# ETS 300 652

**A**MENDMENT

**pr A1**

**This draft amendment A1, if approved, will modify
the European Telecommunication Standard ETS 300 652 (1996)**

# Radio Equipment and Systems (RES);

# HIgh PErformance Radio Local Area Network (HIPERLAN)

# Type 1;

# Functional specification

**URGENT TECHNICAL CORRECTION**

# ETSI

## Foreword

This draft amendment to ETS 300 652 (1996) has been produced by the Radio Equipment and Systems (RES) Technical Committee of the European Telecommunications Standards Institute (ETSI), and is now submitted for the Unified Approval Procedure phase of the ETSI standards approval procedure.

| Proposed transposition dates | |
|---|---|
| Date of latest announcement of this amendment (doa): | 3 months after ETSI publication |
| Date of latest publication or endorsement of this amendment (dop/e): | 6 months after doa |
| Date of withdrawal of any conflicting National Standard (dow): | 6 months after doa |

## Amendments

**Page 13, clause 2**

*Replace clause with the following:*

This ETS incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

[1]  CEPT Recommendation T/R 22-06: "Relating to the harmonised radio frequency bands for HIgh PErformance Radio Local Area Networks (HIPERLANs) in the 5 GHz and 17 GHz frequency range".

[2]  ISO/IEC 7 498-1 (1994): "Information technology - Open Systems Interconnection - Basic Reference Model: The Basic Model".

[3]  (not used).

[4]  (not used).

[5]  ISO/IEC 10 731 (1994): "Information technology - Open Systems Interconnection - Basic Reference Model - Conventions for the definition of OSI services".

[6]  ANSI/IEEE 802.1a (1990): "Local Area Network and Metropolitan Area Network - Overview and Architecture".

[7]  ISO/IEC 15 802-1 (1995): "Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks - Common specifications - Part 1: Medium Access Control (MAC) service definition".

[8]  ISO/IEC 10 038 (1993): "Information technology - Telecommunications and information exchange between systems - Local area networks - Media access control (MAC) bridges".

[9]  ISO/IEC 10 646-1 (1993): "Information Technology - Universal Multiple-Octet Coded Character Set (UCS) - Part 1: Architecture and Basic Multilingual Plane".

**Page 14, subclause 3.1.1**

*Replace the first paragraph with the following:*

This ETS is based on the concepts developed in the open system interconnect basic reference model and makes use of the following terms defined in ISO/IEC 7 498-1 [2]:

**Page 14, subclause 3.1.2**

*Replace the first paragraph with the following:*

This ETS makes use of the following terms defined in ISO/IEC 10 731 [5]:

**Page 14, subclause 3.1.3**

*Replace the first paragraph with the following:*

This ETS makes use of the following terms defined in ANSI/IEEE 802.1a [6]:

**Page 14, subclause 3.1.4**

*Replace the whole subclause with the following:*

This ETS makes use of the following terms defined in ISO/IEC 15 802-1 [7]:

- group-MSAP-address;

- MAC service data unit (MSDU).

**Page 17, clause 4**

*Replace the first two bullet points with the following:*

- it provides a service that is compatible with the ISO MAC service definition in ISO/IEC 15 802-1 [7];

- its operations are compatible with the ISO MAC bridges specification in ISO/IEC 10 038 [8] for interconnection with other LANs;

**Page 19, clause 4**

*Replace the third bullet point under "HIPERLAN MAC protocol:" with the following:*

- is compatible with the ISO MAC bridges specification in ISO/IEC 10 038 [8]; and

**Page 23, clause 5**

*Replace the first paragraph with the following:*

The HIPERLAN MAC service definition uses the descriptive conventions given in ISO/IEC 10 731 [5].

**Page 23, clause 5**

*Replace the third paragraph with the following:*

The HIPERLAN MAC service definition is based on the ISO MAC service specification in ISO/IEC 15 802-1 [7].

**Page 30, subclause 6.1.1**

*Replace the subclause with the following:*

The HIPERLAN name identifies a HIPERLAN and is a fixed-length string of 32 16-bit characters encoded in UCS-2 with implementation level 3 according to ISO/IEC 10 646-1 [9].

**Page 37, table 16**

*Replace table 16 with the following table:*

**Table 16: Valid values for the timing elements of a recurring pattern**

All values are integer, in milliseconds

| Timing elements | Valid range of value |
|---|---|
| pattern offset | 0 — 10 000 |
| pattern period | 500 — 10 000 |
| practice interval | 500 — 10 000 |

**Page 37, subclause 6.3.1**

*Replace the whole subclause with the following:*

This procedure shall be executed by a p-saver to declare its individual-attention pattern to its neighbouring HM-entities, at the start of its individual-attention interval of every $n^{th}$ individual-attention pattern period, where n shall be an integer with a minimum value of 1 and a maximum value of:

$$Int( t_{IP} / ( 2 \text{ x individual-attention pattern period} ) )$$

From the moment of its individual-attention pattern declaration, the p-saver shall be ready to receive during its declared recurring individual-attention intervals.

