

DRAFT

Radiocommunication Study Groups

**16th Meeting of Working Party 5D
Sapporo, Japan, 10-17 July 2013**

**Document 5D/TEMP/238-E
15 July 2013
English only**

SWG IMT Specifications

[DRAFT] LIAISON STATEMENT TO *WIRELESS MAN-ADVANCED* GCS PROPOSERS AND TRANSPOSING ORGANIZATIONS¹ ON THE PROVISION OF TRANSPOSITION REFERENCES AND CERTIFICATION C FOR DRAFT REVISION 1 OF RECOMMENDATION ITU-R M.2012

1 **Introduction**

2 Working Party 5D thanks the relevant *GCS Proponents* for their successful work in regards to
3 completion of the milestone identified by Item 8 of Table 1 for the draft Revision 1 update of
4 Recommendation ITU-R M.2012 “*Detailed specifications of the terrestrial radio interfaces of*
5 *International Mobile Telecommunications-Advanced (IMT-Advanced)*” following the process in
6 Document [IMT-ADV/26 Rev.1](#), “*Schedule for the Revision 1 Update of Recommendation ITU-R*
7 *M.2012*” (see the previous correspondence sent out by the Study Group 5 Counsellor on
8 13th Feb 2012).

9 WP 5D wishes to inform the *GCS Proponents and the Transposing Organizations* that during its
10 16th meeting (10-17 July 2013 in Sapporo, Japan) the specific technology updates for the draft
11 Revision 1 of Recommendation ITU-R M.2012 (not including the full set of final detailed
12 transposition references) were finalized and agreed.
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¹ Institute of Electrical and Electronics Engineers, Inc. (IEEE), Association of Radio Industries and Businesses (ARIB), Telecommunications Technology Association (TTA), WiMAX Forum, Industrial Technology Research Institute (ITRI).

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2 **Next Steps**

3 The next step in the procedure to complete the draft revision requires the attention of the
4 *Transposing Organizations* and is identified in Table 1 Item 9 of Document [IMT-ADV/26 Rev. 1](#).
5 This step is reproduced below:

Extract from Document IMT-ADV/26, Table 1				
Item	Entity	Meeting designation & timeframe	Action/Deliverable/Milestone	Specific Dates
9	<i>Transposing Organizations</i>	Due to ITU-R approximately one month prior to the subsequent Meeting (Approximately September of current revision year)	Delivery to ITU-R of transposition references by <i>each Transposing Organization</i> for incorporation into the WP 5D preliminary agreed draft revision of Rec. ITU-R M.2012. Delivery to ITU-R of Certification C by <i>each Transposing Organization</i> . Completion of relevant business matters and indication of compliance with ITU policy on IPR, as appropriate”	18 September 2013

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7 **Explanation of Structure of Recommendation Related to *Wireless MAN-Advanced* Section 2.2**
8 **and Section 2.3**

9 In Document 5D/345 to the 16th meeting of WP 5D, the IEEE notified WP 5D about the
10 restructuring of the IEEE specifications addressing the 801.16 specifications in general and the
11 *Wireless MAN-Advanced* specifications specifically².

12 In Document 5D/345, the IEEE, from their perspective, also indicated a complete replacement of
13 the existing Section 2.2 in Recommendation ITU-R M.2012 (01-2012) with the new material
14 corresponding to the restructured IEEE specifications. However, WP 5D was informed during the
15 16th meeting that two Transposing Organizations currently identified in Section 2.2 will continue to
16 utilize the material in Section 2.2 in the draft Revision 1 of Recommendation ITU-R M.2012.

17 Consequently, WP 5D has structurally retained Section 2.2 as a self-contained and self-consistent
18 section for the existing material and also added a corresponding new Section 2.3 as a self-contained
19 and self-consistent section to accommodate the new material. Further information about these two
20 sections is provided below.

