
**Information technology —
Telecommunications and information
exchange between systems — High rate
60 GHz PHY, MAC and PALs**

*Technologies de l'information — Téléinformatique — PHY, MAC et
PALs 60 GHz à haut débit*



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Published in Switzerland

Contents

Page

Foreword	ix
Introduction	x
1 Scope	1
2 Conformance	1
3 Normative references	1
4 Terms and definitions	1
5 Notational conventions	3
6 Abbreviated terms	4
7 General description (informative)	7
7.1 PHY general description	7
7.2 MAC general description	7
7.2.1 General description of the architecture	7
7.2.2 Device address	8
7.2.3 Features assumed from the PHY	8
7.2.4 Overview of MAC service functionality	9
7.2.5 MAC policies	12
7.2.6 Support for higher-layer timer synchronization	12
7.3 MUX general description	12
7.4 HDMI PAL description	13
8 PHY layer (informative)	13
9 Description of signal	13
9.1 Mathematical framework for SCBT, OFDM, DBPSK, DQPSK, UEP-QPSK, OOK and 4ASK	13
9.2 Mathematical framework for the narrow band section of the discovery mode preamble	14
10 PLCP sublayer	14
10.1 General PPDU frame format	14
10.1.1 PLCP preamble	16
10.1.2 PLCP header	16
10.1.3 PPDU payload	19
10.1.4 Antenna training sequence	20
10.2 Type A PPDU	20
10.2.1 Mode dependent parameters	20
10.2.2 SCBT	21
10.2.3 OFDM	42
10.2.4 Constellation mapping	60
10.2.5 Discovery mode	69
10.3 Type B PPDU	71
10.3.1 Mode dependent parameters	71
10.3.2 Single carrier (DBPSK, DQPSK, UEP-QPSK)	72
10.3.3 Channel bonding	80
10.3.4 Discovery mode	80
11 General requirements	80
11.1 Operating band frequencies	80
11.1.1 Operating frequency range	80
11.1.2 Channel numbering	80
11.2 PHY layer timing	81
11.2.1 Receive-to-transmit turnaround time	81
11.2.2 Transmit-to-receive turnaround time	82

11.2.3 Time between successive transmissions	82
12 Transmitter specifications	82
12.1 Transmit PSD mask	82
12.1.1 Transmit PSD	82
12.2 Transmit centre frequency tolerance	83
12.3 Symbol clock frequency tolerance	83
12.4 Clock synchronization	83
12.5 Transmit power control	83
12.6 Transmitter EVM	83
12.6.1 Type A	83
12.6.2 Type B	87
13 Receiver specification	87
13.1 Type A device	87
13.1.1 SCBT receiver sensitivity	87
13.1.2 OFDM receiver sensitivity	88
13.2 Type B device receiver sensitivity	88
13.3 Receiver CCA performance	89
14 Antenna training symbols and feedback methods	89
14.1 Antenna training sequence transmission	89
14.1.1 Training matrix in closed-loop mode	90
14.1.2 Tracking matrix	92
14.2 Antenna training feedback in closed-loop mode	92
14.2.1 Index feedback	92
14.2.2 Codebook based feedback	92
14.2.3 Quantised weights	95
15 MAC frame formats	95
15.1 Frame format conventions	95
15.1.1 Figures	95
15.1.2 Octet order	96
15.1.3 Encoding	96
15.2 General MAC frame format	96
15.2.1 Unaggregated MAC frame	96
15.2.2 Aggregated MAC frame	97
15.2.3 Frame control	98
15.2.4 DestAddr	99
15.2.5 SrcAddr	99
15.2.6 Sequence control	99
15.2.7 Access information	100
15.2.8 Frame payload	101
15.2.9 FCS	101
15.3 Beacon frames	102
15.4 Discovery frames	104
15.5 Control frames	105
15.5.1 Immediate acknowledgement (Imm-ACK)	106
15.5.2 Block acknowledgement (B-ACK)	107
15.5.3 Application-specific	108
15.5.4 B-Poll	108
15.5.5 B-Poll response frame	109
15.5.6 Antenna training/tracking control frames	109
15.6 Command frames	110
15.6.1 DRP reservation request	111
15.6.2 DRP reservation response	111
15.6.3 Channel selection	111
15.6.4 Link feedback	113
15.6.5 Probe	116
15.6.6 Pairwise temporal key (PTK)	117

