unified Patents

  v. GE Video Compression (Case No. 2:19-cv-248)

Fish & Richardson

- Apple

  v. AliveCor (Case No. 3:21-cv-03958)

  v. LBS Innovations (Case No. 2:19-cv-00119-JRG-RSP)

  v. Koss Corporation (Case No. IPR2021-00305)

v. Masimo (Case No. IPR 50095-0012IP1, 50095-0012IP2, 50095-0013IP1, 50095-0013IP2, 50095-0006IP1, 50095-0135IP1)

v. Neonode (Case No. 21-cv-08872-EMC)

v. Qualcomm (Case No. IPR2018-001281, 39521-00421IP, IPR2018-01282, 39521-00421IP2)

v. Resonant Sys. (Case No. 7:23-cv-00077-ADA)

- AsusTek Computer Inc.
  v. Videolabs, Inc. (Case No. 22-CV-00720-ADA)

- Dell
  v. Neo Wireless (Case No. IPR2022-00616)

- Dish Network

  v. Entropic Communications, LLC (Case No. 2:2023-CV-01043)

  v. Entropic Communications LLC (Case No. IPR2024-00393)

  v. Realtime Adaptive Streaming (Case No. 1:17-CV-02097-RBJ)

  v. TQ Delta LLC (Case No. 18-1798)

- Evapco Dry Cooling

  v. SPG Dry Cooling (Case No. IPR2021-00688)

- Genetec

  v. Sensormatic Electronics (Case No. 1:20-CV-00760)

- Huawei

  v. Bell Northern Research LLC (Case No. IPR2019-01174)

- Kianxis

  v. Blue Yonder (Case No. 3:20-cv-03636)

- LG Electronics

  v. Bell Northern Research LLC (Case No. 3:18-cv-2864-CAB-BLM)

- MediaTek

  v. MOSAID (Case No. IPR2024-00718)

- Metaswitch

  v. Sonus Networks (Case No. IPR2018-01719)

- Microsoft

  v. Throughputer Inc (Case No. IPR2022-00757)

- Mom Enterprises

  v. Ddrops Company (Case No. 1:22-cv-00332)

- MLC Intellectual Property

  v. MicronTech (Case No. 3:14-cv-03657-SI)

- Nearmap Inc

  v. EagleView Technologies (Case No. IPR2022-01009)

- Neuroderm Ltd.

  v. Abbvie, Inc (Case No. PGR2022-00040)

- Posco Co Ltd.

  v. Pascal Drillet et al. (Case No. IPR2025-00370)

- Realtek Semiconductor

  v. Future Link (Case No. IPR2021-01182)

- Quectel
  - v. Koninklijke Philips (Case No. 1:20-cv-01710)

- Samsung
  - v. Aire Technology (Case No. IPR2022-00877)
  - v. Bell Northern Research (Case No. 2:19-cv-00286-JRG)
  - v. Communication Technologies Inc (Case No. IPR2022-01221)
  - v. Jawbone Innovations (Case No. IPR2022-00865)
  - v. MemoryWeb LLC (Case No. IPR2022-00885)
  - v. Dodots Licensing Solutions (Case No. IPR2023-00701)
  - v. Telefonaktiebolaget LM Ericsson (Case No. IPR2021-00615)

- Texas Instruments
  - v. Vantage Micro LLC (Case No. IPR2020-01261)

- Xilinx
  - v. Sentient Sensors LCC (Case No. 1:22-cv-00173)

Goodwin Proctor

- Intel
  - v. Proxense, LLC (Case No. 6:24-cv-00283)

- Samsung Electronics
  - v. Mobile Data Technologies (Case No. 2:24-cv-00435)

- Taiwan Semiconductor Manufacturing Company Ltd.
  - v. Advanced Integrated Circuit Process LLC (Case No. 2:24-cv-00623)

Groombridge Wu

- Nearmap

  v. Eagle View Technologies Inc. and Pictometry International Corp. (Case No. 2:21-cv-00283-TS-DAO)

Irell & Manella

- Curium

Latham & Watkins LLP

- Apple

  v. Advanced Coding Research LLC

Leydig, Voit & Mayer, Ltd.

- Public Availability Consultancy

O'Melveny & Myers

- Apple

  v. Maxell (Case No. 5:19-cv-00036-RWS)

- Disney Media & Entertainment Distribution LLC

  v. Digital Media Technology Holdings, LLC (Case No. 2:22-cv-01642)

- Micron Technology Inc.

  v. Besang Inc (Case No. IPR2023-00900)

- Samsung

  v. Daedalus Prime LLC (1335 Investigation)

Perkins-Coie

- Amazon

  v. Nokia (Case No. IPR2024-00847 and IPR2024-00848)

  v. Nokia Technologies Oy (Case No. IPR2024-00572)

- Heru Industries

  v. The UAB Research Foundation (Case No. IPR2022-01148)

- Intel Corporation

  v. BeSang Inc. (Case No. IPR2023-00991)

  v. BitMICRO (Case No. 5:23-cv-00625)

  v. Telefonaktiebolaget L M Ericsson (Case No. IPR2024-00610)

- Realtek Semiconductor

  v. Future Link (Case No. IPR2021-01182)

- r-pac

  v. Adasa, Inc. (Case No. 1:2024cv06102)

- Twitter Inc

  v. VOIP-Pal.com (Case No. 3:20-cv-02397-JD)

- TCL Industries

  v. Koninklijke Philips NV (Case No. IPR2021-00495, IPR2021-00496 and IPR2021-00497)

- VusionGroup

  v. Hanshow (Case No. IPR2024-00857)

Pillsbury Winthrop Shaw Pittman

- Intel

  v. FG SRC LLC (Case No. 6:20-cv-00315)

- Gravel Rating Systems

  v. Costco (Case No. 4:21-cv-149)
  v. Lowe's Home Centers (Case No. 4:21-cv-150)
  v. T-Mobile USA (Case No. 4:21-cv-152)
  v. Kohl's Inc. (Case No. 4:21-cv-258)
  v. Under Armor (Case No. 4:21-cv-356)

Quinn Emanuel

- Exact Sciences Corporation

  v. Geneoscopy, Inc. (Case No. IPR2024-00459 and IPR2024-1330)

- ServiceNow, Inc.

  v. InQuisient, Inc. (Case No. 22-900-CJB)

- Wolfspeed

  v. The Trustees of Purdue University (Case No. 1:2021-cv-00840)

Sheppard, Mullin, Richter & Hampton LLP

- Advanced Micro Devices, Inc and Pensando Systems, Inc.

  v. Concurrent Ventures LLC and Xtreamedge, Inc. (Case No. IPR2025-00478)

- Cadence Design Systems Inc.

  v. Semiconductor Design Technologies (Case No. 3:23-cv-01001)

Shook, Hardy & Bacon LLP

- HP Inc.

  v. Universal Connectivity Technologies (Case No. 1:23-cv-01177)

Stern, Kessler, Goldstein & Fox

- Preliminary Research

Wilmer, Cutler, Pickering, Hale and Dorr

- Apple

  v. Shunock (Case No. 1:23-cv-08598)

- Quest Diagnostics Inc., Haystack Oncology Inc. and Haystack Oncology GmbH

  v. Natera, Inc. (Case No. 1:23-cv-08598)

- Roche Diabetes, Inc.