21 Note: The inclusion or exclusion of any specific transposition tables from a Transposing
22 Organization in either Section 2.2 or 2.3 is requested to be addressed through the use of
23 Certification C as discussed subsequently in this liaison.

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² From Document 5D/345: On 8 June 2012, the IEEE-SA Standards Board approved IEEE Std 802.16.1 (*WirelessMAN-Advanced Air Interface for Broadband Wireless Access Systems*) as a new IEEE standard. IEEE Std 802.16.1 encompasses the WirelessMAN-Advanced air interface, with some minor improvements. On the same date, the Standards Board approved IEEE Std 802.16-2012 as a new revision of IEEE Std 802.16, which now excludes the WirelessMAN-Advanced air interface.

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For Section 2.2

The material in Section 2.2 reflects the structure of the IEEE specifications from the first release of Recommendation ITU-R M.2012 (01-2012) prior to the IEEE revising the structure of the specifications related to *WirelessMAN-Advanced* on 8 June 2013.

Accordingly, the material in Section 2.2 reflects IEEE's structure of the WirelessMAN-Advanced air interface specification IEEE Std 802.16 which is composed of IEEE Std 802.16-2009, as amended, consecutively, by IEEE Std 802.16j-2009, IEEE Std 802.16h-2010, and IEEE Std 802.16m-2011.

For Section 2.3

The material in Section 2.3 reflects the structure of the IEEE specifications subsequent to the IEEE revising the structure of the relevant IEEE specifications related to *WirelessMAN-Advanced* on 8 June 2013 beginning with this draft revision 1 of Recommendation ITU-R M.2012.

Accordingly, the material in Section 2.3 reflects IEEE's transfer of the WirelessMAN-Advanced air interface specification to IEEE Std 802.16.1. The WirelessMAN-Advanced GCS for Section 2.3 includes IEEE Std 802.16.1 but not IEEE Std 802.16.

IEEE has further enhanced IEEE Std 802.16.1 with two amendments:

- IEEE Std 802.16.1a: WirelessMAN-Advanced Air Interface for Broadband Wireless Access Systems - Amendment: Higher Reliability Networks.
- IEEE Std 802.16.1b: WirelessMAN-Advanced Air Interface for Broadband Wireless Access Systems – Amendment: Enhancements to Support Machine-to-Machine Applications.

The content of these two standards is also included in Section 2.3

Request to Supply Transpositions References

WP 5D draws the attention of the *Transposing Organizations* to the need for each *Transposing Organization* to provide the relevant transposition references **for both**

- **Section 2.2 (specifically section 2.2.1) as appropriate, consistent with the position indicated by the respective Transposing Organization for Sections 2.2 by the requested firm deadline of 18 September 2013 utilizing, if necessary, the track change editing capability against the specific document enclosed with this liaison statement.**
- **Section 2.3 (specifically section 2.3.1) as appropriate, consistent with the position indicated by the respective Transposing Organization for Sections 2.3 by the requested firm deadline of 18 September 2013 utilizing, if necessary, the track change editing capability against the specific document enclosed with this liaison statement.**

Note: The enclosed document is the draft Revision 1 of Recommendation ITU-R M.2012 as finalized and agreed at the 16th meeting of WP 5D (not including the full set of final detailed transposition references).

Procedurally, the reply correspondence from the *Transposing Organizations* should be directed to the Counsellor for ITU-R Study Group 5 and not provided as inputs to WP 5D.

1 In the subsequent Step 10 of the process, the Counsellor for Study Group 5 will prepare a
2 consolidated input to the 17th meeting of WP 5D (by approximately 2 October 2013) that combines
3 all the received responses.

4 If there are questions on the preparation of the requested material by the *Transposing Organizations*
5 they should be directed to the Counsellor well in advance of the 18 September 2013 deadline.

