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Technical Specification

**Broadband Radio Access Networks (BRAN);
HiperMAN;
Conformance Testing for the Network layer of
the HiperMAN/WiMAX terminal devices;
Part 1: Protocol Implementation Conformance
Statement (PICS) proforma**



Reference

DTS/BRAN-004T009-1

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Broadband Radio Access Networks (BRAN).

The present document specifies the Protocol Implementation Conformance Statement (PICS) of the Network layer Release 1 for High Performance radio Metropolitan Area Network (HiperMAN) and WiMAX terminal devices.

The present document is part 1 of a multi-part deliverable covering Broadband Radio Access Networks (BRAN); HiperMAN; Conformance Testing for the Network Layer of HiperMAN/WiMAX terminal devices, as identified below:

Part 1: "Protocol Implementation Conformance Statement (PICS) proforma";

Part 2: "Test Suite Structure and Test Purposes (TSS&TP)";

Part 3: "Abstract Test Suite (ATS)".

1 Scope

The present document specifies the Protocol Implementation Conformance Statement (PICS) proforma for WiMAX Network Layer Release 1 per ISO/IEC 9646-7 [24], ITU-T Recommendation X.296 [25] and EG 201 058 [26] for conformance of HiperMAN1.3.1/WiMAX compliant terminals.

2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific.

- For a specific reference, subsequent revisions do not apply.
- Non-specific reference may be made only to a complete document or a part thereof and only in the following cases:
 - if it is accepted that it will be possible to use all future changes of the referenced document for the purposes of the referring document;
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For online referenced documents, information sufficient to identify and locate the source shall be provided. Preferably, the primary source of the referenced document should be cited, in order to ensure traceability. Furthermore, the reference should, as far as possible, remain valid for the expected life of the document. The reference shall include the method of access to the referenced document and the full network address, with the same punctuation and use of upper case and lower case letters.

NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

2.1 Normative references

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

- [1] WiMAX Forum (V1.2.2): "WiMAX Forum Network Architecture; Stage 2: Architecture Tenets, Reference Model and Reference Points, Part 1", Release 1.

NOTE: Available at http://www.wimaxforum.org/technology/documents/WiMAX_Forum_Network_Architecture_Stage_2-3_Rel_1v1.2.zip.

- [2] WiMAX Forum (V1.2.2): "WiMAX Forum Network Architecture, Stage 2: Architecture Tenets, Reference Model and Reference Points, Part 2", Release 1.

NOTE: Available at http://www.wimaxforum.org/technology/documents/WiMAX_Forum_Network_Architecture_Stage_2-3_Rel_1v1.2.zip.

- [3] WiMAX Forum (V1.2.2): "WiMAX Forum Network Architecture, Stage 3: Detailed Protocols and Procedures", Release 1.

NOTE: Available at http://www.wimaxforum.org/technology/documents/WiMAX_Forum_Network_Architecture_Stage_2-3_Rel_1v1.2.zip.

- [4] Void.
- [5] IETF RFC 5281: "Extensible Authentication Protocol Tunneled Transport Layer Security Authenticated Protocol Version 0 (EAP-TTLSv0)".
- [6] IETF RFC 2131 (March 1997): "Dynamic Host Configuration Protocol".
- [7] IETF RFC 3748: "Extensible Authentication Protocol (EAP)".
- [8] Void.
- [9] IETF RFC 2464 (December 1998): "Transmission of IPv6 Packets over Ethernet Networks".
- [10] IETF RFC 2759 (January 2000): "Microsoft PPP CHAP Extensions, Version 2".
- [11] IETF RFC 5216: "The EAP-TLS Authentication Protocol".
- [12] IETF RFC 3024 (January 2001): "Reverse Tunneling for Mobile IP, revised".
- [13] IETF RFC 3315 (July 2003): "Dynamic Host Configuration Protocol for IPv6 (DHCPv6)".
- [14] IETF RFC 3344 (August 2002): "IP Mobility Support for IPv4".
- [15] IETF RFC 3775 (June 2004): "Mobility Support in IPv6".
- [16] IETF RFC 3776 (June 2004): "Using IPsec to Protect Mobile IPv6 Signaling Between Mobile Nodes and Home Agents".
- [17] IETF RFC 4187 (January 2006): "Extensible Authentication Protocol Method for 3rd Generation Authentication and Key Agreement (EAP-AKA)".
- [18] IETF RFC 4282 (December 2005): "The Network Access Identifier".
- [19] Void.
- [20] IETF RFC 4285 (January 2006): "Authentication Protocol for Mobile IPv6".
- [21] IETF RFC 4294 (April 2006): "IPv6 Node Requirements".
- [22] Void
- [23] ISO/IEC 9646-1: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".
- [24] ISO/IEC 9646-7: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".
- [25] ITU-T Recommendation X.296: "OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications - Implementation conformance statements".
- [26] ETSI EG 201 058: "Methods for Testing and Specification (MTS); Implementation Conformance Statement (ICS) proforma style guide".