  v. Trividia Health, Inc. (Case No. 1:24-cv-00668)

Willkie, Farr & Gallagher LLP

- Lenovo, Dell, HP

  v. Universal Connectivity Technologies Inc. (Case No. 2:2023cv00449)

- Neurent

  v. The Foundry, LLC (Case No. IPR2024-00669)

- Netflix, Inc.

  v. VideoLabs, Inc. (Case No. IPR2023-00628)

Appendix IEEE02

OFFICIAL IEEE 802.11 WORKING GROUP PROJECT TIMELINES - 2025-05-30

IN PROCESS - Standards, Amendments, and Recommended Practices

IEEE Project and Final Document	Final Doc Type	Project Authorization Request (PAR)	Task Group and Activity	Documentation: Session End Snapshot: Format & Version	Documentation: Session End Snapshot: Incorporated Baselines	Current Status	PAR Approved, Modified, or Extended [Expires]	WG Letter Ballots: Draft: Predicted Initial	WG Letter Ballots: Date: Predicted Initial	WG Letter Ballots: Draft: Predicted Recirc	WG Letter Ballots: Date: Predicted Recirc	WG Letter Ballots: Result	Form Standards Association (SA) Ballot Pool / Reform	MEC / MDR Done	IEEE SA Ballots: Draft: Predicted Initial	IEEE SA Ballots: Date: Predicted Initial	IEEE SA Ballots: Draft: Predicted Recirc	IEEE SA Ballots: Date: Predicted Recirc	IEEE SA Ballots: Result	Final 802.11 WG Approval	Final or Conditional 802 LMSC Approval	RevCom & Standards Board Final or Continuous Process Approval	ANSI Approved	Superseded or Withdrawn by Standards Board
IEEE Std P802.11br	A	Enhanced Light Communication	TGbr		802.11mf 802.11bn 802.11bp 802.11bq	Actual	2025-03-27																	
						Predicted	C	Nov 2027		Jan 2028			Feb 2028	Feb 2028	May 2028		Sep 2028			Nov 2028	Nov 2028	Nov 2028	N/A	
IEEE Std P802.11bq	A	Integrated Millimeter Wave	TGbq		802.11mf 802.11bn 802.11bp	Actual	2024-12-11 [2028-12-31]																	
						Predicted	C	Mar 2027		Sep 2027			May 2028	May 2028	Sep 2028		Jan 2029			May 2029	Jul 2029	Jul 2029	N/A	
IEEE Std P802.11mf	STD	802.11 Accumulated Maintenance Changes	TGmf	PDF D0.10	802.11-2024 802.11bh 802.11be 802.11bk 802.11bf 802.11bi	Actual	2024-11-12 [2028-12-31]																	
						Predicted	C	May 2025		Jan 2026			Oct 2026	Oct 2026	Jan 2027		Jul 2027			Nov 2027	Nov 2027	Feb 2028	N/A	
IEEE Std P802.11bp	A	Ambient Power Communication	TGbp		802.11mf 802.11bn	Actual	2024-03-19 [2028-12-31]																	
						Predicted	C	Feb 2026		Nov 2026			Mar 2027	Oct 2027	Aug 2027		Oct 2027			Jan 2028	Mar 2028	May 2028	N/A	
IEEE Std P802.11bn	A	Ultra High Reliability	TGbn	PDF D0.20	802.11mf	Actual	2023-09-21 [2027-12-31]																	
						Predicted	C	Jul 2025		May 2026			Mar 2027	May 2027	May 2027		Jul 2027			Mar 2028	Mar 2028	May 2028	N/A	
IEEE Std P802.11bk	A	320 MHz Positioning	TGbk	PDF D5.00	802.11-2024 802.11bh 802.11be	Actual	2022-12-03 [2026-12-31]	D1.0 D2.0 D3.0	2023-12-28 2024-04-26 2024-08-15			95% 97% 98%	2024-05-01	2024-06-01	D3.0 D4.0 D5.0	2024-11-10 2025-02-07 2025-03-30			94% 97% 98%	2025-03-12	2025-03-14			
						Predicted	C	C		C			C	C	C		C			C	C	May 2025	N/A	
IEEE Std P802.11bi	A	Enhanced Data Privacy	TGbi	PDF D1.20	802.11-2024 802.11bh 802.11be 802.11bk 802.11bf	Actual	2021-02-10 [2025-12-31]	D1.0	2025-02-27			89%												
						Predicted	C	C		Aug 2025			Sep 2025	Aug 2025	Jan 2026		Mar 2026			May 2026	May 2026	Jul 2026	N/A	
IEEE Std P802.11bh	A	Randomized and Changing MAC Addresses	TGbh	PDF D6.00	802.11-2024	Actual	2021-02-10 [2025-12-31]	D1.0 D2.0 D3.0 D4.0	2023-07-01 2024-01-05 2024-02-24 2024-04-06			92% 94% 98% 99%	2024-02-01	2024-03-01	D4.0 D5.0 D6.0	2024-05-09 2024-07-13 2024-08-15			91% 92% 98%	2024-07-01	2024-07-01			
						Predicted	C	C		C			C	C	C		C			C	C	Sep 2024	N/A	
IEEE Std P802.11bf	A	WLAN Sensing	TGbf	PDF D8.00	802.11-2024 802.11bh 802.11be 802.11bk	Actual	2020-09-25 [2026-12-31]	D1.0 D2.0 D3.0 D4.0	2023-03-02 2023-08-20 2024-01-04 2024-04-26			78% 86% 93% 96%	2024-04-01	2024-03-01	D4.0 D5.0 D6.0 D7.0 D8.0	2024-06-12 2024-10-23 2024-12-11 2025-01-16 2025-04-04			90% 96% 97% 98% 98%	2025-03-12	2025-03-14			
						Predicted	C	C		C			C	C	C		C			C	C	May 2025	N/A	
IEEE Std P802.11be	A	Extremely High Throughput	TGbe	PDF D7.00	802.11-2024 802.11bh	Actual	2019-03-21 [2025-12-31]	D2.0 D3.0 D4.0 D5.0	2022-07-04 2023-03-02 2023-08-13 2023-12-16			64% 80% 90% 95%	2023-10-01	2023-09-01	D5.0 D6.0 D7.0	2024-02-02 2024-05-31 2024-08-10			82% 93% 97%	2024-07-01	2024-07-01			
						Predicted	C	C		C			C	C	C		C			C	C	Sep 2024	N/A	