6 For reference, the identified *Transposing Organizations* for the enclosed draft Revision 1
7 of Recommendation ITU-R M.2012 **identified for Section 2.2.1** for the *WirelessMAN-Advanced*
8 technology are:

- 9 – Institute of Electrical and Electronics Engineers, Inc. (IEEE).
- 10 – Association of Radio Industries and Businesses (ARIB).
- 11 – Telecommunications Technology Association (TTA).
- 12 – WiMAX Forum.

13 And also the identified *Transposing Organizations* **for Section 2.3.1** for the *WirelessMAN-*
14 *Advanced* technology are:

- 15 – Institute of Electrical and Electronics Engineers, Inc. (IEEE).
- 16 – Association of Radio Industries and Businesses (ARIB).
- 17 – Telecommunications Technology Association (TTA).
- 18 – WiMAX Forum.
- 19 – Industrial Technology Research Institute (ITRI)

20 WP 5D acknowledges the Certification B from the IEEE³ and has added the Industrial Technology
21 Research Institute (ITRI) as an authorized *Transposing Organization* for Section 2.3.1.

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23 **Request to Supply Certification C**

24 Each identified *Transposing Organization* is required to provide to ITU-R, **the Certification C for**
25 **both Section 2.2 and Section 2.3 as independent certifications by 18 September 2013.**

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27 The Transposing Organization are reminded of the option “C-2” in Certification C -

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29 **“C-2 _____ *Transposing Organization* does not provide transposing references (hyperlinks)**
30 **to the ITU-R for the GCS submitted by the GCS Proponent <INSERT NAME OF GCS**
31 **PROPONENT and indicate the specific GCS by document number or other identifying**
32 **means >.”**

33 which if selected as a response to either Section 2.2 or Section 2.3 would consequentially result in
34 no transposition (references) tables being included in the respective Section 2.2 or 2.3 for that
35 specific Transposing Organization in the draft Revision 1 of Recommendation ITU-R M.2012.

36 **Certification C** is outlined in Document [IMT-ADV/25](#) “*Procedure for the development of draft*
37 *Revisions of Recommendation ITU-R M.2012*” and Document [IMT-ADV/24 Rev.1](#) “*Process And*
38 *The Use Of Global Core Specification (GCS), References And Related Certifications In*
39 *Conjunction With Recommendation ITU-R M.2012*”.

40 Procedurally, the **Certification C** from each *Transposing Organizations* should be directed to the
41 Counsellor for ITU-R Study Group 5 and not provided as inputs to WP 5D.

3 See Document [5D/437](#).

1 The Counsellor will prepare as an input to the 18th meeting of WP 5D meeting a summary statement
2 regarding the receipt of the **Certification C** documents.

3 **Completion of Relevant Business Matters**

4 As indicated, there is also the consequential step of, as necessary, the completion of relevant
5 business matters by 18 September 2013 and the indication of compliance with ITU policy on IPR,
6 as appropriate.

7 These matters should be directly addressed between the *Transposing Organization* and the ITU as
8 appropriate via the contact point of the Counsellor for Study Group 5.
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10 **Closure of the Draft Revision 1 with References in WP 5D**

11 At its 17th meeting (9-16 October 2013, Geneva, Switzerland) WP 5D intends to review and seek
12 final agreement of the full consolidated draft Revision 1 of Recommendation ITU-R M.2012
13 including the transposition references. It will then be forwarded to ITU-R Study Group 5 for
14 consideration at its December 2013 meeting in accordance with the ITU-R approval process in
15 Resolution ITU-R 1-6, especially §10.2.2 and §10.4.

16 WP 5D looks forward to the continued cooperation with the *Transposing Organizations* in these
17 final steps on concluding this update of the IMT-Advanced terrestrial radio interfaces.
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22 **Attachments to be embedded:**

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24 ***Draft revision 1 of Recommendation ITU-R M.2012 as finalized and agreed at the 16th meeting***
25 ***of WP 5D (not including the full set of final detailed transposition references).***

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27 ***Form C (from IMT-ADV/24 Rev 1)***

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1 and location can be hidden. The encryption and integrity protection entity functions include
2 encryption of user data and authentication, control message authentication, message confidentiality
3 protection.