2.2 Informative references

The following referenced documents are not essential to the use of the present document but they assist the user with regard to a particular subject area. For non-specific references, the latest version of the referenced document (including any amendments) applies.

- [i.1] IETF draft-ietf-mip6-hiopt-17 (May 2008): "DHCP Options for Home Information Discovery in MIPv6".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ISO/IEC 9646-1 [23], WiMAX Forum Network Architecture Stage 2 [1] and [2], WiMAX Forum Network Architecture Stage 3 [3], and ISO/IEC 9646-7 [24] apply.

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in WiMAX Forum Network Architecture Stage 2 [1] and [2], WiMAX Forum Network Architecture Stage 3 [3], ISO/IEC 9646-1 [23] and the following apply:

BS	Base Station
CS	Common Sublayer
DAD	Duplicate Address Detection
IUT	Implementation Under Test
MAC	Medium Access Control
MS	Mobile Station
PDU	Protocol Data Unit
PICS	Protocol Implementation Conformance Statement
SUT	System Under Test

4 Conformance to this PICS Proforma Specification

If it claims to conform to the present document, the actual PICS proforma to be filled in by a supplier shall be technically equivalent to the text of the PICS proforma given in annex A, and shall preserve the numbering, naming, and ordering of the proforma items.

A PICS which conforms to the present document shall be a conforming PICS proforma completed in accordance with the guidance for completion given in clause A.1.

Annex A (normative): Protocol ICS (PICS) for HiperMAN/WiMAX terminal devices Network layer

Notwithstanding the provisions of the copyright clause related to the text of the present document, ETSI grants that users of the present document may freely reproduce the PICS proforma in this annex so that it can be used for its intended purposes and may further publish the completed PICS.

A.1 Guidance for completing PICS Proforma

A.1.1 Purposes and structure

The purpose of this PICS proforma is to provide a mechanism whereby a supplier of an implementation of the requirements defined in defined in references [1], [2] and [3] may provide information about the implementation in a standardized manner.

The PICS proforma is subdivided into subclauses for the following categories of information:

- guidance for completing the PICS proforma;
- identification and implementation;
- identification of the standard;
- global statement of conformance;
- Mobile Station (MS);
- List of messages;
- Message Fields.

A.1.2 Abbreviations and conventions

Item column

- The Item column contains a number which identifies the item in the table.

Capability column

- The capability column describes in free text each respective item (e.g. parameters, timers, etc.). It implicitly means "Is <capability> supported by the implementation?".

Reference column

- The reference column indicates the section of [1], [2] and [3] from which the requirement for the capability is derived and in some cases also the referenced IETF RFCs referenced in the base standard.

Status column

- The following notations, defined in ISO/IEC 9646-1 [23], are used in the status column.

m	Explicitly shown as mandatory in the standard. It is required to implement.
o	Explicitly mentioned as optional in the standard or is not explicitly mentioned but has capability negotiations. It may or may not be implemented.
oi	Qualified option - for mutually exclusive or selectable options from a set. One or more of the options from the set shall be supported.
IO-NNNN	Inter-operable Options: Item belongs to NNNN group of features for which it is requested to provide testing procedure and distinct labelling of BS equipment. More specifically: <ul style="list-style-type: none"> - the item is not required to get general "WiMAX certified" label; and - is required to get distinct "WiMAX certified with NNNN capability" label.

Support column

- The support column shall be filled in by the supplier of the implementation. The following common notations, defined in ISO/IEC 9646-1 [23] are used for the support column.