**Page 37, subclause 6.3.2**

*Replace the whole subclause with the following:*

This procedure shall be executed by a p-supporter to declare its group-attendance pattern to its neighbouring HM-entities, at the start of its group-attendance interval of every $n^{th}$ group-attendance pattern period, where n shall be an integer with a minimum value of 1 and a maximum value of:

$$Int( t_{GP} / ( 2 \text{ x group-attendance pattern period} ) )$$

**Page 46, subclause 6.5.5.1**

*Replace all the text from the paragraph "A new hello entry is recorded in ..." till the end of the subclause with the following:*

If, after the completion of the above procedures, $N_{Status}$ of the neighbour entry in the local neighbour information base whose $N_{Nbour}$ identifies the neighbouring HM-entity is N_Sym or N_MultiRelay:

- a new hello entry is recorded in the local hello information base for a holding time of $t_{HO}$, where:

    - $H_{Dest}$ and $H_{Next}$ are set to the source address parameter of the HC-UNITDATA indication primitive; and

    - $H_{Status}$ is set to H_NeighbourF if the value of the RTI of the received HO-HMPDU is R_Forwarder, or H_NeighbourNF if the value of the RTI is R_NonForwarder;

    While recording this new hello entry, an earlier hello entry with the same $H_{Dest}$, if it exists, is considered outdated and is replaced. If necessary, an earlier hello entry is removed to provide sufficient space to record the new hello entry.

- for each { NA, NS } pair conveyed in the received HO-HMPDU, if:

  - the value of the NA does not identify the local HM-entity;

  - the value of the NA does not correspond to $H_{Dest}$ of any hello entry in the local hello information base whose $H_{Status}$ is H_NeighbourF or H_NeighbourNF;

  - the value of the RTI of the HO-HMPDU is R_Forwarder; and

  - the value of the NS is N_Sym or N_MultiRelay;

  a new hello entry is recorded in the local hello information base for a holding time of $t_{HO}$, where:

  - $H_{Dest}$ is set to the value of the NA;

  - $H_{Status}$ is set to H_TwoHop; and

  - $H_{Next}$ is set to the source address parameter of the HC-UNITDATA indication primitive.

  While recording such a new hello entry, an earlier hello entry with the same $H_{Dest}$ and the same $H_{Next}$, if it exists, is considered outdated and is replaced. If necessary, an earlier hello entry is removed to provide sufficient space to record a new hello entry.

**Page 50, subclause 6.6.3**

*Replace the title with:*

"HMPDU transmission and retransmission".

*Replace the first paragraph with the following:*

This procedure is executed to transmit or retransmit the most important HMPDU awaiting transmission:

**Page 50, subclause 6.6.3.1**

*Replace the second paragraph with the following:*

If the selected HMPDU is a TC-HMPDU or a DT-HMPDU which is generated (not forwarded) by the local HM-entity and has not previously been transmitted (successfully or unsuccessfully):

**Page 53, figure 12**

*Replace figures 12 with the following:*

|  | Octet |
|---|---|
| HMPDU length indicator field (LI) = n | 1 — 2 |
| HMPDU type indicator field (TI) | 3 |
| ... | 4 — n |

**Figure 12: The general structure of a HMPDU**

**Page 53, figure 13**

*Replace figure 13 with the following:*

| | Octet |
|---|---|
| HMPDU length indicator field<br>(LI) = n | 1 — 2 |
| HMPDU type indicator field<br>(TI) = 1 | 3 |
| Residual HMPDU lifetime field<br>(RL) | 4 — 5 |
| HMPDU sequence number field<br>(PSN) | 6 — 7 |
| Destination MSAP-address field<br>(DA) | 8 — 13 |
| Source MSAP-address field<br>(SA) | 14 — 19 |
| Alias destination MSAP-address field<br>(ADA) | 20 — 25 |
| Alias source MSAP-address field<br>(ASA) | 26 — 31 |
| User priority field (UP) [bit 8] / MSDU lifetime field | 32 |
| (ML) | 33 |
| Key identifier field (KID) [bit 8—7] / Initialisation vector field | 34 |
| (IV) | 35 — 37 |
| User data field<br>(UD) | 38 — (n-2) |
| Sanity check field<br>(SC) | (n-1) — n |

**Figure 13: The structure of a DT-HMPDU**

**Page 54, subclause 6.7.3.12**

*Replace the subclause with the following:*

The SC, a 2-octet field, contains the sanity check for the unencrypted MSDU. If the value of the KID is No_Key its value shall be 0.