4 **2.2 Detailed specification of the radio interface technology¹⁶**

5 The material in Section 2.2 reflects the structure of the IEEE specifications from the first release of
6 Recommendation ITU-R M.2132 (01-2012) prior to the IEEE revising the structure of the
7 specifications related to *WirelessMAN-Advanced* on 8 June 2013.

8 Detailed specifications described in this Annex are developed around a “Global Core Specification”
9 (GCS)¹⁷, which is related to externally developed materials incorporated by specific references for a
10 specific technology. The process and use of the GCS, references, and related notifications and
11 certifications are found as Document [IMT-ADV/24 Rev.1](#)¹⁸.

12 The IMT-Advanced standards contained in this section are derived from the global core
13 specification for *WirelessMAN-Advanced* contained at [http://ties.itu.int/u/ITU-r/ede/rsg5/IMT-](http://ties.itu.int/u/ITU-r/ede/rsg5/IMT-Advanced/GCS/WirelessMAN-Advanced/)
14 [Advanced/GCS/WirelessMAN-Advanced/](http://ties.itu.int/u/ITU-r/ede/rsg5/IMT-Advanced/GCS/WirelessMAN-Advanced/). The following notes apply to the sections below:

- 15 1) The identified relevant **Transposing Organizations**¹⁹ should make their reference
16 material available from their website.
- 17 2) This information was supplied by the **Transposing Organizations** and relates to their
18 own deliverables of the transposed global core specification.

19 **2.2.1 Description of the global core specification and the transposed standards**

20 IEEE Std 802.16 is composed of IEEE Std 802.16-2009, as amended, consecutively, by IEEE Std
21 802.16j-2009, IEEE Std 802.16h-2010, and IEEE Std 802.16m-2011. IEEE Std 802.16 is described
22 in Section 2.2.1.1.

¹⁶ On 8 June 2012, the IEEE-SA Standards Board approved IEEE Std 802.16.1 (*WirelessMAN-*
Advanced Air Interface for Broadband Wireless Access Systems) as a new IEEE standard. IEEE Std
802.16.1 encompasses the WirelessMAN-Advanced air interface, with some minor improvements.
On the same date, the Standards Board approved IEEE Std 802.16-2012 as a new revision of IEEE
Std 802.16, which now excludes the WirelessMAN-Advanced air interface.

Accordingly, the material in Section 2.2 reflects IEEE’s structure of the WirelessMAN-Advanced
air interface specification IEEE Std 802.16 which is composed of IEEE Std 802.16-2009, as
amended, consecutively, by IEEE Std 802.16j-2009, IEEE Std 802.16h-2010, and IEEE Std
802.16m-2011.

¹⁷ A “GCS” (Global Core Specification) is the set of specifications that defines a single RIT, an SRIT, or a RIT within an SRIT.

¹⁸ Document [IMT-ADV/24 Rev.1](#) is available on the ITU-R WP 5D webpage under the link “[IMT-Advanced documents](#)” (<http://www.itu.int/md/R07-IMT-ADV-C-0024/e>).

¹⁹ The following identified Transposing Organizations have provided their transposed sets of standards information contained in this section:

- Institute of Electrical and Electronics Engineers, Inc. (IEEE).
- Association of Radio Industries and Businesses (ARIB).
- Telecommunications Technology Association (TTA).
- WiMAX Forum.

1 In accordance with Clause 16.1.1 of IEEE Std 802.16, the *WirelessMAN-Advanced* GCS is
2 specified in the clauses of IEEE Std 802.16 as indicated in Table 2.6. Anything in IEEE Std 802.16
3 that is not included in Table 2.6 is excluded from the *WirelessMAN-Advanced* GCS.