15.6.7	Group temporal key (GTK)	118
15.6.8	Application-specific	119
15.6.9	Relay	119
15.6.10	Transmit switched diversity (TSD) request	119
15.6.11	Transmit switched diversity (TSD) set response	120
15.6.12	Transmit switched diversity (TSD) switch	120
15.6.13	Fast uplink channel allocation (FUCA)	121
15.7	Data frames	121
15.8	Aggregated MAC frames	122
15.8.1	Aggregated data frames	122
15.8.2	Aggregated tracking frames	122
15.9	Information elements	122
15.9.1	Application-specific IE (ASIE)	124
15.9.2	Application-specific probe IE	124
15.9.3	Antenna Capabilities IE (ACIE)	124
15.9.4	ATIE	125
15.9.5	ATTCIE	127
15.9.6	AFIE	128
15.9.7	Beacon period occupancy IE (BPOIE)	129
15.9.8	BP Switch IE	131
15.9.9	Channel bonding IE (CBOIE)	131
15.9.10	Channel change IE	132
15.9.11	Channel measurement IE	133
15.9.12	Distributed reservation protocol (DRP) IE	134
15.9.13	DRP availability IE	137
15.9.14	Hibernation anchor IE	137
15.9.15	Hibernation mode IE	137
15.9.16	Identification IE	138
15.9.17	Link feedback IE	139
15.9.18	MAC capabilities IE	140
15.9.19	Master key identifier (MKID) IE	141
15.9.20	Multicast address binding (MAB) IE	141
15.9.21	PHY capabilities IE	142
15.9.22	Probe IE	145
15.9.23	Relinquish request IE	145
15.9.24	Relay IE	146
15.9.25	Scan Timing IE	148
15.9.26	UEP information IE	149
16	MAC sublayer functional description	150
16.1	Frame processing	150
16.1.1	Frame addresses	150
16.1.2	Frame reception	151
16.1.3	Antenna training frame transaction	151
16.1.4	Frame transfer	151
16.1.5	Frame retry	152
16.1.6	Inter-frame space (IFS)	152
16.1.7	Duplicate detection	152
16.1.8	RTT/CTT use	152
16.1.9	MAC header fields	153
16.1.10	Information elements	154
16.2	Distributed contention access (DCA)	157
16.2.1	DCA medium availability	157
16.2.2	NAV	157
16.2.3	Medium status	158
16.2.4	Obtaining a TXOP	158
16.2.5	Using a TXOP	159
16.2.6	Invoking a backoff procedure	159