**Page 55, figure 14**

*Replace figure 14 with the following:*

| | Octet |
|---|---|
| HMPDU length indicator field<br>(LI) = 3 | 1 — 2 |
| HMPDU type indicator field<br>(TI) = 2 | 3 |

**Figure 14: The structure of a LR-HMPDU**

**Page 55, figure 15**

*Replace figure 15 with the following:*

| | Octet |
|---|---|
| HMPDU length indicator field<br>(LI) = 71 | 1 — 2 |
| HMPDU type indicator field<br>(TI) = 3 | 3 |
| HIPERLAN identifier field<br>(HID) | 4 — 7 |
| HIPERLAN name field<br>(HN) | 8 — 71 |

**Figure 15: The structure of a LC-HMPDU**

**Page 55, subclause 6.7.4.2**

*Replace the subclause with the following:*

The HN, a 64-octet field, contains the HIPERLAN name, which is a fixed-length string of 32 16-bit characters encoded in UCS-2 with implementation level 3 according to ISO/IEC 10 646-1 [9]. The character string starts and ends respectively at the lowest and the highest numbered octets of the HN.

**Page 55, figure 16**

*Replace figure 16 with the following:*

| | Octet |
|---|---|
| HMPDU length indicator field<br>(LI) = 9 | 1 — 2 |
| HMPDU type indicator field<br>(TI) = 4 | 3 |
| Pattern offset field<br>(PO) | 4 — 5 |
| Pattern period field<br>(PP) | 6 — 7 |
| Practice interval field<br>(PI) | 8 — 9 |

**Figure 16: The structure of a IP-HMPDU**

**Page 56, figure 17**

*Replace figure 17 with the following:*

| | Octet |
|---|---|
| HMPDU length indicator field<br>(LI) = 9 | 1 — 2 |
| HMPDU type indicator field<br>(TI) = 5 | 3 |
| Pattern offset field<br>(PO) | 4 — 5 |
| Pattern period field<br>(PP) | 6 — 7 |
| Practice interval field<br>(PI) | 8 — 9 |

**Figure 17: The structure of a GP-HMPDU**

**Page 56, figure 18**

*Replace figure 18 with the following:*

Octet

| | |
|---|---|
| HMPDU length indicator field (LI) = n | 1 — 2 |
| HMPDU type indicator field (TI) = 6 | 3 |
| Residual HMPDU lifetime field (RL) | 4 — 5 |
| HMPDU sequence number field (PSN) | 6 — 7 |
| Originator HCSAP-address field (OA) | 8 — 13 |
| Multipoint relay set sequence number field (MSN) (note) | 14 — 15 |
| Source multipoint relay HCSAP-address field (SMA) (note) | 16 — 21 |
| { MSN, SMA } pairs | 22 — (n-8) |
| Multipoint relay set sequence number field (MSN) (note) | (n-7) — (n-6) |
| Source multipoint relay HCSAP-address field (SMA) (note) | (n-5) — n |

NOTE: The MSN and the SMA exist in pairs in a TC-HMPDU. There may be 0 up to any number of { MSN, SMA } pairs in a TC-HMPDU, subject to the maximum size of the TC-HMPDU.

**Figure 18: The structure of a TC-HMPDU**

**Page 57, figure 19**

*Replace figure 19 with the following:*

Octet

| | |
|---|---|
| HMPDU length indicator field (LI) = n | 1 — 2 |
| HMPDU type indicator field (TI) = 7 | 3 |
| Relay type indicator field (RTI) | 4 |
| Multipoint relay set sequence number field (MSN) | 5 — 6 |
| Neighbour HCSAP-address field (NA) (note) | 7 — 12 |
| Neighbour status field (NS) (note) | 13 |
| { NA, NS } pairs | 14 — (n-7) |
| Neighbour HCSAP-address field (NA) (note) | (n-6) — (n-1) |
| Neighbour status field (NS) (note) | n |

NOTE: The NA and the NS exist in pairs in a HO-HMPDU. There may be 0 up to any number of { NA, NS } pairs in a HO-HMPDU, subject to the maximum size of the HO-HMPDU.

**Figure 19: The structure of a HO-HMPDU**

**Page 58, subclause 6.8**

*Replace the first paragraph with the following:*

The predefined values used by the HIPERLAN MAC protocol are shown in table 18.  All time values in table 18 shall be subject to ±5% tolerance.