4 TABLE 2.6

5 **Description of the *WirelessMAN-Advanced* GCS**

IEEE Std 802.16 Clause and Subject	IEEE Std 802.16-2009	IEEE Std 802.16j-2009	IEEE Std 802.16h-2010	IEEE Std 802.16m-2011
Clause 1.4: Reference models	Base specification		Amended	Amended
Clause 2: Normative references	Base specification		Amended	Amended
Clause 3: Definitions	Base specification	Amended	Amended	Amended
Clause 4: Abbreviations and acronyms	Base specification	Amended	Amended	Amended
Clause 5.2: Packet convergence sublayer	Base specification			Amended
Clause 16: <i>WirelessMAN-Advanced</i> air interface				Base specification
Annex R: MAC control messages				Base specification
Annex S: Test vectors				Base specification
Annex T: Supported frequency bands				Base specification
Annex U: Radio specifications				Base specification
Annex V: Default capability class and parameters				Base specification

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7 **2.2.1.1 IEEE Std 802.16**

8 IEEE Std 802.16 is summarized here.

9 **IEEE Std 802.16: Standard for local and metropolitan area networks – Air interface for**
10 **broadband wireless access systems**

11 This standard specifies the air interface, including the medium access control layer (MAC) and
12 physical layer (PHY), of combined fixed and mobile point-to-multipoint broadband wireless access
13 (BWA) systems providing multiple services. The MAC is structured to support multiple PHY
14 specifications, each suited to a particular operational environment.

15 IEEE Std 802.16 is composed of IEEE Std 802.16-2009, as amended, consecutively, by IEEE Std
16 802.16j-2009, IEEE Std 802.16h-2010, and IEEE Std 802.16m-2011.

17 **2.2.1.1.1 IEEE Std 802.16-2009**

18 **Standard for local and metropolitan area networks – Part 16: Air interface for broadband**
19 **wireless access systems**

20 This standard specifies the air interface, including the medium access control layer (MAC) and
21 physical layer (PHY), of combined fixed and mobile point-to-multipoint broadband wireless access

1 (BWA) systems providing multiple services. The MAC is structured to support multiple PHY
2 specifications, each suited to a particular operational environment.

3 **2.2.1.1.2 IEEE Std 802.16j-2009**

4 **Standard for local and metropolitan area networks – Part 16: Air interface for broadband**
5 **wireless access systems – Amendment 1: Multiple relay specification**

6 This amendment updates and expands IEEE Std 802.16-2009, specifying physical layer and
7 medium access control layer enhancements to IEEE Std 802.16 for licensed bands to enable the
8 operation of relay stations. Subscriber station specifications are not changed.

9 **2.2.1.1.3 IEEE Std 802.16h-2010**

10 **Standard for local and metropolitan area networks – Part 16: Air interface for broadband**
11 **wireless access systems – Amendment 2: Improved coexistence mechanisms for license-exempt**
12 **operation**

13 This amendment updates and expands IEEE Std 802.16, specifying improved mechanisms, as
14 policies and medium access control enhancements, to enable coexistence among license-exempt
15 systems and to facilitate the coexistence of such systems with primary users.

16 **2.2.1.1.4 IEEE Std 802.16m-2011**

17 **Standard for local and metropolitan area networks – Part 16: Air interface for broadband**
18 **wireless access systems – Amendment 3: Advanced air interface**

19 This amendment specifies the *WirelessMAN-Advanced* air interface, an enhanced air interface
20 designed to meet the requirements of the IMT-Advanced standardization activity conducted by the
21 ITU-R. The amendment is based on the WirelessMAN-OFDMA specification of IEEE Std 802.16
22 and provides continuing support for WirelessMAN-OFDMA subscriber stations.