PUBLISHED - Standards, Amendments, and Recommended Practices

IEEE Project and Final Document	Final Doc Type	Project Authorization Request (PAR)	Task Group and Activity	Documentation: Session End Snapshot: Format & Version	Documentation: Session End Snapshot: Incorporated Baselines	Current Status	PAR Approved, Modified, or Extended [Expires]	WG Letter Ballots: Draft: Predicted Initial	WG Letter Ballots: Date: Predicted Initial	WG Letter Ballots: Draft: Predicted Recirc	WG Letter Ballots: Date: Predicted Recirc	WG Letter Ballots: Result	Form SA Ballot Pool / Reform	MEC / MDR Done	IEEE SA Ballots: Draft: Predicted Initial	IEEE SA Ballots: Date: Predicted Initial	IEEE SA Ballots: Draft: Predicted Recirc	IEEE SA Ballots: Date: Predicted Recirc	IEEE SA Ballots: Result	Final 802.11 WG Approval	Final or Conditional 802 LMSC Approval	RevCom & Standards Board Final or Continuous Process Approval	ANSI Approved	Published
IEEE Std P802.11-2024	STD	802.11 Accumulated Maintenance Changes	TGme	PDF D7.00	802.11-2020 802.11ax-2021 802.11ay-2021 802.11ba-2021 802.11-2020/Cor1-2022 802.11az-2022 802.11bd-2022 802.11bb-2023 802.11bc-2023 802.11-2020/Cor2-2024	Actual	2021-02-10 [2025-12-31]	D1.0 D2.0 D3.0 D4.0	2022-01-10 2022-11-11 2023-05-07 2023-08-30			84% 87% 93% 96%	2023-05-01	2023-07-01	D4.0 D5.0 D6.0 D7.0	2023-10-10 2024-03-05 2024-07-02 2024-08-08			85% 84% 93% 98%	2024-07-01	2024-07-01	2024-09-01		2025-04-28

SUPERSEDED OR WITHDRAWN - Standards, Amendments, and Recommended Practices

IEEE Project and Final Document	Final Doc Type	Project Authorization Request (PAR)	Task Group and Activity	Documentation: Session End Snapshot: Format & Version	Documentation: Session End Snapshot: Incorporated Baselines	Current Status	PAR Approved, Modified, or Extended [Expires]	WG Letter Ballots: Draft: Predicted Initial	WG Letter Ballots: Date: Predicted Initial	WG Letter Ballots: Draft: Predicted Recirc	WG Letter Ballots: Date: Predicted Recirc	WG Letter Ballots: Result	Form SA Ballot Pool / Reform	MEC / MDR Done	IEEE SA Ballots: Draft: Predicted Initial	IEEE SA Ballots: Date: Predicted Initial	IEEE SA Ballots: Draft: Predicted Recirc	IEEE SA Ballots: Date: Predicted Recirc	IEEE SA Ballots: Result	Final 802.11 WG Approval	Final or Conditional 802 LMSC Approval	RevCom & Standards Board Final or Continuous Process Approval	ANSI Approved	Superseded or Withdrawn by Standards Board
IEEE Std P802.11-2020	STD	802.11 Accumulated Maintenance Changes	TGmd	PDF D5.00	802.11-2016 802.11ai-2016 802.11ah-2016 802.11aj-2018 802.11ak-2018 802.11aq-2018	Actual	2017-03-23 [2021-12-31]	D1.0 D2.0 D3.0	2018-03-17 2019-01-10 2019-10-30			85% 93% 96%	2019-09-01	2019-05-01	D3.0 D4.0 D5.0 D7.0	2019-12-15 2020-09-04 2020-10-04 2024-08-08			83% 91% 97% 98%	2020-09-01	2020-10-01	2020-12-01		2024-04-28
IEEE Std P802.11-2020/Cor2-2024	COR	Correct 802.11bc identifier of EBCS ANQP element	WG Tech Ed	PDF D1.00	802.11-2020 802.11ax-2021 802.11ay-2021 802.11ba-2021 802.11-2020/Cor1-2022 802.11az-2022 802.11bd-2022 802.11bb-2023 802.11bc-2023	Actual	2023-07-20 [2024-07-20]	D1.0	2023-10-25			100%	2023-10-01	2023-11-01	D1.0	2023-12-28			100%	2023-11-17	2024-01-09	2024-01-01		2024-02-01
IEEE Std P802.11bc-2023	A	Enhanced Broadcast Service	TGbc	PDF D7.00	802.11-2020 802.11ax-2021 802.11ay-2021 802.11ba-2021 802.11-2020/Cor1-2022 802.11az-2022 802.11bd-2022 802.11bb-2023	Actual	2018-12-05 [2022-12-31]	D1.0 D2.0 D3.0 D4.0	2020-12-20 2021-10-28 2022-04-28 2022-08-25			83% 90% 92% 95%	2022-09-01	2022-07-01	D4.0 D5.0 D6.0 D7.0	2022-11-04 2023-01-13 2023-02-21 2023-03-13			92% 97% 100% 100%	2023-03-01	2023-03-01	2023-06-01		2024-02-01
IEEE Std P802.11bb-2023	A	Light Communications	TGbb	PDF D7.00	802.11-2020 802.11ax-2021 802.11ay-2021 802.11ba-2021 802.11-2020/Cor1-2022 802.11az-2022	Actual	2018-03-09 [2022-12-31]	D1.0 D2.0 D3.0 D4.0	2022-01-12 2022-04-22 2022-08-31 2022-10-01			87% 94% 95% 99%	2022-03-01	2022-03-01	D4.1 D5.0 D6.0 D7.0	2022-11-07 2023-01-14 2023-02-21 2023-03-14			91% 92% 96% 100%	2023-03-01	2023-03-01	2023-06-01		2023-11-11