Y or y	Supported by implementation.
N or n	Not supported by implementation.
N/A, n/a or -	No answer required (allowed only if the status is n/a either directly or after the evaluation of a conditional status).

Values allowed column

- The values allowed column is only used when necessary in a table. It contains the type, the list, the range, or the length of values allowed. The following notations are used.

Range of values: Example:	<min value>..<max value> 5..20
List of values: EXAMPLE 1: EXAMPLE 2: EXAMPLE 3:	<value1>, <value2>, ..., <valueN> 2, 4, 6, 8, 9 1101b, 1011b, 1111b 0x0A, 0x34, 0x2F
List of named values: Example:	<name1>(<val1>), <name2>(<val2>), ..., <nameN>(<valN>) reject(1), accept(2)
Length: EXAMPLE:	Size (<min size>..<max size>) Size (1..8)

Values supported column

- The values supported column is only present when the values allowed column is present. It shall be filled in by the supplier of the implementation. In this column, the value or the ranges of values supported by the implementation shall be indicated.

Reference to items

- For each possible item answer in the support column within the PICS proforma a unique reference exists which may be used, for example, in conditional expressions. It is defined as the table identifier, followed by the "/" character, followed by the item number in the table. If there is more than one support column in a table, the columns are discriminated by letters (a, b, etc.).

EXAMPLE 1:	Table A.5/4 is the reference to the answer of item 4 in table A.5.
EXAMPLE 2:	Table A.6/3b is the reference to the second answer (i.e. in the second support column) of item 3 in table A.6.

Prerequisite Line

- A prerequisite line takes the form: Prerequisite: <predicate>.
- A prerequisite line after a clause or table title indicates that the entire clause or the entire table is not required to be completed if the predicate is FALSE.

Support of specific MAC PDUs or fields does not automatically mean support of the corresponding functionality. It means only that BS(MS) is capable of transmitting or receiving / parsing the message of specific format.

A.1.3 Instructions for completing the PICS Proforma

The supplier of the implementation shall complete the PICS proforma in each of the spaces provided. In particular, an explicit answer shall be entered, in the support or values supported column boxes provided, using the notation described in clause A.1.2.

If necessary, the supplier may provide additional comments in space at the bottom of the tables or separately.

A.2 Identification of the implementation

Identification of the Implementation Under Test (IUT) and the system in which it resides (the System Under Test (SUT)) should be filled in so as to provide as much detail as possible regarding version numbers and configuration options.

The product supplier and client information should both be filled in if they are different.

A person who can answer queries regarding information supplied in the PICS should be named as the contact person.

A.2.1 Date of statement

Date of statement (MM/DD/YYYY):	
--	--

A.2.2 Implementation Under Test (IUT) identification

IUT name:	
IUT version:	

A.2.3 System Under Test (SUT) identification

SUT name:	
Hardware configuration:	
Operating system:	

A.2.4 Product supplier

Name:	
Address:	
Telephone Nr.:	
Fax Nr:	
E-mail address:	
Additional information:	

A.2.5 Client (if different from product supplier)

Name:	
Address:	
Telephone Nr.:	
Fax Nr:	
E-mail address:	
Additional information:	

A.2.6 PICS contact person

(A person to contact if there are any queries concerning the content of the PICS.)

Name:	
Address:	
Telephone Nr.:	
Fax Nr:	
E-mail address:	
Additional information:	

A.3 Identification of the standard

This PICS proforma applies to the ETSI HiperMAN/Wimax Forum standard consisting of the following normative references:

- WiMAX Forum Network Architecture

A.4 Global statement of conformance

Are all mandatory capabilities implemented? (Yes/No)	
---	--

NOTE: Answering "No" to this question indicates non-conformance to the HiperMAN/Wimax standard. Non-supported mandatory capabilities are to be identified in the PICS, with an explanation of why the implementation is non-conforming, on pages attached to the PICS proforma.