23 **2.2.1.2 Transposed standards**

24 **2.2.1.2.1 Transpositions: IEEE**

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	Base specification per IEEE Std 802.16- 2009	Amendment per IEEE Std 802.16j- 2009	Amendment per IEEE Std 802.16h- 2010	Amendment per IEEE Std 802.16m- 2011
<i>Transposing Organization</i>	IEEE	IEEE	IEEE	IEEE
<i>Document number</i>	IEEE Std 802.16-2009	IEEE Std 802.16j-2009	IEEE Std 802.16h-2010	IEEE Std 802.16m-2011
<i>Version</i>	2009	2009	2010	2011
<i>Issued Date</i>	29 May 2009	12 June 2009	30 July 2010	6 May 2011
Clause 1.4: Reference models	http://ieee802.org/16/pubs/IEEE80216-2009.html (Clause 1.4, IEEE transposition of IEEE Std 802.16-2009)	<i>Not applicable</i>	http://ieee802.org/16/pubs/IEEE80216h.html (Clause 1.4, IEEE transposition of IEEE Std 802.16h)	http://ieee802.org/16/pubs/IEEE80216m.html (Clause 1.4, IEEE transposition of IEEE Std 802.16m)
Clause 2: Normative references	http://ieee802.org/16/pubs/IEEE80216-2009.html (Clause 2, IEEE transposition of IEEE Std 802.16-2009)	<i>Not applicable</i>	http://ieee802.org/16/pubs/IEEE80216h.html (Clause 2, IEEE transposition of IEEE Std 802.16h)	http://ieee802.org/16/pubs/IEEE80216m.html (Clause 2, IEEE transposition of IEEE Std 802.16m)

	Base specification per IEEE Std 802.16-2009	Amendment per IEEE Std 802.16j-2009	Amendment per IEEE Std 802.16h-2010	Amendment per IEEE Std 802.16m-2011
Clause 3: Definitions	http://ieee802.org/16/pubs/IEEE80216-2009.html (Clause 3, IEEE transposition of IEEE Std 802.16-2009)	http://ieee802.org/16/pubs/IEEE80216j.html (Clause 3, IEEE transposition of IEEE Std 802.16j)	http://ieee802.org/16/pubs/IEEE80216h.html (Clause 3, IEEE transposition of IEEE Std 802.16h)	http://ieee802.org/16/pubs/IEEE80216m.html (Clause 3, IEEE transposition of IEEE Std 802.16m)
Clause 4: Abbreviations and acronyms	http://ieee802.org/16/pubs/IEEE80216-2009.html (Clause 4, IEEE transposition of IEEE Std 802.16-2009)	http://ieee802.org/16/pubs/IEEE80216j.html (Clause 4, IEEE transposition of IEEE Std 802.16j)	http://ieee802.org/16/pubs/IEEE80216h.html (Clause 4, IEEE transposition of IEEE Std 802.16h)	http://ieee802.org/16/pubs/IEEE80216m.html (Clause 4, IEEE transposition of IEEE Std 802.16m)
Clause 5.2: Packet convergence sublayer	http://ieee802.org/16/pubs/IEEE80216-2009.html (Clause 5.2, IEEE transposition of IEEE Std 802.16-2009)	<i>Not applicable</i>	<i>Not applicable</i>	http://ieee802.org/16/pubs/IEEE80216m.html (Clause 5.2, IEEE transposition of IEEE Std 802.16m)
Clause 16: <i>WirelessMAN-Advanced</i> air interface	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://ieee802.org/16/pubs/IEEE80216m.html (Clause 16, IEEE transposition of IEEE Std 802.16m)
Annex R: MAC control messages	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://ieee802.org/16/pubs/IEEE80216m.html (Annex R, IEEE transposition of IEEE Std 802.16m)
Annex S: Test vectors	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://ieee802.org/16/pubs/IEEE80216m.html (Annex S, IEEE transposition of IEEE Std 802.16m)
Annex T: Supported frequency bands	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://ieee802.org/16/pubs/IEEE80216m.html (Annex T, IEEE transposition of IEEE Std 802.16m)
Annex U: Radio specifications	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://ieee802.org/16/pubs/IEEE80216m.html (Annex U, IEEE transposition of IEEE Std 802.16m)
Annex V: Default capability class and parameters	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://ieee802.org/16/pubs/IEEE80216m.html (Annex V, IEEE transposition of IEEE Std 802.16m)