16.2.7	Decrementing a backoff counter	160
16.3	Device discovery	160
16.3.1	Power-up scan	161
16.3.2	Transmission and reception of discovery frames	162
16.4	Channel selection	164
16.4.1	Explicit channel selection	165
16.4.2	Implicit channel selection	166
16.5	Transmission and reception of beacons	166
16.5.1	Transmission and reception of Type A beacons	166
16.5.2	Transmission and reception of Type B beacon frames	167
16.5.3	Superframe	168
16.6	Distributed reservation protocol (DRP)	174
16.6.1	Reservation type	175
16.6.2	Reservation waveform	175
16.6.3	Medium access	175
16.6.4	DRP availability IE	176
16.6.5	DRP reservation negotiation	176
16.6.6	DRP reservation announcements	178
16.6.7	Resolution of DRP reservation conflicts	178
16.6.8	BPST realignment and existing DRP reservations	180
16.6.9	Modification and termination of existing DRP reservations	180
16.6.10	Retransmit procedures in DRP reservations	180
16.7	Coexistence and interoperability	181
16.7.1	Coexistence	181
16.7.2	Interoperability	181
16.8	Synchronization of devices	182
16.8.1	Clock accuracy	182
16.8.2	Synchronization for devices in hibernation mode	182
16.8.3	Guard times	182
16.9	Fragmentation and reassembly	184
16.10	Aggregation	184
16.11	Channel bonding	186
16.12	Acknowledgement policies	187
16.12.1	No-ACK	187
16.12.2	Immediate ACK	187
16.12.3	Block ACK	187
16.13	Probe	189
16.14	Multi-rate support	189
16.15	Transmit power control (TPC)	190
16.16	Power management mechanisms	190
16.16.1	Power management modes	190
16.16.2	Power state transitions at active mode	190
16.16.3	Hibernation mode operation	191
16.16.4	Hibernation anchor operation	192
16.17	ASIE operation	193
16.18	Antenna training and tracking	193
16.18.1	Announcement of antenna capabilities	193
16.18.2	Antenna training/tracking configuration	193
16.18.3	Iterative antenna training	194
16.18.4	Antenna tracking	195
16.19	Transmit switched diversity (TSD) operation	196
16.19.1	TSD initiating procedure	196
16.19.2	Antenna switching	196
16.20	MAC sublayer parameters	197
17	Security	198
17.1	Security mechanisms	198
17.1.1	Security operation	199

17.1.2	4-way handshake	199
17.1.3	Key transport	199
17.1.4	Freshness protection	199
17.1.5	Data encryption	199
17.1.6	Frame integrity protection	199
17.2	Security modes	200
17.2.1	Security mode 0	201
17.2.2	Security mode 1	201
17.2.3	Security mode 2	201
17.3	Temporal keys	202
17.3.1	Mutual authentication and PTK derivation	202
17.3.2	GTK exchange	203
17.3.3	Pseudo-random function (PRF) definition	204
17.3.4	PTK and KCK derivation	204
17.3.5	PTK MIC generation	205
17.3.6	Random number generation	205
17.4	Frame reception steps and replay prevention measures	206
17.4.1	Frame reception	206
17.4.2	Replay prevention	206
17.4.3	Implications on GTKs	207
17.5	AES-128 GCM inputs	207
17.5.1	Overview	207
17.5.2	Nonce	207
17.5.3	GCM blocks	208
17.6	Token authentication	209
17.6.1	Token issuance	209
17.6.2	Token revoke	210
18	HDMI PAL	210
18.1	Introduction	210
18.2	HDMI transmission	211
18.2.1	Identification of video vs. data	211
18.2.2	TMDS removal	211
18.2.3	Data type multiplexing	211
18.3	HDMI reception	213
18.3.1	TMDS encoding	213
18.3.2	Packet demultiplexing	213
18.4	PAL header format	217
18.4.1	Sub-packet header	218
18.5	PAL payload format	219
18.6	Block retransmission request	219
18.7	Type specific header fields	220
18.7.1	S-UEP	220
18.7.2	P-UEP	223
18.8	Video/audio format adaptation	224
18.8.1	Fast video format adaptation	224
18.8.2	Fast audio format adaptation	227
18.8.3	Control messages to support fast format adaptation	228
18.9	Fast uplink channel allocation (FUCA)	229
18.9.1	FUCA operation	230
18.9.2	The procedure of data exchange using FUCA	233
19	Out-of-band control channel	234
19.1	OOB operation	235
19.1.1	Ad hoc mode	235
19.1.2	Infrastructure mode	237
19.1.3	Other OOB functions	239
19.2	OOB frame format	240
19.2.1	General frame format	240