A.5 Mobile Station in WiMAX Network Architecture

A.5.1 MS capabilities

Table A.1: MS capabilities

Item	MS Capability	Reference	Status	Support
1	Network discovery and selection	[3] 4.1	m	
2	Network access Authentication	[3] 4.4.1	m	
3	CSN Anchored Mobility management	[3] 4.8	m	
4	IPv6 over CS	[3] 4.11	m	
Comments:				

A.5.2 MS Network Discovery and Selection

Table A.2: MS Network Discovery and Selection

Item	MS procedures	Reference	Status	Support
1	Network Access Provider (NAP) Discovery	[3] 4.1.2.1	m	
2	Network Service Provider (NSP) Discovery	[3] 4.1.2.2	m	
3	Network Service Provider (NSP) Selection	[3] 4.1.2.3	m	
4	Access Service Network (ASN) attachment	[3] 4.1.2.4	m	
Comments:				

Table A.3: MS NSP selection

Item	MS NSP selection method	Reference	Status	Support
1	Manual mode NSP selection	[3] 4.1.2.1	o.3	
2	Automatic mode NSP selection	[3] 4.1.2.2	o.3	
o.3: It is mandatory to support at least one of these items.				

A.5.3 MS CSN anchored Mobility Management

Table A.4: MS CSN anchored Mobility Management

Item	Mobility management capability	Reference	Status	Support
1	MS Proxy MIPv4 (PMIPv4) mobility management	[3] 4.8.2.1	o.4	
2	MS Client MIPv4 (CMIPv4) mobility management	[3] 4.8.3.1	o.4	
3	MS Client MIPv6 (CMIPv6) mobility management	[3] 4.8.4.1	o.4	
o.4: It is mandatory to support at least one of these items.				

Table A.5: MS PMIPv4 Mobility Management

Prerequisite: A.4/1 - MS PMIPv4 mobility management				
Item	Mobility management capability	Reference	Status	Support
1	MS PMIPv4 Connection Setup	[3] 4.8.2.1.1	m	
2	MS PMIPv4 Address renewal	[3] 4.8.2.2.1	m	
3	MS PMIPv4 Connection Termination	[3] 4.8.2.4.1	o	

Table A.6: MS PMIP4 Connection operations protocol

Prerequisite: A.4/1 - MS PMIP4 mobility management				
Item	Connection operation protocol	Reference	Status	Support
1	DHCPv4	[6] 3, 4	m	

Table A.7: MS PMIP4 DHCP procedures

Prerequisite: A.5/1 or A.5/2 or A.5/3 - MS PMIP4 supports any of PMIP4 Connection Setup, renewal, or termination				
Item	DHCP procedures	Reference	Status	Support
1	Allocating a new network address	[6] 3.1	m	
2	Reusing previously allocated network address	[6] 3.2	o	

Table A.8: MS CMIP4 Mobility Management

Prerequisite: A.4/2 - MS CMIP4 mobility management				
Item	Mobility management capability	Reference	Status	Support
1	MS CMIP4 Connection Setup	[3] 4.8.3.1.1, [2] 7.8.19.1	m	
2	MS CMIP4 Session renewal	[3] 4.8.3.2.1, [2] 7.8.19.2	m	
3	MS CMIP4 CSN anchored Mobility Handover	[3] 4.8.3.3.1	m	
4	MS CMIP4 Session Termination	[3] 4.8.3.4.1	m	
5	Registration Request re-transmission	[3] 4.8.3 [14] 3.6.3	o	
6	Registration Request timestamp-based replay protection	[3] 4.8.3 [14] 5.7	m	
7	Registration Request nonce-based replay protection	[3] 4.8.3 [14] 5.7	o	
8	Encapsulating delivery method	[3] 4.8.3 [12] 3.3	m	

Table A.9: MS CMIP4 Initial Connection Setup address resolution

Item	Home agent address resolution procedure	Reference	Status	Support
1	Static Home Agent address assignment	[3] 4.8.3.1 [14] 3.6.1.2	m	
2	Dynamic Home Agent address resolution	[3] 4.8.3.1 [14] 3.6.1.2	m	
3	Static Home Address assignment	[3] 4.8.3.1 [14] 3.6.1.2	m	
4	Dynamic Home Address resolution	[3] 4.8.3.1 [14] 3.6.1.2	m	