1 **2.2.1.2.2 Transpositions: ARIB**

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	Base specification per IEEE Std 802.16-2009	Amendment per IEEE Std 802.16j-2009	Amendment per IEEE Std 802.16h-2010	Amendment per IEEE Std 802.16m-2011
<i>Transposing Organization</i>	ARIB	ARIB	ARIB	ARIB
<i>Document number</i>	ARIB STD-T105 Annex 1	ARIB STD-T105 Annex 2	ARIB STD-T105 Annex 3	ARIB STD-T105 Annex 4
<i>Version</i>	1.0	1.0	1.0	1.0
<i>Date</i>	16 September 2011	16 September 2011	16 September 2011	16 September 2011
Clause 1.4: Reference models	http://www.arib.or.jp/IMT-Advanced/WirelessMAN-Advanced.1.00/ARIB%20S TD-T105%20Annex%201_ IEE E%20Std%20802%2016-2009.pdf (Clause 1.4, ARIB transposition of IEEE Std 802.16-2009)	<i>Not applicable</i>	http://www.arib.or.jp/IMT-Advanced/WirelessMAN-Advanced.1.00/ARIB%20S TD-T105%20Annex%203_ IEE E%20Std%20802%2016h-2010.pdf (Clause 1.4, ARIB transposition of IEEE Std 802.16h)	http://www.arib.or.jp/IMT-Advanced/WirelessMAN-Advanced.1.00/ARIB%20S TD-T105%20Annex%204_ IEE E%20Std%20802%2016m-2011.pdf (Clause 1.4, ARIB transposition of IEEE Std 802.16m)
Clause 2: Normative references	http://www.arib.or.jp/IMT-Advanced/WirelessMAN-Advanced.1.00/ARIB%20S TD-T105%20Annex%201_ IEE E%20Std%20802%2016-2009.pdf (Clause 2, ARIB transposition of IEEE Std 802.16-2009)	<i>Not applicable</i>	http://www.arib.or.jp/IMT-Advanced/WirelessMAN-Advanced.1.00/ARIB%20S TD-T105%20Annex%203_ IEE E%20Std%20802%2016h-2010.pdf (Clause 2, ARIB transposition of IEEE Std 802.16h)	http://www.arib.or.jp/IMT-Advanced/WirelessMAN-Advanced.1.00/ARIB%20S TD-T105%20Annex%204_ IEE E%20Std%20802%2016m-2011.pdf (Clause 2, ARIB transposition of IEEE Std 802.16m)
Clause 3: Definitions	http://www.arib.or.jp/IMT-Advanced/WirelessMAN-Advanced.1.00/ARIB%20S TD-T105%20Annex%201_ IEE E%20Std%20802%2016-2009.pdf (Clause 3, ARIB transposition of IEEE Std 802.16-2009)	http://www.arib.or.jp/IMT-Advanced/WirelessMAN-Advanced.1.00/ARIB%20S TD-T105%20Annex%202_ IEE E%20Std%20802%2016j-2009.pdf (Clause 3, ARIB transposition of IEEE Std 802.16j)	http://www.arib.or.jp/IMT-Advanced/WirelessMAN-Advanced.1.00/ARIB%20S TD-T105%20Annex%203_ IEE E%20Std%20802%2016h-2010.pdf (Clause 3, ARIB transposition of IEEE Std 802.16h)	http://www.arib.or.jp/IMT-Advanced/WirelessMAN-Advanced.1.00/ARIB%20S TD-T105%20Annex%204_ IEE E%20Std%20802%2016m-2011.pdf (Clause 3, ARIB transposition of IEEE Std 802.16m)
Clause 4: Abbreviations and acronyms	http://www.arib.or.jp/IMT-Advanced/WirelessMAN-Advanced.1.00/ARIB%20S TD-T105%20Annex%201_ IEE E%20Std%20802%2016-2009.pdf (Clause 4, ARIB transposition of IEEE Std 802.16-2009)	http://www.arib.or.jp/IMT-Advanced/WirelessMAN-Advanced.1.00/ARIB%20S TD-T105%20Annex%202_ IEE E%20Std%20802%2016j-2009.pdf (Clause 4, ARIB transposition of IEEE Std 802.16j)	http://www.arib.or.jp/IMT-Advanced/WirelessMAN-Advanced.1.00/ARIB%20S TD-T105%20Annex%203_ IEE E%20Std%20802%2016h-2010.pdf (Clause 4, ARIB transposition of IEEE Std 802.16h)	http://www.arib.or.jp/IMT-Advanced/WirelessMAN-Advanced.1.00/ARIB%20S TD-T105%20Annex%204_ IEE E%20Std%20802%2016m-2011.pdf (Clause 4, ARIB transposition of IEEE Std 802.16m)