					802.11bd-2022															
IEEE Std P802.11bd-2022	A	Enhancements for Next Generation V2X	TGbd	PDF D8.00	802.11-2020 802.11ax-2021 802.11ay-2021 802.11ba-2021 802.11-2020/Cor1-2022 802.11az-2022	Actual	2018-12-05 [2022-12-31]	D1.0 D2.0 D3.0 D4.0	2020-11-18 2021-08-01 2021-12-16 2022-03-30	82% 88% 94% 99%	2021-12-02	2022-03-01	D4.0 D5.0 D6.0 D7.0 D8.0	2022-05-09 2022-07-05 2022-08-30 2022-09-30 2022-10-14	92% 93% 95% 97% 97%	2022-09-16	2022-10-04	2022-12-01		2023-03-10
IEEE Std P802.11az-2022	A	Next Generation Positioning	TGaz	PDF D7.00	802.11-2020 802.11ax-2021 802.11ay-2021 802.11ba-2021 802.11-2020/Cor1-2022	Actual	2015-09-03 [2023-12-31]	D1.0 D2.0 D3.0 D4.0 D4.0	2019-03-09 2020-01-03 2021-02-10 2021-09-07 2021-10-01	79% 87% 88% 95% 98%	2021-08-01	2021-07-01	D4.0 D5.0 D6.0 D7.0	2021-11-05 2022-06-09 2022-09-07 2022-09-29	93% 94% 99% 100%	2022-09-16	2022-10-04	2022-12-01		2023-03-03
IEEE Std P802.11-2020/Cor1-2022	COR	Correct 802.11ay Assignment of Protected Announce Support Bit	WG Tech Ed	PDF D2.10	802.11-2020 802.11ax-2021 802.11ay-2021 802.11ba-2021	Actual	2022-02-23 [2026-12-31]	D1.0 D2.1	2022-04-14 2022-06-01	99% 100%	2022-05-01	2022-06-01	D2.1	2022-07-08	100%	2022-07-01	2022-07-01	2022-09-21		2022-12-27
IEEE Std P802.11ba-2021	A	Wake Up Radio	TGba	PDF D8.00	802.11-2020 802.11ax-2021 802.11ay-2021	Actual	2016-12-07 [2020-12-31]	D1.0 D2.0 D3.0 D4.0 D5.0 D6.0	2018-10-24 2019-03-03 2019-06-18 2019-10-15 2019-12-17 2020-02-01	72% 82% 84% 90% 96% 99%	2019-08-01	2019-11-01	D6.0 D7.0 D8.0	2020-03-18 2020-10-01 2020-12-21	91% 95% 98%	2020-11-01	2020-11-01	2021-03-01		2021-10-08
IEEE Std P802.11ay-2021	A	Next Generation 60GHz	TGay	PDF D7.00	802.11-2020 802.11ax-2021	Actual	2015-03-26 [2021-12-31]	D1.0 D2.0 D3.0 D4.0 D5.0	2018-01-07 2018-08-31 2019-02-28 2019-07-08 2019-11-08	74% 93% 93% 98% 99%	2019-06-01	2019-07-16	D5.0 D6.0 D7.0	2020-01-09 2020-09-29 2020-12-20	89% 92% 98%	2020-11-01	2020-11-01	2021-03-01		2021-07-28
IEEE Std P802.11ax-2021	A	High Efficiency WLAN	TGax	PDF D8.00	802.11-2020	Actual	2014-03-27 [2020-12-31]	D1.0 D2.0 D3.0 D4.0 D5.0 D6.0	2017-01-08 2017-11-04 2018-07-01 2019-02-25 2019-10-24 2019-12-11	58% 63% 87% 92% 94% 97%	2019-09-01	2019-05-01	D6.0 D7.0 D8.0	2020-01-24 2020-09-17 2020-11-27	82% 88% 95%	2020-09-01	2020-11-01	2021-02-01		2021-05-19
IEEE Std P802.11aq-2018	A	Pre-Association Discovery	TGaq	PDF D14.00	802.11-2016 802.11aj-2016 802.11ah-2016 802.11aj-2018 802.11ak-2018	Actual	2012-12-05 [2018-12-31]	D1.0 D3.0 D4.0 D5.0 D6.0 D7.0	2015-03-04 2015-11-07 2016-04-21 2016-07-19 2016-08-19 2016-09-25	73% 93% 93% 93% 96% 97%	2016-08-01	2016-06-01	D7.0 D8.0 D9.0 D10.0 D12.0 D13.0 D14.0 D14.0	2016-11-04 2017-03-18 2017-06-23 2017-07-29 2017-10-01 2017-10-30 2018-01-04 2018-01-31	88% 91% 94% 98% 97% 97% 98% 99%	2018-03-07	2018-03-09	2018-06-14		2018-08-31
IEEE Std P802.11ak-2018	A	General Link	TGak	PDF D6.00	802.11-2016 802.11ah-2016 802.11ah-2016 802.11aj-2018	Actual	2012-12-05 [2018-12-31]	D1.0 D2.0 D3.0 D4.0	2015-05-06 2016-03-10 2017-01-10 2017-03-30	85% 91% 94% 95%	2016-11-01	2016-11-01	D4.0 D5.0 D6.0	2017-05-11 2017-11-09 2018-01-01	90% 93% 97%	2018-01-19	2018-01-31	2018-03-08		2018-06-14
IEEE Std P802.11aj-2018	A	China Millimeter Wave	TGaj	PDF D9.00	802.11-2016 802.11ai-2016 802.11ah-2016	Actual	2012-08-01 [2018-12-31]	D1.0 D2.0 D3.0 D4.0 D5.0	2016-01-20 2016-06-30 2016-08-30 2016-12-21 2017-03-04	88% 89% 89% 92% 95%	2017-01-01	2016-11-01	D6.0 D7.0 D8.0 D9.0 D14.0	2017-06-25 2017-08-04 2017-08-24 2017-12-17 2018-01-04	98% 100% 100% 100% 98%	2017-11-10	2017-11-10	2018-01-24		2018-04-18
IEEE Std P802.11-2016	STD	802.11 Accumulated Maintenance Changes	TGmc	PDF D8.00	802.11-2012 802.11ae-2012 802.11aa-2012 802.11ad-2012 802.11ac-2013 802.11af-2013	Actual	2012-08-30 [2016-12-31]	D1.0 D2.0 D3.0 D4.0 D4.0	2013-03-02 2013-10-23 2014-06-23 2015-02-17 2015-03-26	88% 90% 90% 94% 96%	2014-09-01	2014-07-01	D4.0 D5.0 D6.0 D7.0 D8.0	2015-04-26 2016-01-26 2016-06-30 2016-08-20 2016-09-08	88% 90% 93% 97% 99%	2016-09-01	2016-10-01	2016-12-07		2017-12-31
IEEE Std P802.11ah-2016	A	Sub 1 GHz	TGah	PDF D10.00	802.11-2016 802.11ai-2016	Actual	2010-10-04 [2016-12-31]	D1.0 D2.0 D3.0 D4.0 D5.0 D5.0	2013-11-04 2014-07-05 2014-10-25 2015-02-14 2015-04-16 2015-10-03	73% 83% 90% 93% 93% 98%	2015-04-01	2016-02-01	D5.0 D6.0 D7.0 D8.0 D9.0 D10.0	2015-11-05 2016-03-02 2016-04-14 2016-05-17 2016-09-09 2016-09-30	91% 91% 92% 95% 95% 96%	2016-09-01	2016-10-01	2016-12-07		2017-05-10
IEEE Std P802.11ai-2016	A	Fast Initial Link Setup	TGai	PDF D11.00	802.11-2016	Actual	2010-12-08 [2016-12-31]	D1.0 D2.0 D3.0 D4.0 D5.0 D6.0	2013-09-12 2014-05-07 2014-10-14 2015-02-24 2015-06-26 2015-07-31	74% 85% 88% 90% 92% 97%	2015-03-01	2014-11-01	D6.0 D7.0 D8.0 D9.0 D9.0 D11.0	2015-09-15 2016-03-30 2016-07-13 2016-08-06 2016-09-09 2016-09-30	90% 89% 93% 95% 97% 95%	2016-09-01	2016-10-01	2016-12-07		2016-12-31
