

BUREAU OF INDIAN STANDARDS

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मसौदा भारतीय मानक
प्रणालियों के बीच टेलीकम्युनिकेशन और सूचना विनिमय —
स्थानीय और मेट्रोपॉलिटन क्षेत्र नेटवर्क के लिए विशिष्ट आवश्यकताएँ
भाग 11: वायरलेस लैन मध्यम पहुँच नियंत्रण (एम एसी) और
भौतिक परत (पी एच वाई) विनिर्देश
(पहला पुनरीक्षण)

Draft Indian Standard
Telecommunications and Information Exchange Between Systems —
Specific Requirements for Local and Metropolitan Area Networks
Part 11: Wireless LAN Medium Access Control (MAC) and Physical
Layer (PHY) Specifications
(First Revision)

ICS 35.110

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NATIONAL FOREWORD

(Formal clauses will be added later)

This Draft Indian Standard (Part 11) (First Revision) which is identical with ‘ISO/IEC/IEEE 8802-11:2022 Telecommunications and information exchange between systems — Specific requirements for local and metropolitan area networks — Part 11: Wireless LAN medium access control (MAC) and physical layer (PHY) specifications’ issued by the International Organisation for Standardisation (ISO), International Electrotechnical Commission (IEC) and Institute of Electrical and Electronics Engineers (IEEE) *will be* adopted by the Bureau of Indian Standards on the recommendation of the Smart Infrastructure Sectional Committee and approval of the Electronics and Information Technology Division Council.

This standard was originally published in 2021 and was identical with ISO/IEC/IEEE 8802-11:2018. The first revision of this standard under taken to align it with the latest version of International Standard ISO/IEC/IEEE 8802-11:2021.

The text of ISO/IEC/IEEE Standard *will be* approved as suitable for publication as an Indian Standard without deviations. Certain conventions are however not identical to those used in Indian Standards. Attention is particularly drawn to the following:

- a) Wherever the words ‘International Standard’ appears referring to this standard, they should be read as ‘Indian Standard’.
- b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards, which are to be substituted in their respective places, are listed below along with their degree of equivalence for the editions indicated. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies:

International standards	Corresponding Indian standards	Degree of Equivalence
ISO/IEC 14888-3:2006, Information technology — Security techniques — Digital signatures with appendix — Part 3: Discrete logarithm-based mechanisms.	IS/ISO/IEC 14888-3: 2018 IT Security Techniques — Digital Signatures with Appendix Part 3 Discrete Logarithm Based Mechanisms (First Revision)	Identical with ISO/IEC 14888-3 :2018

ISO 3166-1 Codes for the representation of names of countries and their subdivisions — Part 1: Country codes.	IS 14836 (Part 1): 2020 Codes for the Representation of Names of Countries and their Subdivisions Part 1 Country Codes (Second Revision)	Identical with ISO 3166-1 : 2013
ISO 3166-2 Codes for the representation of names of countries and their subdivisions — Part 2: Country subdivision code.	IS 14836 (Part 2): 2018 Codes for the representation of names of countries and their subdivisions: Part 2 country subdivision codes	Identical with ISO 3166-2 : 2013
ISO 4217 Currency codes.	IS 15413: 2018 Codes for the Representation of Currencies and Funds (Second Revision)	Identical with ISO 4217: 2015
ISO/IEC 7498-1:1994 Information technology — Open Systems Interconnection — Basic Reference Model: The Basic Model.	IS 12373 (Part 1) : 2018 Information technology - Open systems interconnection - Basic reference model: Part 1 The Basic Model (First Revision)	Identical

The technical committee has reviewed the provisions of the following International Standard referred in this adopted draft standard and has decided that it is acceptable for use in conjunction with this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies:

International Standards	Title
3GPP TS 24.302	Access to the 3GPP Evolved Packet Core (EPC) via non-3GPP access networks; Stage 32
ETSI EN 301 893	Broadband Radio Access Networks (BRAN); 5 GHz high performance RLAN
FIPS 180-4	Secure Hash Standard.4
FIPS 186-4	Digital Signature Standard.
FIPS 197	Advanced Encryption Standard (AES).
IANA EAP	Method Type Numbers
IEEE Std 754™-2008	IEEE Standard for Binary Floating-Point Arithmetic.56
IEEE Std 802®	IEEE Standards for Local and Metropolitan Area Networks: Overview and Architecture.
IEEE Std 802c™-2017	IEEE Standard for Local and Metropolitan Area Networks: Overview and Architecture—Amendment 2: Local Medium Access Control (MAC) Address Usage.
IEEE Std 802.1AC™-2016	IEEE Standard for Local and Metropolitan Area Networks—Media Access Control (MAC) Service Definition.

