

# ISO/IEC/IEEE 8802-A:2015-12 (E)

## Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks - Overview and Architecture

---

Contents	Page
1. Overview.....	1
1.1 Scope.....	1
1.2 Purpose.....	1
2. Normative references.....	2
3. Definitions, acronyms and abbreviations.....	3
3.1 Definitions.....	3
3.2 Acronyms and abbreviations.....	5
4. Family of IEEE 802 standards.....	7
4.1 Key concepts.....	7
4.2 Application and support.....	8
4.3 An international family of standards.....	9
4.4 IEEE 802 standards.....	9
5. Reference models (RMs).....	11
5.1 Introduction.....	11
5.2 RM description for end stations.....	12
5.2.1 SAPs.....	13
5.2.2 LLC sublayer.....	13
5.2.3 MAC sublayer.....	14
5.2.4 PHY.....	14
5.2.5 Layer and sublayer management.....	15
5.3 Interconnection and interworking.....	15
5.3.1 Interconnection at the PHY.....	15
5.3.2 MAC-sublayer interconnection: Bridges.....	15
5.3.3 Network-layer interconnection: Routers.....	18
6. General requirements for an IEEE 802 network.....	19
6.1 Services supported.....	19
6.2 Error ratios.....	19
6.3 Transient service interruption.....	19
6.4 Regulatory requirements.....	19
7. IEEE 802 network management.....	20
7.1 General.....	20
7.2 General-purpose IEEE 802 network management.....	20
7.2.1 Management functions.....	20
7.2.2 Management architecture.....	20
7.2.3 Managed object definitions.....	21
7.3 Special-purpose IEEE 802 network management standards.....	21

8.	MAC addresses .....	22
8.1	Terms and notational conventions .....	22
8.2	Universal addresses.....	22
8.2.1	Concept and overview .....	22
8.2.2	Assignment of universal addresses .....	22
8.2.3	Assignment by organizations .....	25
8.2.4	Uniqueness of address assignment .....	25
8.3	Interworking with 48-bit and 64-bit MAC addresses .....	25
8.4	Local MAC addresses .....	26
8.5	Standardized group MAC addresses.....	26
8.6	Bit-ordering and different MACs .....	26
8.6.1	General considerations.....	26
8.6.2	Recommendation .....	27
9.	Protocol identifiers.....	28
9.1	Introduction.....	28
9.2	EtherTypes .....	28
9.2.1	Format, function, and administration.....	28
9.2.2	EtherTypes for prototype and vendor-specific protocol development .....	29
9.2.3	Local Experimental EtherTypes .....	29
9.2.4	OUI Extended EtherType .....	30
9.3	OUI and OUI-36 as protocol identifiers .....	31
9.4	Encapsulation of Ethernet frames with LPD .....	32
9.5	SNAP .....	33
9.5.1	SNAP identifier.....	33
9.5.2	SNAP address .....	33
9.5.3	SNAP data unit format.....	34
10.	Allocation of OID values in IEEE 802 standards .....	35
10.1	General.....	35
10.2	OIDs and ISO standards .....	35
10.3	The OID hierarchy for IEEE 802 standards.....	36
10.4	The OID hierarchy under iso(1) std(0) iso8802(8802).....	37
10.5	Migration from previous OID allocations .....	37
	Annex A (informative) Bibliography .....	38
	Annex B (informative) RMs for IEEE 802 standards.....	39
B.1	IEEE 802.3 RMs .....	39
B.2	IEEE 802.11 RM.....	41
B.3	IEEE 802.15 <sup>TM</sup> RMs .....	43
B.3.1	IEEE 802.15.3 <sup>TM</sup> RM.....	43
B.3.2	IEEE 802.15.4 <sup>TM</sup> RM.....	44
B.3.3	IEEE 802.15.6 <sup>TM</sup> RM.....	44
B.3.4	IEEE 802.15.7 <sup>TM</sup> RM.....	44
B.4	IEEE 802.16 <sup>TM</sup> RM.....	45
B.4.1	Protocol RM.....	45
B.4.2	Network RM .....	46
B.5	IEEE 802.21 <sup>TM</sup> RM.....	47
B.6	IEEE 802.22 <sup>TM</sup> RM.....	48
B.6.1	Data plane .....	49
B.6.2	Management/control plane .....	49
B.6.3	Cognitive plane .....	49

Annex C (informative) Examples of bit ordering for addresses .....	50
C.1 General.....	50
C.2 Illustrative examples .....	50
Annex D (informative) List of IEEE 802 standards .....	53
Annex E (informative) History .....	56
E.1 Universal addresses.....	56
E.2 IEEE RA address block products.....	56