Table A.10: MS CMIP6 Mobility Management

Prerequisite: A.4/3 - MS CMIP6 mobility management				
Item	Mobility management capability	Reference	Status	Support
1	MS MIP6 Connection Setup	[3] 4.8.4.1, 4.8.4.1.1	m	
2	MS MIP6 Session renewal	[3] 4.8.4.3, 4.8.4.3.1	m	
3	MS MIP6 Inter Access Router Handover	[3] 4.8.4.2, 4.8.4.2.1	m	
4	MS MIP6 Session Termination	[3] 4.8.4.4, 4.8.4.4.1	m	

Table A.11: MS CMIP6 Session operation features

Prerequisite: A.4/3 - MS CMIP6 mobility management				
Item	CMIPv6 session operation features	Reference	Status	Support
1	MS Mobility support in IPv6	[3] 4.8.4, [15] 11	m	
2	Secure MIPv6 signalling	[3] 4.8.4	m	
3	Mobility message authentication option	[3] 4.8.4, [16] 5	m	
4	Mobile Node Identifier Option	[3] 4.8.4, [16] 3	m	
5	Dynamic discovery of Mobile IPv6 home network information	[3] 4.8.4, [i.1] 3, 4	m	

Table A.12: MS CMIPv6 Secure signalling procedures

Item	CMIPv6 secure signalling procedure	Reference	Status	Support
1	IPsec SA protected IPv6 signalling	[3] 4.8.4, [16] 4, 6	o	
2	MIPv6-specific mobility message authentication	[3] 4.8.4, [20] 4, 5	m	

Comments:

Table A.13: MS ASN attachment features

Item	MS ASN attachment features	Reference	Status	Support
1	NAI construction	[3] 4.1.2.4, 4.4.1.3; [18] 2	m	
2	24-bit NSP Identifier to realm mapping	[3] 4.1.2.4 [18] 2	m	

Comments:

Table A.14: MS IP addressing

Item	MS IP addressing format	Reference	Status	Support
1	IPv4	[3] 4.2	o.14	
2	IPv6	[3] 4.8.3.1	o.14	

o.14: It is mandatory to support at least one of these items.

A.5.4 Authentication

Table A.15: MS Network Access Authentication entities

Item	Authentication entity	Reference	Status	Support
1	Subscriber credential	[3] 4.4.1.1	m	
2	Device credential	[3] 4.4.1.1	m	

Comments:

The MS shall support authentication of Device credentials independent of whether the HNRP requires device authentication.

Table A.16: MS Subscriber Authentication method

Item	Authentication method	Reference	Status	Support
1	EAP-AKA subscriber authentication	[3] 4.4.1.2	o.17	
2	EAP-TTLS subscriber authentication	[3] 4.4.1.2	o.17	

o.17: It is mandatory to support at least one of these items.

Table A.17: MS Device Authentication methods

Item	Authentication method	Reference	Status	Support
1	EAP-TLS device authentication	[3] 4.4.1.2	m	

Table A.18: MS EAP-TTLS subscriber capabilities

Prerequisite: A16/2 - EAP-TTLS subscriber authentication				
Item	EAP-TTLS method	Reference	Status	Support
1	TTLS version 0	[3] 4.4.1.2.3, [5] 6	m	
2	MS-CHAPv2	[3] 4.4.1.2.3, [10] 1	m	
3	Fragmentation	[3] 4.4.1.2.3, [11] 3.3	m	

A.5.5 IPv6 over CS

Table A.19: MS IPv6 over CS

Item	IPv6 over CS capabilities	Reference	Status	Support
1	Point to Point link between MS and AR	[3] 4.11.2	m	
2	Link establishment	[3] 4.11.3	m	
3	Interface Identifier (IID) generation	[3] 4.11.4.1 [9] 4	m	
4	Duplicate Address Detection (DAD)	[3] 4.11.4.2, [2] 7.2.2.2.1, [21] 4.5.2	m	
5	Stateless Address Auto-configuration	[3] 4.11.4.3, 4.11.4 [21] 4.5.2	m	
6	Stateful Address Auto-configuration	[3] 4.11.4.4, 4.11.4 [21] 4.5.5, [13] 1	o	
7	DNS Discovery	[3] 4.11.5	m	
8	Uplink IPv6 Packet transmission	[3] 4.11.6.1	m	
9	Downlink IPv6 Packet transmission	[3] 4.11.6.2	m	

A.5.6 Messages

In the following message tables, statuses with values are the only valid cases, according to the direction of the PDU. When not applicable to a given direction, status not applicable (n/a) is defined.