IEEE Std 802.1AS™	IEEE Standard for Local and Metropolitan Area Networks—Timing and Synchronization for Time-Sensitive Applications in Bridged Local Area Networks.
IEEE Std 802.1Q™-2003	IEEE Standard for local and metropolitan area networks—Virtual Bridged Local Area Networks.
IEEE Std 802.1Q™	IEEE Standard for Local and Metropolitan Area Networks—Bridges and Bridged Networks.
IEEE Std 802.1X™-2010	IEEE Standard for Local and Metropolitan Area Networks—Port-Based Network Access Control.
IEEE Std 802.3™-2018	IEEE Standard for Ethernet.
IEEE Std 802.21™-2017	IEEE Standard for Local and metropolitan area networks—Part 21: Media Independent Services Framework.
IEEE Std 802.21.1™-2017	IEEE Standard for Local and metropolitan area networks—Part 21.1: Media Independent Services.
IETF RFC 791	Internet Protocol, Sept. 1981.7
IETF RFC 826	An Ethernet Address Resolution Protocol, Plummer, D. C., Nov. 1982.
IETF RFC 1035	Domain Names — Implementation and Specification, Mockapetris, P., Nov. 1987.
IETF RFC 1042	A Standard for the Transmission of IP Datagrams over IEEE 802® Networks, Postel, J., and J. Reynolds, Feb. 1988.
IETF RFC 1321	The MD5 Message-Digest Algorithm, Apr. 1992 (status: informational).
IETF RFC 2104	HMAC: Keyed-Hashing for Message Authentication, Krawczyk, H., M. Bellare, and R. Canetti, Feb. 1997 (status: informational).
IETF RFC 2131	Dynamic Host Configuration Protocol, Mar. 1997.
IETF RFC 2409	The Internet Key Exchange (IKE), Harkins, D., and D. Carrel, Nov. 1998 (status: Standards Track).
IETF RFC 3279	Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile, Apr. 2002.
IETF RFC 3315	Dynamic Host Configuration Protocol for IPv6 (DHCPv6), July 2003.
IETF RFC 3394	Advanced Encryption Standard (AES) Key Wrap Algorithm, Schaad, J., and R. Housley, Sept. 2002 (status: informational).
IETF RFC 3447	Public-Key Cryptography Standards (PKCS) #1: RSA Cryptography Specification Version 2.1, Feb. 2003.
IETF RFC 3490	Internationalizing Domain Names in Applications (IDNA), Mar. 2003.
IETF RFC 3610	Counter with CBC-MAC (CCM), Whiting, D., R. Housley, and N. Ferguson, Sept. 2003 (status: informational).
IETF RFC 3748	Extensible Authentication Protocol (EAP), Aboba, B., L. Blunk, J. Vollbrecht, J. Carlson, and H. Levkowitz, June 2004.