IEEE Std P802.11af-2013	A	TV White Spaces	TGaf	PDF D6.00	802.11-2012 802.11ae-2012 802.11aa-2012 802.11ad-2012 802.11ac-2013	Actual	2009-12-09 [2013-12-31]	D1.0 D2.0 D3.0 D4.0 D5.0 D5.0	2011-02-24 2012-08-19 2013-02-08 2013-04-17 2013-06-14 2013-08-01	62% 79% 87% 92% 94% 99%	2013-06-01	2013-11-01	D5.0 D6.0 D6.0	2013-09-11 2013-10-19 2013-10-30	97% 99% 99%	2013-11-01	2013-11-01	2013-12-11		2014-02-21
IEEE Std P802.11ac-2013	A	Very High Throughput 6GHz	TGac	PDF D7.00	802.11-2012 802.11ae-2012 802.11aa-2012 802.11ad-2012	Actual	2008-09-26 [2012-12-31]	D1.0 D2.0 D3.0 D4.0 D5.0 D5.0	2011-06-25 2012-02-18 2012-06-25 2012-11-01 2013-02-01 2013-04-04	74% 89% 91% 94% 95% 96%	2013-01-01	2013-01-01	D5.0 D6.0 D7.0	2013-05-05 2013-08-03 2013-10-23	93% 97% 99%	2013-11-01	2013-11-01	2013-12-09		2013-12-18
IEEE Std P802.11ad-2012	A	Very High Throughput 60GHz	TGad	PDF D9.00	802.11-2012 802.11ae-2012 802.11aa-2012	Actual	2008-12-10 [2012-12-31]	D1.0 D2.0 D3.0 D4.0 D5.0 D5.0	2010-10-24 2011-04-05 2011-06-01 2011-08-09 2011-10-06 2011-11-24	87% 88% 92% 95% 94% 95%	2011-09-01	2011-07-01	D5.0 D6.0 D7.0 D8.0 D9.0 D9.0	2012-01-05 2012-03-30 2012-05-11 2012-06-16 2012-07-28 2012-08-12	86% 90% 95% 97% 98% 98%	2012-07-01	2012-07-01	2012-10-23		2012-12-28
IEEE Std P802.11aa-2012	A	Video Transport Streams	TGaa	Word / PDF D9.00	802.11-2012 802.11ae-2012	Actual	2008-03-27 [2012-12-31]	D1.0 D2.0 D3.0 D4.0 D5.0 D6.0 D6.0	2010-07-10 2010-12-08 2011-02-24 2011-04-09 2011-06-17 2011-08-09 2011-08-31	78% 79% 81% 85% 90% 94% 95%	2011-06-30	2011-06-16	D6.0 D7.0 D8.0 D9.0	2011-10-12 2011-11-26 2012-01-02 2012-01-27	93% 96% 99% 100%	2012-01-28	2012-02-17	2012-06-01		2012-05-29
IEEE Std P802.11ae-2012	A	Prioritization of Management Frames	TGae	PDF D8.00	802.11-2012	Actual	2009-12-09 [2010-10-15]	D1.0 D2.0 D3.0 D4.0 D5.0	2010-10-27 2011-02-18 2011-04-26 2011-06-18 2011-08-04	81% 86% 89% 96% 96%	2011-07-01	2011-05-01	D5.0 D6.0 D7.0 D8.0	2011-09-09 2011-10-29 2011-12-13 2012-01-04	95% 96% 100% 100%	2012-01-20	2012-02-17	2012-03-01		2012-04-06
IEEE Std P802.11-2012	STD	802.11 Accumulated Maintenance Changes	TGmb	Frame / PDF D9.01	802.11-2007 802.11k-2008 802.11r-2008 802.11y-2008 802.11w-2009 802.11n-2009 802.11p-2010 802.11z-2010 802.11v-2011 802.11u-2011 802.11s-2011	Actual	2007-03-22 [2011-12-31]	D1.0 D2.0 D3.0 D4.0 D5.0	2009-06-27 2010-01-08 2010-04-25 2010-06-25 2010-08-19	87% 89% 89% 89% 92%	2010-09-14	2010-09-01	D6.0 D7.0 D8.0 D9.0 D10.0 D11.0 D12.0	2010-11-05 2011-02-18 2011-04-14 2011-06-22 2011-09-07 2011-10-22 2011-11-13	87% 90% 92% 93% 92% 94% 97%	2011-11-11	2011-11-11	2012-03-01		2012-03-29
IEEE Std P802.11s-2011	A	Mesh Networking	TGs	PDF	802.11-2007 802.11k-2008 802.11r-2008 802.11y-2008 802.11w-2009 802.11n-2009 802.11p-2010 802.11z-2010 802.11v-2011 802.11u-2011	Actual	2004-05-13 [2010-12-31]	D1.0 D2.0 D3.0 D4.0 D5.0 D6.0 D7.0	2007-01-06 2008-05-03 2009-05-04 2010-01-08 2010-04-15 2010-06-28 2010-08-13	48% 61% 79% 85% 89% 89% 95%	2010-09-12	2010-09-29	D7.0 D8.0 D9.0 D10.0 D11.0	2010-11-01 2011-01-10 2011-03-05 2011-04-09 2011-05-07	95% 96% 95% 97% 97%	2011-07-01	2011-07-01	2011-08-01		2012-03-01
IEEE Std P802.11u-2011	A	InterWorking with External Networks	TGu	Frame / PDF D13.00	802.11-2007 802.11k-2008 802.11r-2008 802.11y-2008 802.11w-2009 802.11n-2009 802.11p-2010 802.11z-2010 802.11v-2011	Actual	2004-12-08 (02/05/2008) [2010-12-31]	D1.0 D2.0 D3.0 D4.0 D5.0 D6.0 D7.0 D8.0	2007-07-08 2008-03-15 2008-07-12 2008-10-08 2009-02-20 2009-04-24 2009-06-19 2009-08-18	64% 70% 77% 78% 82% 90% 88% 93%	2009-06-01	2009-07-12	D8.0 D9.0 D10.0 D11.0 D12.0 D13.0	2009-11-07 2010-04-23 2010-07-08 2010-08-13 2010-09-12 2010-11-21	90% 92% 94% 96% 98% 99%	2010-11-01	2010-11-01	2011-02-25		2012-03-01
IEEE Std P802.11v-2011	A	Wireless Network Management	TGv	Frame / PDF D16.00	802.11-2007 802.11k-2008 802.11r-2008 802.11y-2008 802.11w-2009 802.11n-2009 802.11p-2010 802.11z-2010	Actual	2004-12-08 [2010-12-31]	D1.0 D2.0 D3.0 D4.0 D5.0 D6.0 D7.0	2007-08-30 2008-03-15 2008-07-13 2008-12-19 2009-04-04 2009-06-12 2009-08-07	63% 67% 69% 81% 83% 90% 92%	2009-06-01	2009-07-12	D7.0 D9.0 D10.0 D11.0 D12.0 D13.0 D14.0 D15.0 D15.0 D16.0	2009-11-07 2010-02-17 2010-04-13 2010-06-10 2010-07-07 2010-07-28 2010-08-25 2010-10-18 2010-09-30 2010-11-15	81% 84% 87% 92% 94% 98% 98% 98% 98% 98%	2010-11-01	2010-11-01	2011-02-09		2012-03-01
IEEE Std P802.11z-2010	A	Extensions to Direct Link Setup	TGz	Word / PDF D13.00	802.11-2007 802.11k-2008 802.11r-2008 802.11y-2008 802.11w-2009 802.11n-2009 802.11p-2010	Actual	2007-08-22	D1.0 D2.0 D3.0 D4.0 D5.0 D6.0	2008-05-03 2008-08-20 2008-12-18 2009-03-05 2009-06-23 2009-08-26	64% 66% 84% 88% 92% 96%	2009-06-01	2009-06-18	D6.0 D7.0 D8.0 D9.0 D11.0 D13.0	2009-11-07 2010-02-27 2010-05-04 2010-06-10 2010-08-04 2010-08-29	87% 87% 94% 95% 95% 98%	C	C	2010-10-01		2012-03-01
					802.11-2007 802.11k-2008			D1.0 D2.0 D3.0 D4.0	2006-04-11 2007-01-05 2007-09-12 2008-05-03	59% 67% 74% 79%			D9.0	2009-11-22	93%					