**Page 58, table 18**

*Replace table 18 with the following:*

**Table 18: Predefined values**

| Symbol | Use | Predefined value |
|---|---|---|
| $t_{IP}$ | holding time for the individual-attention pattern | 30 000 ms |
| $t_{GP}$ | holding time for the group-attendance pattern | 30 000 ms |
| $t_{TC}$ | holding time for the information from the received TC-HMPDU | 40 000 ms |
| $t_{HO}$ | holding time for the information from the received HO-HMPDU | 20 000 ms |
| $t_A$ | holding time for an alias entry | 30 000 ms |
| $l_{LR}$ | HMPDU lifetime of the LR-HMPDU | 500 ms |
| $l_{LC}$ | HMPDU lifetime of the LC-HMPDU | 500 ms |
| $l_{IP}$ | HMPDU lifetime of the IP-HMPDU | 500 ms |
| $l_{GP}$ | HMPDU lifetime of the GP-HMPDU | 500 ms |
| $l_{TC}$ | HMPDU lifetime of the TC-HMPDU | 500 ms |
| $l_{HO}$ | HMPDU lifetime of the HO-HMPDU | 500 ms |
| $p_{IP}$ | HMPDU priority of the IP-HMPDU | 1 |
| $p_{GP}$ | HMPDU priority of the GP-HMPDU | 1 |
| $p_{LR}$ | HMPDU priority of the LR-HMPDU | 1 |
| $p_{LC}$ | HMPDU priority of the LC-HMPDU | 1 |
| $p_{TC}$ | HMPDU priority of the TC-HMPDU | 0 |
| $p_{HO}$ | HMPDU priority of the HO-HMPDU | 0 |
| $t_C$ | HIPERLAN information collection interval | 1 000 ms |
| $n_{UHD}$ | default hop distance for unicast MSDU transfer | 1 |
| $n_{MHD}$ | default hop distance for multicast MSDU transfer | 5 |

**Page 58, clause 7**

*Replace the first paragraph with the following:*

The HIPERLAN CAC service definition uses the descriptive conventions given in ISO/IEC 10 731 [5].