Table A.20: MS DHCPv4 messages

Prerequisite: A4/1 - MS PMIPv4 mobility management (DHCPv4)						
Item	MS DHCPv4 message	Reference	Status	Support	Status	Support
			MS sending		MS receiving	
1	DHCPDISCOVER	[3] 4.8.2.1.1, [11] 4.2	m		n/a	
2	DHCPOFFER	[3] 4.8.2.1.1, [6] 3.1	n/a		m	
3	DHCPREQUEST	[3] 4.8.2.1.1, [6] 3.1	m		n/a	
4	DHCPACK	[3] 4.8.2.1.1, [6] 3.1	n/a		m	
5	DHCPNAK	[3] 4.8.2.1.1, [6] 3.1	n/a		m	
6	DHCPDECLINE	[3] 4.8.2.1.1, [6] 3.1	m		n/a	
7	DHCPRELEASE	[3] 4.8.2.1.1, [6] 3.1	m		n/a	
8	DHCPINFORM	[3] 4.8.2.1.1, [6] 3.1	o		n/a	

Table A.21: MS EAP-TLS device authentication messages

Prerequisite: A17/1 - EAP-TLS Device Authentication						
Item	MS EAP-TLS message	Reference	Status	Support	Status	Support
			MS sending		MS receiving	
1	EAP-Request/Identity	[3] 4.4.1.2.1, [11] 4.2 [7] 3.1	n/a		m	
2	EAP-Response/Identity	[3] 4.4.1.2.1, [11] 4.3 [7] 3.1	m		n/a	
3	EAP-Request/EAP-TLS	[3] 4.8.3.1.1, [11] 4.2 [7] 2.2.1	n/a		m	
4	EAP-Response/EAP-TLS	[3] 4.8.3.1.1, [11] 4.3 [7] 2.2.1	m		n/a	
5	EAP-Success	[3] 4.8.3.1.1, [11] 3.1 [7] 2.2.2	n/a		m	
6	EAP-Failure	[3] 4.8.3.1.1, [11] 3.1 [7] 2.2.2	n/a		m	

Table A.22: MS EAP-AKA user authentication messages

Prerequisite: A16/1 - EAP-AKA user authentication						
Item	MS EAP-AKA message	Reference	Status	Support	Status	Support
			MS sending		MS receiving	
1	EAP-Request/AKA-Identity	[3] 4.4.1.2.2, [17] 9.1	n/a		m	
2	EAP-Response/AKA-Identity	[3] 4.4.1.2.2, [17] 9.2	m		n/a	
3	EAP-Request/AKA-Challenge	[3] 4.4.1.2.2, [17] 9.3	n/a		m	
4	EAP-Response/AKA-Challenge	[3] 4.4.1.2.2, [17] 9.4	m		n/a	
5	EAP-Response/AKA-Authentication-Reject	[3] 4.4.1.2.2, [17] 9.5	m		n/a	
6	EAP-Response/AKA-Synchronization-Failure	[3] 4.4.1.2.2, [17] 9.6	m		n/a	
7	EAP-Request/AKA-Reauthentication	[3] 4.4.1.2.2, [17] 9.7	n/a		m	
8	EAP-Response/AKA-Reauthentication	[3] 4.4.1.2.2, [17] 9.8	m		n/a	
9	EAP-Response/AKA-Client-Error	[3] 4.4.1.2.2, [17] 9.9	m		n/a	
10	EAP-Request/AKA-Notification	[3] 4.4.1.2.2, [17] 9.10	n/a		m	
11	EAP-Response/AKA-Notification	[3] 4.4.1.2.2, [17] 9.11	m		n/a	

Table A.23: MS EAP-TTLS user and device authentication messages

Prerequisite: A16/2 - EAP-TTLS user authentication						
Item	MS EAP-TTLS message	Reference	Status	Support	Status	Support
			MS sending		MS receiving	
1	EAP-Request/Identity	[3] 4.4.1.2.3, [5] 6.1	n/a		m	
2	EAP-Response/Identity	[3] 4.4.1.2.3, [5] 6.1	m		n/a	
3	EAP-Request/EAP-TTLS	[3] 4.4.1.2.3, [5] 6.1	n/a		m	
4	EAP-Response/EAP-TTLS	[3] 4.4.1.2.3, [5] 6.1	m		n/a	
5	EAP-Success	[3] 4.4.1.2.3, [5] 6.2	n/a		m	
6	EAP-Failure	[3] 4.4.1.2.3, [5] 6.1	n/a		m	