IEEE Std P802.11p-2010	A	Wireless Access for the Vehicular Environment	TGp	N/A	802.11-2008 802.11y-2008 802.11w-2009 802.11n-2009	Actual	2004-09-23	D5.0 D6.0 D7.0 D8.0 D9.0	2008-12-05 2009-03-31 2009-06-13 2009-08-05 2009-10-10	85% 89% 85% 89% 93%	2009-06-01	2008-06-19	D10.0 D11.0	2010-02-16 2010-04-07	96% 99%	C	C	2010-07-15		2012-03-01
IEEE Std P802.11w-2009	A	Protected Management Frames	TGw	N/A	802.11-2007 802.11k-2008 802.11r-2008 802.11y-2008	Actual	2005-03-20	D1.0 D2.0 D3.0 D4.0 D5.0 D6.0	2006-11-19 2007-05-02 2007-10-19 2008-01-05 2008-02-20 2008-04-18	86% 89% 92% 92% 95% 97%	2007-11-13		D6.0 D7.0 D9.0 D10.0 D11.0	2008-09-24 2009-01-18 2009-05-23 2009-06-14 2009-06-28	86% 88% 92% 93% 95%	C	C	2009-09-11		2012-03-01
IEEE Std P802.11n-2009	A	High Throughput	TGn		802.11-2007 802.11k-2008 802.11r-2008 802.11y-2008 802.11w-2009	Actual	2003-09-11 [2007-09-27]	D1.0 D2.0 D3.0 D4.0 D5.0 D6.0 D7.0 D7.0	2006-04-29 2007-03-09 2007-10-27 2008-04-12 2008-06-12 2008-08-05 2008-09-30 2008-12-02	47% 83% 85% 88% 90% 91% 94% 95%	2008-12-11	2008-12-11	D7.0 D8.0 D9.0 D10.0 D11.0 D11.0	2009-01-10 2009-03-06 2009-04-04 2009-05-30 2009-07-03 2009-06-20	78% 80% 81% 88% 91% 90%	C	C	2009-09-11		2012-03-01
IEEE Std P802.11y-2008	A	3650-3700 MHz Operation in USA	TGy	N/A	802.11-2007 802.11k-2008 802.11r-2008	Actual	2006-03-16	D1.0 D2.0 D3.0 D4.0 D5.0 D6.0	2007-01-07 2007-05-05 2007-06-20 2007-08-21 2007-10-13 2007-12-08	76% 84% 91% 94% 96% 99%	2007-06-20	2007-07-28	D7.0 D8.0 D9.0 D10.0 D11.0	2008-01-30 2008-03-08 2008-03-27 2008-03-18 2008-06-20	93% 93% 96% 97% 97%	C	C	2008-11-06		2012-03-01
IEEE Std P802.11r-2008	A	Fast Roaming	TGr	N/A	802.11-2007 802.11k-2008	Actual	2006-05-25	D1.0 D2.0 D3.0 D4.0 D5.0 D6.0	2006-01-04 2006-04-04 2006-10-14 2006-12-04 2007-04-04 2007-06-13	81% 88% 86% 92% 95% 97%		2007-04-11	D7.0 D8.0 D9.0 D9.0	2007-08-30 2007-10-07 2008-02-01 2008-01-17	86% 90% 97% 96%	C	C	2008-05-09		2012-03-01
IEEE Std P802.11k-2008	A	Radio Resource Measurement	TGk	N/A	802.11-2007	Actual	2002-12-11	D1.0 D2.0 D3.0 D4.0 D5.0 D6.0 D7.0 D7.0	2007-09-11 2008-01-05 2004-09-11 2005-03-15 2005-11-12 2006-03-31 2006-09-16 2006-11-16 2007-02-13 2007-05-05	90% 100% 95% 86% 80% 81% 85% 91% 92% 93%		2007-04-10	D8.0 D9.0 D10.0 D11.0 D12.0 D12.0 D13.0	2007-08-13 2007-10-04 2007-12-08 2008-01-17 2008-02-14 2008-02-01 2008-03-18	90% 89% 91% 95% 95% 95% 97%	C	C	2008-05-09		2012-03-01
IEEE Std P802.11-2007	STD	802.11 Standard Maintenance Revision	TGma	N/A	802.11-1999 802.11c 802.11a-1999 802.11b-1999 802.11b Cor1-2001 802.11d-2001 802.11g-2003 802.11h-2003 802.11i-2004 802.11j-2004 802.11e-2005	Actual	2003-03-20 [2003-03-20]	D1.0 D2.0 D3.0 D4.0	2005-05-08 2005-07-17 2005-08-19 2005-09-19	91% 94% 95% 96%	2005-08-21	2005-08-21	D5.0 D6.0 D7.0 D8.0 D9.0	2005-11-20 2006-05-10 2006-07-11 2006-09-09 2006-11-07	86% 90% 91% 96% 96%	2006-11-08	2006-11-08	2007-03-08		2012-03-01
IEEE Std P802.11.2	RP	Wireless Performance	TGt			Actual	2008-12-31	D1.0	2007-05-16	76%											2008-05-14
IEEE Std P802.11e-2005	A	MAC Enhancements QoS	TGe	N/A	802.11-1999 802.11c 802.11a-1999 802.11b-1999 802.11b Cor1-2001 802.11d-2001 802.11g-2003 802.11h-2003 802.11i-2004 802.11j-2004	Actual	2000-03-30	D4.0 D5.0 D6.0 D7.0 D8.0	2001-05-15 2002-01-16 2002-07-02 2003-01-08 2003-08-22 2003-12-20 2004-02-15 2004-03-10	0% 55% 49% 83% 97% 89% 93% 94%			D8.0 D9.0 D10.0 D11.0 D12.0 D13.0 D13.0	2004-05-30 2004-08-31 2004-10-08 2004-11-11 2004-12-23 2005-04-16 2005-02-18	85% 87% 92% 95% 96% 99% 96%	2005-07-22	2005-07-22	2005-09-22		2007-03-08
IEEE Std P802.11j-2004	A	4.9 GHz-5 GHz Operation in Japan	TGj	N/A	802.11-1999 802.11c 802.11a-1999 802.11b-1999 802.11b Cor1-2001 802.11d-2001 802.11g-2003 802.11h-2003 802.11i-2004	Actual	2002-12-11	D1.0 D1.2 D1.3 D1.4	2003-05-12 2004-01-14 2004-03-11 2004-04-20	68% 89% 94% 95%	2004-05-13		D1.5 D1.6	2004-07-02 2004-08-14	88% 96%	C	C	2004-09-23	2005-02-02	2007-03-08
IEEE Std P802.11i-2004	A	MAC Security Enhancements	TGi	N/A	802.11-1999 802.11c 802.11a-1999 802.11b-1999 802.11b Cor1-2001 802.11d-2001 802.11g-2003 802.11h-2003	Actual	2001-05-30	D3.0 D4.0 D5.0 D6.0 D7.0	2002-05-04 2003-01-12 2003-06-06 2003-08-19 2003-10-09 2003-11-04	77% 76% 78% 87% 92% 95%	2003-08-10		D7.0 D8.0 D9.0 D10.0	2003-12-20 2004-03-12 2004-04-10 2004-05-08	89% 92% 98% 98%	C	C	2004-06-24	2005-02-14	2007-03-08
IEEE Std P802.11h-2003	A	Spectrum and Transmit Power Management Extensions in the 5 GHz Band in Europe	TGh	N/A	802.11-1999 802.11c 802.11a-1999 802.11b-1999 802.11b Cor1-2001 802.11d-2001 802.11g-2003	Actual	2000-12-07	D2.2	2001-09-03 2002-05-05 2002-09-01 2002-11-01	0% 76% 90% 97%	2002-07-25		D3.0 D3.11 D3.6	2003-02-06 2003-06-26 2003-04-30	92% 98% 96%	C	C	2003-09-11	2003-12-29	2007-03-08
IEEE Std P802.11g-2003	A	Further Higher Data Rate Extension in the 2.4 GHz Band	TGg	N/A	802.11-1999 802.11c 802.11a-1999 802.11b-1999 802.11b Cor1-2001 802.11d-2001	Actual	2000-09-21	D5.0 D4.0 D6.1	2002-03-11 2002-09-01 2003-01-08 2002-11-01 2003-02-04	45% 83% 88% 87% 89%	2002-07-25		D6.2 D7.1 D6.2	2003-03-09 2003-04-08 2003-05-14	84% 85% 96%	C	C	2003-06-12	2003-10-20	2007-03-08
IEEE Std P802.11b Cor1-2001	COR	Corrigenda to IEEE 802.11b-1999	TGb-Cor1		802.11-1999 802.11c 802.11a-1999	Actual	1999-11-27						D1.5	2001-04-13	98%	C	C	2001-10-10	2002-01-30	2007-03-08
IEEE Std P802.11d-2001	A	Operation in Additional Regulatory Domains	TGd	N/A	802.11-1999 802.11c 802.11a-1999 802.11b-1999 802.11b Cor1-2001	Actual	1999-06-26		2000-04-04 2000-06-26	0% 0%	2001-11-29		D2.0 D3.0	2001-03-01 2001-04-13	93% 100%	C	C	2001-06-14	2001-10-25	2007-03-08
IEEE Std P802.11b-1999	A	Higher Speed PHY Extension in the 2.4 GHz Band	TGb	N/A	802.11-1999 802.11c 802.11a-1999	Actual	1997-12-09		1998-11-09	0%						C	C	1999-09-16		2007-03-08
IEEE Std P802.11a-1999	A	Higher Speed PHY Extension in the 5GHz Band	TGa	N/A	802.11-1999 802.11c	Actual	1997-09-16									C	C	1999-09-16	2000-02-04	2007-03-08
IEEE Std P802.11f-2003	RP	Inter-Access Point Protocol Across Distribution Systems Supporting IEEE 802.11 Operation	TGf	N/A		Actual	2000-03-30		2001-05-15 2001-09-03 2002-03-10 2002-06-16	0% 0% 82% 96%	2002-07-27		D4.0 D4.1 D5.0 D6.0	2002-10-28 2002-12-19 2003-02-17 2003-04-08	88% 95% 97% 98%	C	C	2003-06-12		2006-02-03
IEEE Std P802.11-1999	STD	Part II Wireless LAN Medium Access Control MAC and Physical Layer PHY Specifications	MAC/PHY	N/A		Actual	1997-12-09							2003-01-07 2003-04-09 2003-02-02	99% 99% 99%	C	C	1999-03-18	1999-07-15	2005-09-30
IEEE Std P802.11-1997	STD	IEEE Standard for Wireless LAN Medium Access Control MAC and Physical Layer PHY Specifications	MAC/PHY	N/A		Actual	1991-03-21									C	C	1997-06-26		1999-07-15
IEEE Std P802.11c	A	Media Access Control MAC Bridges - Supplement for Support by IEEE 802.11 [Rolled into IEEE 802.11d]	TGc	N/A	802.11-1999	Actual	1997-12-09													