**Page 67, figure 28**
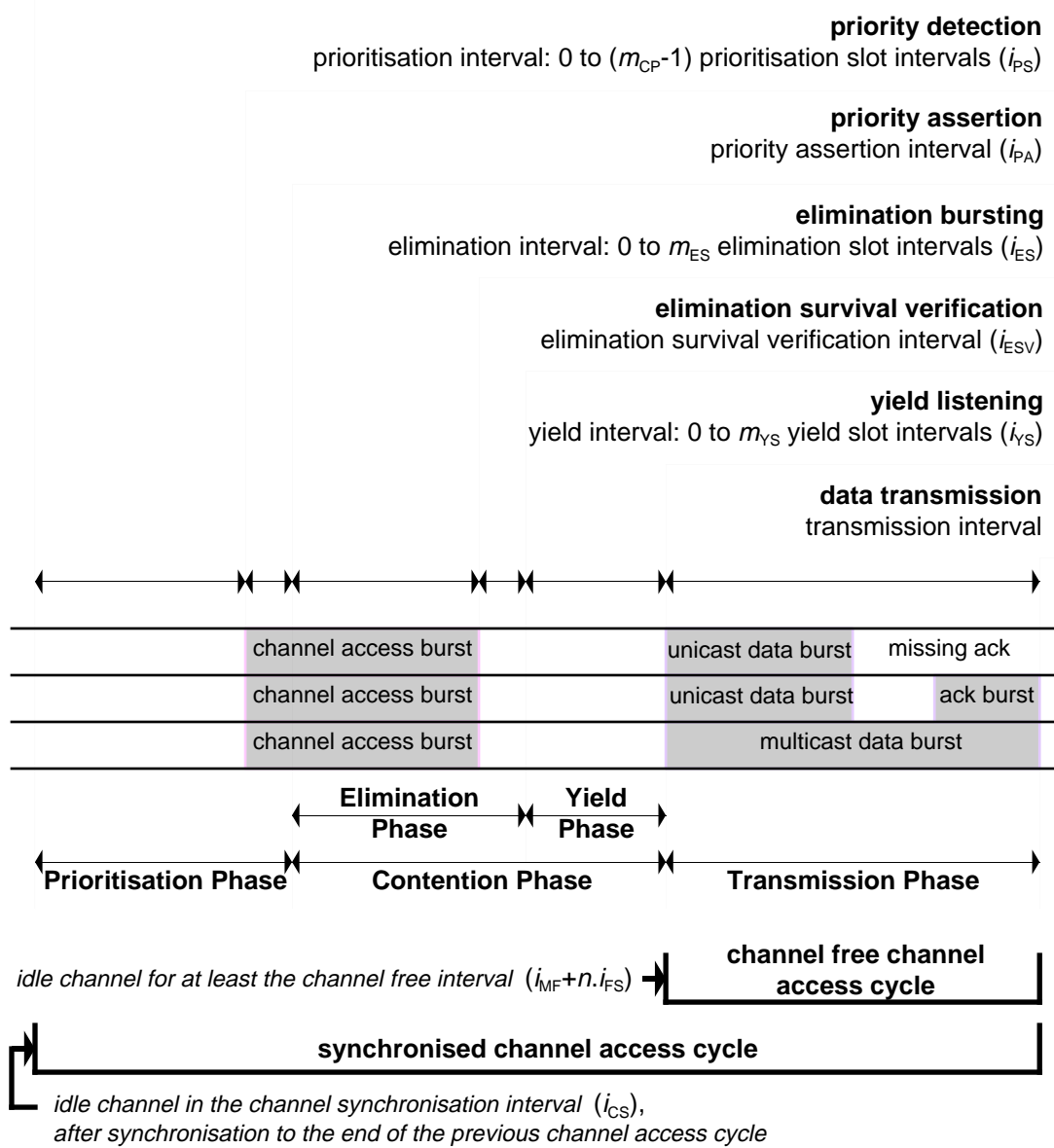
*Replace figure 28 with the following:*



**priority detection**
prioritisation interval: 0 to ($m_{CP}$-1) prioritisation slot intervals ($i_{PS}$)

**priority assertion**
priority assertion interval ($i_{PA}$)

**elimination bursting**
elimination interval: 0 to $m_{ES}$ elimination slot intervals ($i_{ES}$)

**elimination survival verification**
elimination survival verification interval ($i_{ESV}$)

**yield listening**
yield interval: 0 to $m_{YS}$ yield slot intervals ($i_{YS}$)

**data transmission**
transmission interval

| channel access burst | | unicast data burst | missing ack |
| channel access burst | | unicast data burst | ack burst |
| channel access burst | | multicast data burst | |

**Elimination Phase** — **Yield Phase**

**Prioritisation Phase** — **Contention Phase** — **Transmission Phase**

*idle channel for at least the channel free interval* $(i_{MF}+n.i_{FS})$ → **channel free channel access cycle**

**synchronised channel access cycle**

*idle channel in the channel synchronisation interval* $(i_{CS})$,
*after synchronisation to the end of the previous channel access cycle*

**Figure 28: The EY-NPMA activities**

**Page 71, subclause 8.3**

*Replace the second paragraph with the following:*

HIPERLAN systems may be portable or mobile and consequently subject to different channel permissions at different times. Transmission access to non-default channels is communicated to HC-entities by means of CP-HCPDUs. If one or more non-default channels are permitted to be used, CP-HCPDUs conveying this channel permission information are transmitted on all the default channels as well as those non-default channels permitted to be used. The permission to use the non-default channels is subject to the permission validity time, upon expiry of which the use of the non-default channels is forbidden.

**Page 76, subclause 8.5.5**

*Replace the whole subclause with the following:*

This procedure is executed to process an HCPDU received from the physical layer.

**Page 78, figure 29**

*Replace figure 29 with the following:*

| LBR-part | | | | | | | | | | Bit |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 — 9 |
| HBR-part indicator field (HI) = 0 | | | | | | | | | | 10 |
| ... | | | | | | | | | | 11 — n |

**Figure 29: The general structure of a LBR HCPDU**

**Page 79, figure 30**

*Replace figure 30 with the following:*

| LBR-part | | | | | | | | | | Bit |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 — 9 |
| HBR-part indicator field (HI) = 1 | | | | | | | | | | 10 |
| Hashed destination HCSAP-address field (HDA) | | | | | | | | | | 11 — 19 |
| Hashed destination HCSAP-address checksum field (HDACS) | | | | | | | | | | 20 — 23 |
| Block length indicator replica field (BLIR) | | | | | | | | | | 24 — 29 |
| Block length indicator replica checksum field (BLIRCS) | | | | | | | | | | 30 — 33 |
| 1 | | | | | | | | | | 34 |

| HBR-part | | Octet |
|---|---|---|
| HCPDU type indicator field (TI) [bit 8—7] | Block length indicator field (BLI) [bit 6—1] = n | 1 |
| Padding length indicator field (PLI) = m | | 2 |
| HIPERLAN identifier field (HID) | | 3 — 6 |
| Destination HCSAP-address field (DA) | | 7 — 12 |
| Source HCSAP-address field (SA) | | 13 — 18 |
| ... | | 19 — (52n-m-4) |
| Padding field (PAD) | | (52n-m-3) — (52n-4) |
| Checksum field (CS) | | (52n-3) — 52n |

**Figure 30: The general structure of a LBR-HBR HCPDU**

**Page 80, figure 31**

*Replace figure 31 with the following:*

| LBR-part | | | | | | | | | | Bit |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 — 9 |
| HBR-part indicator field (HI) = 0 | | | | | | | | | | 10 |
| Acknowledgement identifier field (AID) | | | | | | | | | | 11 — 18 |
| Acknowledgement identifier checksum field (AIDCS) | | | | | | | | | | 19 — 22 |

**Figure 31: The structure of (the LBR-part of) a AK-HCPDU**

**Page 81, figure 32**

*Replace figure 32 with the following:*

| HBR-part | | | Octet |
|---|---|---|---|
| HCPDU type indicator field (TI) [bit 8—7] = 0 | Block length indicator field (BLI) [bit 6—1] = 1 | | 1 |
| Padding length indicator field (PLI) = 29 | | | 2 |
| HIPERLAN identifier field (HID) = Any_HIPERLAN | | | 3 — 6 |
| Destination HCSAP-address field (DA) = All_Neighbours | | | 7 — 12 |
| Source HCSAP-address field (SA) = FF FF FF FF FF FF | | | 13 — 18 |
| Channel 3 field (C3) [bit 8] | Channel 4 field (C4) [bit 7] | Reserved field [bit 6—1] = 0 | 19 |
| Padding field (PAD) | | | 20 — 48 |
| Checksum field (CS) | | | 49 — 52 |