IETF RFC 3986	Uniform Resource Identifier (URI): Generic Syntax, Jan. 2005.
IETF RFC 4017	Extensible Authentication Protocol (EAP) Method Requirements for Wireless LANs, Stanley, D., J. Walker, and B. Aboba, Mar. 2005 (status: informational).
IETF RFC 4119	A Presence-based GEOPRIV Location Object Format, Peterson, J., Dec. 2005.
IETF RFC 4282	The Network Access Identifier, Dec. 2005.
IETF RFC 4776	Dynamic Host Configuration Protocol (DHCPv4 and DHCPv6) Option for Civic Addresses Configuration Information, Nov. 2006.
IETF RFC 4861	Neighbor Discovery for IP version 6 (IPv6), Narten, T., E. Nordmark, W. Simpson, and H. Soliman, Sept. 2007.
IETF RFC 4862	IPv6 Stateless Address Autoconfiguration, Sept. 2007.
IETF RFC 5116	An Interface and Algorithms for Authenticated Encryption, Jan. 2008.
IETF RFC 5216	The EAP-TLS Authentication Protocol, Simon, D., B. Aboba, and R. Hurst, Mar. 2008.
IETF RFC 5227	IPv4 Address Conflict Detection, Cheshire, S., July 2008.
IETF RFC 5280	Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile, May 2008.
IETF RFC 5295	Specification for the Derivation of Root Keys from an Extended Master Session Key (EMSK), Aug. 2008.
IETF RFC 5297	Synthetic Initialization Vector (SIV) Authenticated Encryption Using the Advanced Encryption Standard (AES), Harkins, D., Oct. 2008 (status: informational).
IETF RFC 5424	The Syslog Protocol, Gerhards, R., Mar. 2009.
IETF RFC 5480	Elliptic Curve Cryptography Subject Public Key Information, Mar. 2009.
IETF RFC 5869	HMAC-based Extract and Expand Key Derivation Function, Krawczyk, H., and P. Eronen, May 2010.
IETF RFC 5985	HTTP-Enabled Location Delivery (HELD), M. Barnes (Ed.), Sept. 2010.
IETF RFC 6225	Dynamic Host Configuration Protocol Options for Coordinate-Based Location Configuration Information, Polk, J., M. Linsner, M. Thomson, and B. Aboba, July 2011.
IETF RFC 6335	Internet Assigned Numbers Authority (IANA) Procedures for the Management of the Service Name and Transport Protocol Port Number Registry, Aug. 2011.
IETF RFC 6696	EAP Extensions for the EAP Re-authentication Protocol (ERP), July 2012.
IETF RFC 6942	Diameter Support for the EAP Re-authentication Protocol (ERP), May 2013.

IETF RFC 8200	Internet Protocol, Version 6 (IPv6) Specification, Deering, S., and R. Hinden, 2017.
IETF RFC 8265	Preparation, Enforcement, and Comparison of Internationalized Strings Representing Usernames and Passwords, Saint-Andre, P., and A. Melnikov, 2017.
ISO 639	Codes for the Representation of Names of Languages.
ISO/IEC 8802-2:1998	Information technology — Telecommunications and information exchange between systems—Local and metropolitan area networks — Specific requirements — Part 2: Logical link control.
ISO/IEC 8824-1:1995	Information technology — Abstract Syntax Notation One (ASN.1): Specification of basic notation.
ISO/IEC 8824-2:1995	Information technology — Abstract Syntax Notation One (ASN.1): Information object specification.
ISO/IEC 8824-3:1995	Information technology — Abstract Syntax Notation One (ASN.1): Constraint specification.
ISO/IEC 8824-4:1995	Information technology — Abstract Syntax Notation One (ASN.1): Parameterization of ASN.1 specifications.
ISO/IEC 11802-5:1997	Information technology — Telecommunications and information exchange between systems—Local and metropolitan area networks — Technical reports and guidelines — Part 5: Medium Access Control (MAC) Bridging of Ethernet V2.0 in Local Area Networks (previously known as IEEE Std 802.1H, 1997 Edition [B19]).
ITU-T Recommendation Z.120 (2004)	Programming Languages—Formal Description Techniques (FDT)—Message Sequence Chart (MSC).
NIST 800-38B	Recommendation for Block Cipher Modes of Operation: The CMAC Mode for Authentication, Dworkin, M.
NIST 800-38D	NIST Special Publication 800-38D, Recommendation for Block Cipher Modes of Operation: Galois/Counter Mode (GCM) and GMAC, Dworkin, M., Nov. 2007.
NIST 800-56A R2	Recommendation for Pair-Wise Key Establishment Schemes Using Discrete Logarithm Cryptography, May 2013.
NIST 800-57 Part 1 Rev 4	Recommendation for Key Management, Barker, E., Jan. 2016.
OASIS Standard EDXL-DE	Emergency Data Exchange Language (EDXL) Distribution Element, v. 1.0. OASIS Emergency Management Technical Committee, May 2006.
OMA-TS-ULP-V2_0_1	User Plane Location Protocol, Dec. 2012

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2:2022 ‘Rules for rounding off numerical values (*Second Revision*)’. The number of significant places retained in the rounded off value should be same as that of the specified value in this standard.

SCOPE OF ISO/IEC/IEEE 8802-11:2022

“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.”

Note: - The Technical content of this document has not been enclosed as these are identical with the corresponding ISO/IEC/IEEE Standard. For details, please refer to ISO/IEC/IEEE 8802-11:2022 or kindly contact.

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