Timeline Chart Notes:

C = Stage Completed or Currently In-Process
A / COR = Amendment / Corrigendum
Predicted = Current Date Estimate
Date = Actual or Start Date
LB = Letter Ballot

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TG = Task Group

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RevCom/Standards Board = Approval of RevCom / IEEE-SA Standards Board in Normal Session - Current IEEE-SA Calendar
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MDR = 802.11 WG Mandatory Draft Review

This page is maintained by Stephen McCann . Comments are welcome.

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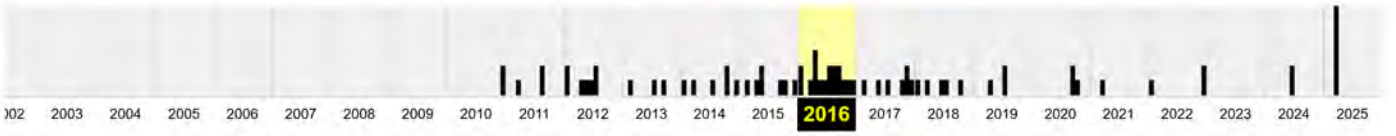

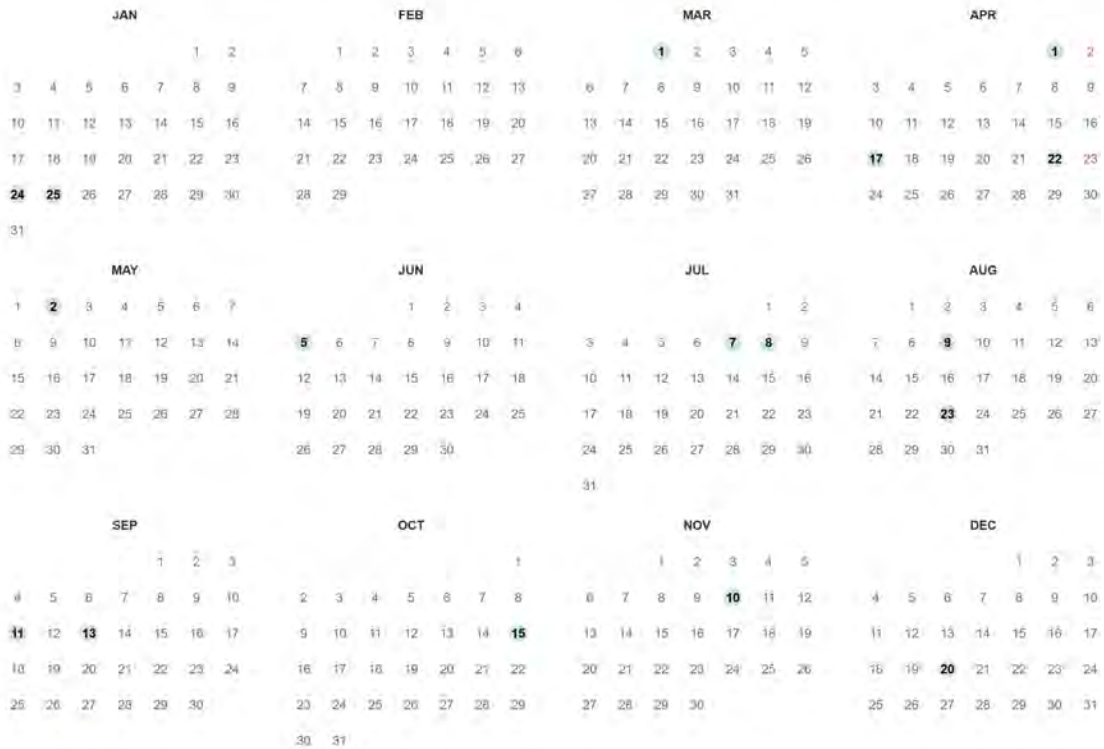

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STANDARDS DEVELOPMENT WORKING GROUP

WG802.11 - Wireless LAN Working Group

IEEE P802.11 is a standards working group on wireless local area networks. The working group is a part of IEEE LMSC (LAN MAN Standards Committee) formerly called IEEE Project 802. IEEE LMSC reports to the Standards Activity Board (SAB) of the IEEE Computer Society.