Table A.24: MS MIPv4 messages

Prerequisite A4/2 - MS CMIPv4 mobility management						
Item	MS MIPv4 message	Reference	Status	Support	Status	Support
			MS sending		MS receiving	
1	MIP Agent Solicitation message	[3] 4.8.3.3, [14] 2.2, 2.4	m		n/a	
2	MIP Agent Advertisement message	[3] 4.8.3.3, [14] 2.2, 2.4	n/a		m	
3	MIP Registration Request (RRQ)	[3] 4.8.3.1.1, [14] 3.3	m		n/a	
4	MIP Registration Reply	[3] 4.8.3.1.1, [14] 3.4	n/a		m	

Table A.25: MS CMIPv6 messages

Prerequisite: A4/3 - MS CMIPv6 mobility management						
Item	MS MIPv6 message	Reference	Status	Support	Status	Support
			MS sending		MS receiving	
1	Binding Refresh Request message	[3] 4.8.4, [15] 6.1.2	n/a		m	
2	Binding Update message	[3] 4.8.4.1.1, [15] 6.1.7	m		n/a	
3	Binding Acknowledgement message	[3] 4.8.4, [15] 6.1.8	n/a		m	
4	Binding Error message	[3] 4.8.3.1.1, [15] 6.1.9	n/a		m	
5	Home Test Init message	[2] 7.8.2.14, [3] 4.8.4, [15] 6.1.3	m		n/a	
6	Care-of Test Init message	[2] 7.8.2.14, [3] 4.8.4, [15] 6.1.4	m		n/a	
7	Home Test message	[2] 7.8.2.14, [3] 4.8.4, [15] 6.1.5	n/a		m	
8	Care-of Test message	[2] 7.8.2.14, [3] 4.8.4, [15] 6.1.5	n/a		m	

Table A.26: MS DHCPv6 messages

Prerequisite: A19/6 or A.10/1 - Stateful Autoconfiguration in IPv6 over CS or CMIPv6 connection Setup						
Item	MS DHCPv6 message	Reference	Status	Support	Status	Support
			MS sending		MS receiving	
1	SOLICIT	[3] 4.8.4.1, 4.11.4.4 [13] 17.1.1	m		n/a	
2	ADVERTISE	[3] 4.8.4.1, 4.11.4.4 [13] 17.1.2	n/a		m	
3	REQUEST	[3] 4.8.4.1, 4.11.4.4 [13] 18.1.1	m		n/a	
4	CONFIRM	[3] 4.8.4.1, 4.11.4.4 [13] 18.1.2	m		n/a	
5	RENEW	[3] 4.8.4.1, 4.11.4.4 [13] 18.1.3	m		n/a	
6	REBIND	[3] 4.8.4.1, 4.11.4.4 [13] 18.1.4	m		n/a	
7	REPLY	[3] 4.8.4.1, 4.11.4.4 [13] 18.1.8	n/a		m	
8	RELEASE	[3] 4.8.4.1, 4.11.4.4 [13] 18.1.6	m		n/a	
9	DECLINE	[3] 4.8.4.1, 4.11.4.4 [13] 18.1.7	m		n/a	
10	RECONFIGURE	[3] 4.8.4.1, 4.11.4.4 [13] 19.4.1	n/a		m	
11	INFORMATION-REQUEST	[3] 4.8.4.1, 4.11.4.4 [13] 18.1.5	m		n/a	

Annex B (informative): Bibliography

- IEEE 802.16e-2005: "IEEE Standard for Local and metropolitan area networks - Part 16: Air Interface for Fixed and Mobile Broadband Wireless Access Systems. Amendment 2: Physical and Medium Access Control Layers for Combined Fixed and Mobile Operation in Licensed Bands and Corrigendum 1".

NOTE: Available at <http://standards.ieee.org/getieee802/802.16.html>.

- IETF RFC 4283 (November 2005): "Mobile Node Identifier Option for Mobile IPv6 (MIPv6)".

History

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