**Figure 32: The structure of the HBR-part of a CP-HCPDU**

**Page 82, figure 33**

*Replace figure 33 with the following:*

| HBR-part | | Octet |
|---|---|---|
| HCPDU type indicator field (TI) [bit 8—7] = 1 | Block length indicator field (BLI) [bit 6—1] = n | 1 |
| Padding length indicator field (PLI) = m | | 2 |
| HIPERLAN identifier field (HID) | | 3 — 6 |
| Destination HCSAP-address field (DA) | | 7 — 12 |
| Source HCSAP-address field (SA) | | 13 — 18 |
| User data field (UD) | | 19 — (52n-m-4) |
| Padding field (PAD) | | (52n-m-3) — (52n-4) |
| Checksum field (CS) | | (52n-3) — 52n |

**Figure 33: The structure of the HBR-part of a DT-HCPDU**

**Page 84, subclause 9.4.1**

*Replace the whole subclause with the following:*

If the adaptive defer threshold scheme is not implemented, the default defer threshold shall be SLN 1.

If the adaptive defer threshold scheme is implemented, a threshold higher than the default defer threshold may be used provided that it is less than or equal to the Maximum Adaptive Defer Threshold (MADT).

**Page 91, subclause 9.6.2.7**

*Replace all the text between table 31 and the end of the subclause with the following:*

NOTE: The above synchronisation and training sequence could be constructed from the five different 31-bit m-sequences obtained from the following generating polynomials with their relevant initial shift register values:

$m_1(x) = x^5 + x^2 + 1$ $\qquad$ ( 0 0 0 0 1 )

$m_2(x) = x^5 + x^3 + 1$ $\qquad$ ( 1 1 0 1 0 )

$m_3(x) = x^5 + x^4 + x^2 + x + 1$ $\quad$ ( 1 1 0 1 1 )

$m_4(x) = x^5 + x^4 + x^3 + x + 1$ $\quad$ ( 1 0 1 0 0 )

$m_5(x) = x^5 + x^3 + x^2 + x + 1$ $\quad$ ( 1 1 1 1 1 )

Each m-sequence is repeated three times, starting with three $m_1$ then three $m_2$ etc. The last repetition of $m_5$ is truncated after the 16th bit.

**Page 92, subclause 9.7.1**

*Replace the formula immediately after the line "The modulating data value input ..." with the following:*

$$a_i = 1 - 2d_i \quad \left(a_i \in \{-1, +1\}\right).$$

*Replace the phrase "where:" to "BT = 0,3" with the following:*

where $s = \sqrt{\ln(2)}\big/(2\pi BT)$ and, in HIPERLAN $BT = 0,3$;

**Page 97, table 40**

*Replace the table with the following:*

**Table 40: Limits for emissions due to modulation and switching**

| Frequency range | Peak power in 1 MHz relative to average power in 1 MHz centred on frequency F(c) | Average power in 1 MHz relative to average power in 1 MHz centred on frequency F(c) |
|---|---|---|
| \|F(c) - F\|< 10 MHz | | 0,5 dB |
| 10 MHz < \|F(c) - F\|< 12 MHz | | -5 dB |
| 12 MHz < \|F(c) - F\|< 15 MHz | | -10 dB |
| 15 MHz < \|F(c) - F\|< 25 MHz | -12dB | -22 dB |
| 25 MHz < \|F(c) - F\|< 35 MHz | -30dB | |
| 35 MHz < \|F(c) - F\|< 45 MHz | -40dB | |
| 45 MHz < \|F(c) - F\| | -50dB | |

**Page 100, table 43**

*Replace table 43 with the following:*

**Table 43: Minimum input level**

| Receiver class | Minimum isotropic input level |
|---|---|
| A | -50 dBm |
| B | -60 dBm |
| C | -70 dBm |

**Page 100, subclause 9.9.3.1**

*Replace the last paragraph with the following:*

These minimum input level figures are exact for receivers with 0 dB gain isotropic antennas. For practical antennas, the reference sensitivity levels for the three receiver classes shall be defined in terms of equivalent minimum field strengths. Equivalent minimum field strengths can be calculated from the power levels in table 43 and the properties of an ideal isotropic antenna.

**Page 105, annex A**

*Replace the whole annex with the following:*

This informative annex describes an example set of Management Information Base (MIB) entries that should be supported by HIPERLAN devices.