STATUS: Active Working Group

Working Group Chair:	Adrian Stephens
Working Group Website:	http://www.ieee802.org/11/
Society:	IEEE Computer Society
Sponsor:	LAN/MAN Standards Committee (C/LM)
IEEE-SA Liaison:	Contact the IEEE-SA liaison

Active Projects Managed by this Working Group

Project

P802.11aj Standard for Information technology--Telecommunications and information exchange between systems Local and metropolitan area networks--Specific requirements Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications Amendment: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications - Amendment: Enhancements for Very High Throughput to support Chinese millimeter wave frequency bands. (AM)

P802.11ak IEEE Standard for Information technology--Telecommunications and information exchange between systems Local and metropolitan area networks--Specific requirements Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications Amendment: Enhancements For Transit Links Within Bridged Networks (AM)

P802.11ag IEEE Draft Standard for Information technology--Telecommunications and information exchange between systems Local and metropolitan area networks--Specific requirements Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications Amendment: Pre-Association Discovery (AM)

P802.11ax Standard for Information technology--Telecommunications and information exchange between systems Local and metropolitan area networks--Specific requirements Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications Amendment Enhancements for High Efficiency WLAN (AM)

P802.11ay Standard for Information Technology--Telecommunications and Information Exchange Between Systems Local and Metropolitan Area Networks--Specific Requirements Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications--Amendment: Enhanced Throughput for Operation in License-Exempt Bands Above 45 GHz (AM)

P802.11az Standard for Information Technology - Telecommunications and Information Exchange Between Systems Local and Metropolitan Area Networks - Specific Requirements Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications - Enhancements for Positioning (AM)

P802.11ba Standard for Information Technology--Telecommunications and Information Exchange Between Systems Local and Metropolitan Area Networks--Specific Requirements Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications Amendment: Wake-up radio operation (AM)

Existing Standards Created by this Working Group

STANDARD	STATUS
802.11-1999 Standard for Information Technology - Telecommunications and information exchange between systems - Local and Metropolitan Area networks - Specific requirements - Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications	Superseded Standard
802.11-2007 IEEE Standard for Information Technology - Telecommunications and	Superseded Standard

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802.11-2012 IEEE Standard for Information technology--Telecommunications and information exchange between systems Local and metropolitan area networks--Specific requirements Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications	Superseded Standard
802.11-2016 IEEE Standard for Information technology—Telecommunications and information exchange between systems Local and metropolitan area networks—Specific requirements - Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications	Active Standard
802.11a-1999 IEEE Standard for Telecommunications and Information Exchange Between Systems - LAN/MAN Specific Requirements - Part 11: Wireless Medium Access Control (MAC) and physical layer (PHY) specifications: High Speed Physical Layer in the 5 GHz band	Superseded Standard
802.11b-1999 IEEE Standard for Information Technology - Telecommunications and information exchange between systems - Local and Metropolitan networks - Specific requirements - Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications: Higher Speed Physical Layer (PHY) Extension in the 2.4 GHz band	Superseded Standard
802.11b/Cor 1-2001 IEEE Standard for Information Technology - Telecommunications and Information Exchange Between Systems - Local and Metropolitan Networks - Specific Requirements - Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications: Higher Speed Physical Layer (PHY) Extension in the 2.4 GHz Band - Corrigendum 1	Superseded Standard
802.11c-1998 IEEE Standard for Information Technology - Telecommunications and information exchange between systems - Local area networks - Media access control (MAC) bridges - Supplement for support by IEEE 802.11	Superseded Standard
802.11d-2001 IEEE Standard for Information technology-- Local and metropolitan area networks-- Specific requirements-- Part 11: Wireless Medium Access Control (MAC) and Physical Layer (PHY) Specifications Amendment 3: Specification for operation in additional regulatory domains	Superseded Standard

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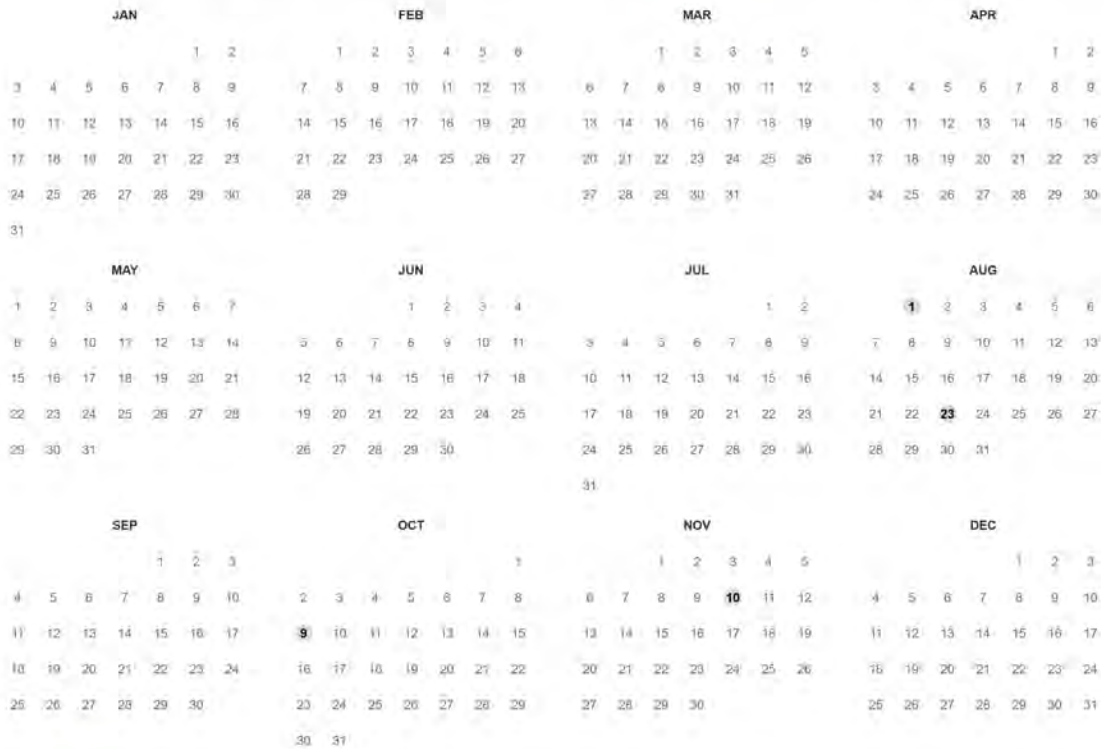

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IEEE PROJECT

P802.11 - IEEE Draft Standard for Information technology--Telecommunications and information exchange between systems - Local and metropolitan area networks--Specific requirements Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications

The purpose of this standard is to provide wireless connectivity for fixed, portable, and moving stations within a local area. This standard also offers regulatory bodies a means of standardizing access to one or more frequency bands for the purpose of local area communication.The scope of this standard is to define one medium access control (MAC) and several physical layer (PHY) specifications for wireless connectivity for fixed, portable, and moving stations (STAs) within a local area.

STATUS: Active Project

Working Group: WG802.11 - Wireless LAN Working Group

Sponsor: C/LM - LAN/MAN Standards Committee

Society: C - IEEE Computer Society

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