19.2.2	OOB-beacon	240
19.2.3	OOB-60GHz capability request	241
19.2.4	OOB-60GHz capability response	241
19.2.5	OOB-interference detection request	242
19.2.6	OOB-interference detection response	242
19.2.7	OOB-channel loss notification	242
19.2.8	OOB-block ACK	243
19.2.9	OOB-probe request	243
19.2.10	OOB-probe response	243
19.3	Convergence MAC sublayer parameters	244
20	Relay operation	244
20.1	Relay path setup	244
20.1.1	Identification of relay capabilities	244
20.1.2	Association with a relay device	244
20.1.3	Antenna training between the source and the destination	244
20.1.4	Antenna training between the source and the relay	244
20.1.5	Antenna training between the relay and the destination	245
20.1.6	Transition to data channel	245
20.2	Data transmission in relay operation	247
20.2.1	DRP reservation for relay operation in data channel	247
20.2.2	Usage of relay device	247
20.2.3	Frame transfer in relay operation	247
20.2.4	Frame reception in relay operation	248
20.2.5	Data exchange using relay device	248
20.2.6	Decision on path change	249
20.2.7	Path Change	249
20.2.8	Relay link feedback via relay device	250
20.2.9	Scan of idle path	251
20.2.10	Operation of relay device	251
Annex A	(normative) MUX sublayer	253
Annex B	(normative) MAC Policies	255
Annex C	(informative) Higher Layer Synchronization Support	258
Annex D	(informative) IP PAL	260
Annex E	(informative) USB PAL	263
Annex F	(informative) B-ACK buffer with fixed size elements	266
Bibliography		267

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 13156 was prepared by Ecma International (as ECMA-387) and was adopted, under a special "fast-track procedure", by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in parallel with its approval by national bodies of ISO and IEC.

This second edition cancels and replaces the first edition (ISO/IEC 13156:2009), which has been technically revised.

Introduction

This International Standard specifies PHY, MAC and PALs for flexible and heterogeneous multi-Gigabit Wireless Personal Area networks. The heterogeneous network consists of two types of devices (Types A and B) that can fully coexist and interoperate but at the same time are able to operate independently. As a result this standard enables a wide range of different implementations and applications ranging from simple and low-power data transfer at short ranges, suitable for handheld devices, to high-rate multimedia streaming at longer distances, when adaptive antenna arrays are employed. Applications include Sync-and-Go, Access points, Wireless desktops and docking stations and uncompressed video streaming.

The Type A device is designed to be the high-end, high-performance device and provides many features including high data rate, longer range, robustness against multipath, support for adaptive antenna arrays and multi-level QoS. On the other hand, Type B devices, designed for handheld devices, are simpler, low power and low cost, while offering high data rates.

Type A and Type B devices offer data rates up to 6,350 Gbps and 3,175 Gbps in a single channel, respectively. This International Standard defines four frequency channels with separation of 2,160 GHz, which may be bonded to each other to increase the data rates by a factor of 2, 3 or 4.

This International Standard defines a single decentralized MAC protocol for both device types, which provides interoperability and coexistence for the device types and features high bandwidth efficiency, QoS provisions, and spatial reuse capability (Figure 1).

Multiple PALs can reside on top of the MAC layer, which interact with the MAC layer through a multiplexing sublayer (MUX). This edition of ISO/IEC 13156 provides an HDMI¹ PAL as well as information regarding IP and USB PALs.