**Table A.1**

| Object | Mandatory or Optional | values | Read or Change |
|---|---|---|---|
| Source MSAP-address | M | object | R, C |
| MSDU delivery | O | boolean | R |
| Manufacture ID | O | object | R |
| Product ID | O | object | R |
| HIPERLAN name | M | object | R, C |
| HIPERLAN identifier | M | integer | R, C |
| Heard HIPERLANs { HIPERLAN name, HIPERLAN identifier } | O | object | R |
| Recognised group MSAP-addresses | O | object | R, C |
| Number of acknowledged unicast LBR-HBR HCPDU transmissions | O | counter | R |
| Number of unacknowledged unicast LBR-HBR HCPDU transmissions | O | counter | R |
| Number of HMPDUs not transmitted due to expired holding time | O | counter | R |
| Number of LBR-HBR HCPDUs received without checksum errors in their HBR-parts | O | counter | R |
| Number of LBR-HBR HCPDUs received with checksum errors in their HBR-parts | O | counter | R |
| Number of LBR-HBR HCPDUs received with alignment error | O | counter | R |
| Number of LBR-HBR HCPDUs received with length error | O | counter | R |
| Encryption Capability | M | boolean | R, C |
| Encryption key value #1 | O | object | R, C |
| Encryption key value #2 | O | object | R, C |
| Encryption key value #3 | O | object | R, C |
| Forwarder capability | M | boolean | R, C |
| Forwarder | M | boolean | R, C |
| Neighbour information declaration period | O | integer | R |
| Source multipoint relay information declaration period | O | integer | R |
| p-saver capability | M | boolean | R, C |
| p-saver | M | boolean | R, C |
| p-supporter capability | M | boolean | R, C |
| p-supporter | M | boolean | R, C |
| Individual-attention pattern period | O | integer | R, C |
| Individual-attention pattern practice interval | O | integer | R, C |
| Group-attendance pattern period | O | integer | R, C |
| Group-attendance pattern practice interval | O | integer | R, C |
| Currently in hidden elimination condition | M | boolean | R |
| Quality of service table | O | object | R |
| Current channel | M | 0 — 4 | R, C |
| Channel 3 allowed | M | boolean | R |
| Channel 4 allowed | M | boolean | R |

(continued)

**Table A.1 (concluded)**

| Object | Mandatory or Optional | values | Read or Change |
|---|---|---|---|
| Current channel map | M | object | R, C |
| Average length of contention window ($T_{ACW}$) | O | 0 — 65 535 (us) | R, C |
| Number of received LBR parts of LBR-HBR HCPDUs with correct length fields ($N_{LBR}$) | O | 0 — 65 535 | R |
| Channel Load Measurement Interval ($T_{MW}$) | O | minimum practice interval or greater | R, C |
| Number of LBR length fields received in error ($N_{LFE}$) | O | 0 — 65 535 | R |
| Observed channel load | O | 0 — 200 | R |
| RSSI | O | SLN 0 — 31 | R |
| Number of antennas | O | 0 — 65 535 | R |
| Current antenna | O | 0 — 65 535 | R |
| TX equipment class | M | A, B, C | R |
| RX equipment class | M | A, B, C | R |
| Current TX power level | M | 1, 2, 3 | R, C |
| MADT | O | SLN 0 — 31 | R |

**Page 107, annex B**

*Replace the text on page 107 with:*

This informative annex is not based on specific HIPERLAN managed objects but rather is intended to be an informative guide to general OSI management principles and the use of HIPERLAN managed objects to influence the physical resources on which HIPERLAN communication is based.

ISO/IEC 10 164 specifies OSI Systems Management.

ISO/IEC 15 802-2 specifies LAN/MAN Management.

ISO/IEC 9 595 specifies Common Management Information Service.

ISO/IEC 9 596-1 specifies Common Management Information Protocol.

The functionality of a managed object is made available via the managed object boundary, as expressed in the OSI Management Information Model (ISO/IEC 10 165-1). The Management Information Model defines the set of generic operation and notification types that a managed object may support: a given managed object may support a subset of these types.

ISO/IEC 15 802-2 defines the tables used to support event forwarding mechanisms. These mechanisms are employed by management agents to inform management managers of notifications emitted by managed objects.

