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™ RMs 43
B.3.1 IEEE 802.15.3™ RM 43
B.3.2 IEEE 802.15.4™ RM 44
B.3.3 IEEE 802.15.6™ RM 44
B.3.4 IEEE 802.15.7™ RM 44
B.4 IEEE 802.16™ RM 45
B.4.1 Protocol RM 45
B.4.2 Network RM 46
B.5 IEEE 802.21™ RM 47
B.6 IEEE 802.22™ 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