1. HDMI is the registered trademark of the HDMI LLC.

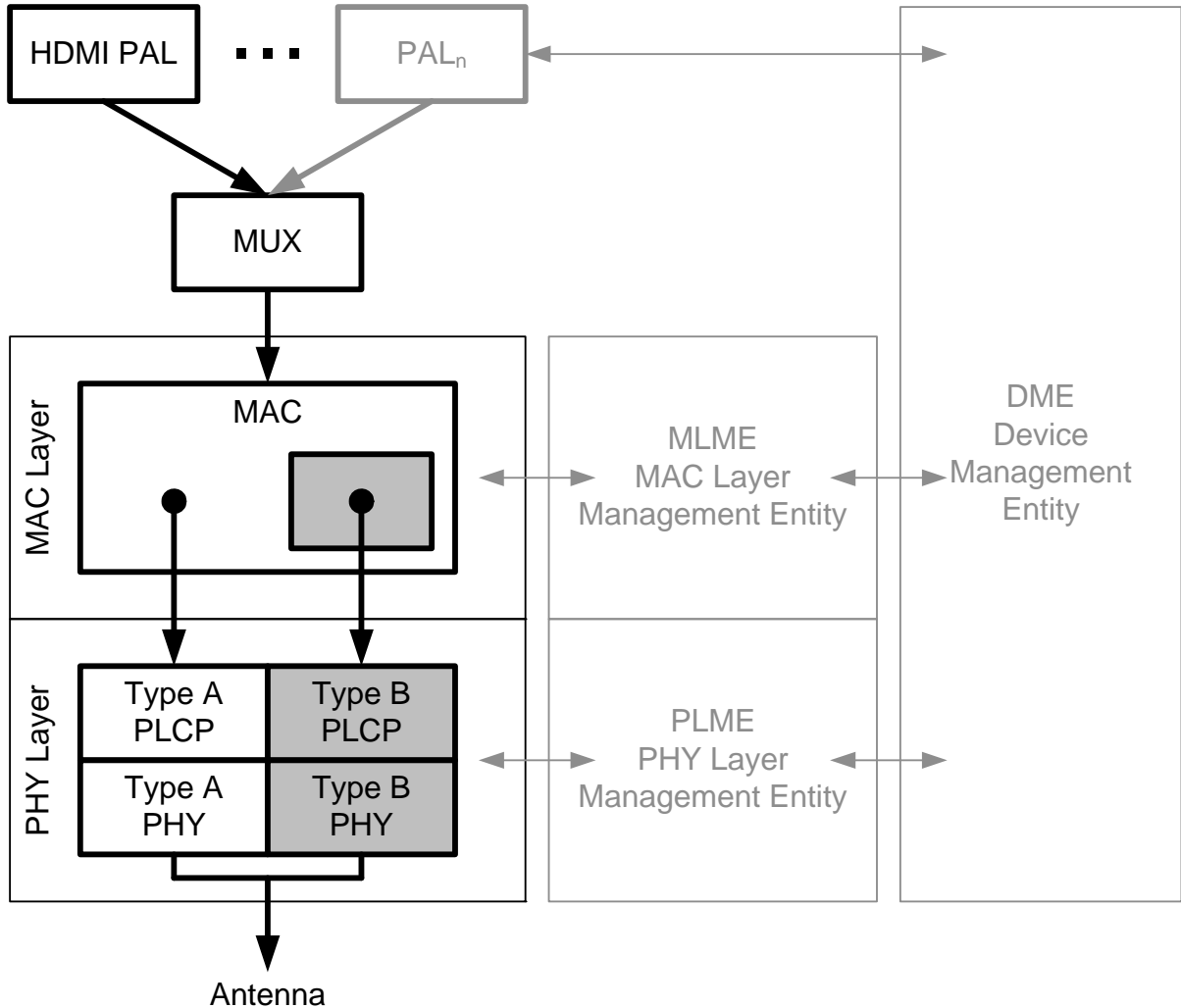


Figure 1 - Protocol structure

NOTE The DME, MLME, PLME, and PALs (except the HDMI PAL) are outside the scope of this International Standard and all references to these are informative.

Information technology — Telecommunications and information exchange between systems — High rate 60 GHz PHY, MAC and PALs

1 Scope

This International Standard specifies a physical layer (PHY), distributed medium access control (MAC) sublayer, and an HDMI protocol adaptation layer (PAL) for 60 GHz wireless networks.

2 Conformance

Conforming devices of Type A, B or C shall implement the MAC sublayer and the PHY layer and may implement the HDMI PAL as specified herein.

3 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 8802-11:2005/Amd.6, *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 6: Medium Access Control (MAC) Security Enhancements*

IEEE 100, *The Authoritative Dictionary of IEEE Standards Terms*, Seventh Edition