**Page 108, figure B.1**
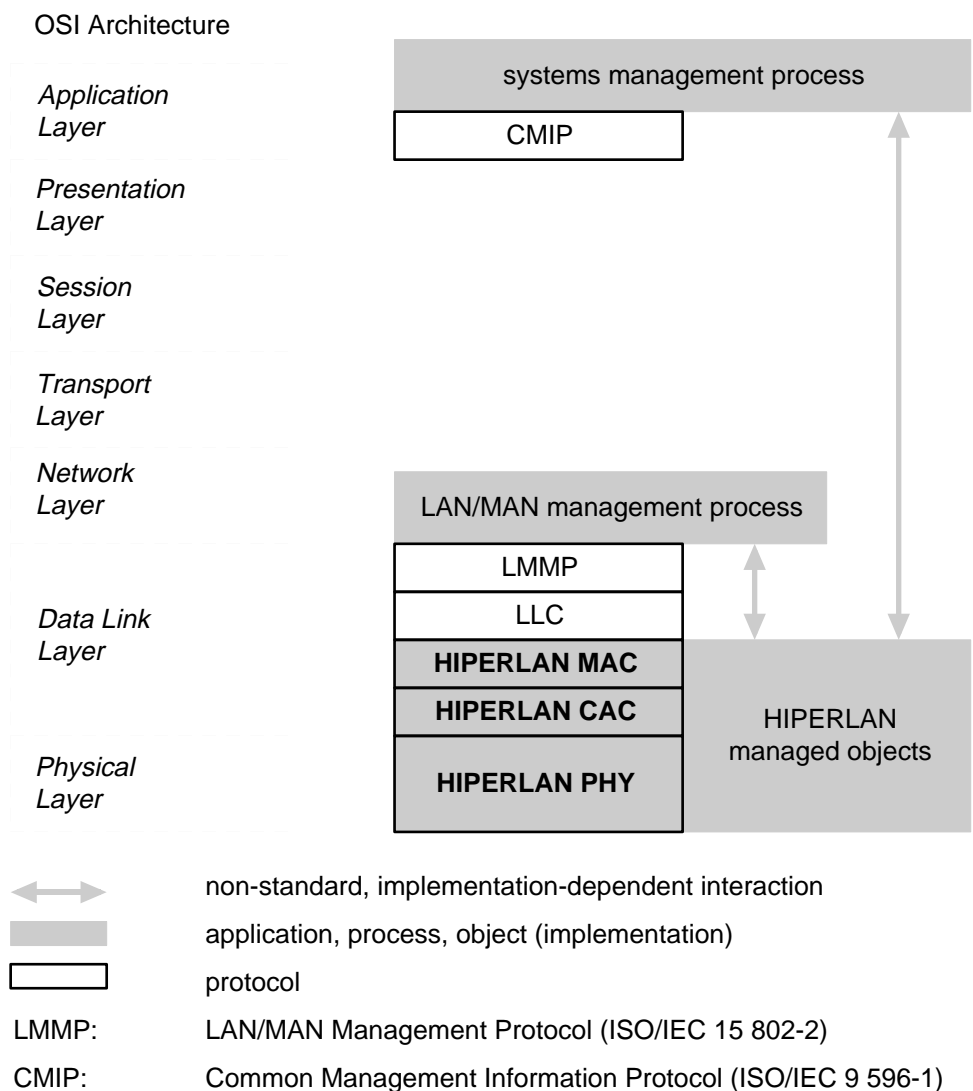
*Replace figure B.1 with the following:*

OSI Architecture

*Application Layer*

*Presentation Layer*

*Session Layer*

*Transport Layer*

*Network Layer*

*Data Link Layer*

*Physical Layer*

| | |
|---|---|
| systems management process | |
| CMIP | |

LAN/MAN management process

| |
|---|
| LMMP |
| LLC |
| **HIPERLAN MAC** |
| **HIPERLAN CAC** |
| **HIPERLAN PHY** |

HIPERLAN managed objects

non-standard, implementation-dependent interaction

application, process, object (implementation)

protocol

LMMP:     LAN/MAN Management Protocol (ISO/IEC 15 802-2)

CMIP:     Common Management Information Protocol (ISO/IEC 9 596-1)

**Figure B.1: HIPERLAN in the OSI management framework**

**Page 109, subclause B.1.2**

*Replace the third paragraph with the following:*

ISO/IEC 15 802-2 specifies how:

- management agent entities will report notification events emitted by managed objects to the local management manager entity or remote management manager entities or both according to entries in the notification type table;

- a event report destination table identifies the set of destination management manager entities for each notification type.

**Page 111, annex C**

*Replace the whole annex with the following:*

1)          ETR 069 (1993): "Radio Equipment and Systems (RES), HIgh PErformance Radio Local Area Network (HIPERLAN) Services and Facilities".

2)          ETR 133 (1994): "Radio Equipment and Systems (RES), HIgh PErformance Radio Local Area Network (HIPERLAN) System Definition".

3)          ETR 226 (1995): "Radio Equipment and Systems (RES), HIgh PErformance Radio Local Area Network (HIPERLAN) Architecture for Time Bounded Services".

4)          Personal Computer Memory Card International Association: "PC Card Standard".

5)          ISO/IEC 9 595: "Information technology - Open systems interconnection - Common management information service definition".

6)          ISO/IEC 9 596-1: "Information technology - Open Systems Interconnection - Common management information protocol - Part 1: Specification".

7)          ISO/IEC 10 164: "Information technology - Open Systems Interconnection - Systems Management" Parts 1 to 15.

8)          ISO/IEC 10 165-1: "Information technology - Open Systems Interconnection - Management Information Services - Structure of management information: Management Information Model".

9)          ISO/IEC TR 11 802-2: "Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks - Technical reports and guidelines - Part 2: Standard Group MAC Addresses".

10)         ISO/IEC 15 802-2: "Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks - Common specification - Part 2: LAN/MAN management".

## History

| Document history | | | |
|---|---|---|---|
| October 1996 | First Edition | | |
| December 1996 | Unified Approval Procedure | UAP 61: | 1996-12-16 to 1997-04-11 |
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