	Base specification per IEEE Std 802.16- 2009	Amendment per IEEE Std 802.16j- 2009	Amendment per IEEE Std 802.16h- 2010	Amendment per IEEE Std 802.16m- 2011
Clause 5.2: Packet convergence sublayer	http://www.arib.or.jp/IMT-Advanced/WirelessMAN-Advanced.1.00/ARIB%20S TD-T105%20Annex%201_ IEE E%20Std%20802%2016-2009.pdf (Clause 5.2, ARIB transposition of IEEE Std 802.16-2009)	<i>Not applicable</i>	<i>Not applicable</i>	http://www.arib.or.jp/IMT-Advanced/WirelessMAN-Advanced.1.00/ARIB%20S TD-T105%20Annex%204_ IEE E%20Std%20802%2016m-2011.pdf (Clause 5.2, ARIB transposition of IEEE Std 802.16m)
Clause 16: <i>WirelessMAN-Advanced</i> air interface	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://www.arib.or.jp/IMT-Advanced/WirelessMAN-Advanced.1.00/ARIB%20S TD-T105%20Annex%204_ IEE E%20Std%20802%2016m-2011.pdf (Clause 16, ARIB transposition of IEEE Std 802.16m)
Annex R: MAC control messages	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://www.arib.or.jp/IMT-Advanced/WirelessMAN-Advanced.1.00/ARIB%20S TD-T105%20Annex%204_ IEE E%20Std%20802%2016m-2011.pdf (Annex R, ARIB transposition of IEEE Std 802.16m)
Annex S: Test vectors	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://www.arib.or.jp/IMT-Advanced/WirelessMAN-Advanced.1.00/ARIB%20S TD-T105%20Annex%204_ IEE E%20Std%20802%2016m-2011.pdf (Annex S, ARIB transposition of IEEE Std 802.16m)
Annex T: Supported frequency bands	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://www.arib.or.jp/IMT-Advanced/WirelessMAN-Advanced.1.00/ARIB%20S TD-T105%20Annex%204_ IEE E%20Std%20802%2016m-2011.pdf (Annex T, ARIB transposition of IEEE Std 802.16m)

	Base specification per IEEE Std 802.16-2009	Amendment per IEEE Std 802.16j-2009	Amendment per IEEE Std 802.16h-2010	Amendment per IEEE Std 802.16m-2011
Annex U: Radio specifications	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://www.arib.or.jp/IMT-Advanced/WirelessMAN-Advanced.1.00/ARIB%20STD-TD-T105%20Annex%204_IEEE%20Std%20802%2016m-2011.pdf (Annex U, ARIB transposition of IEEE Std 802.16m)
Annex V: Default capability class and parameters	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://www.arib.or.jp/IMT-Advanced/WirelessMAN-Advanced.1.00/ARIB%20STD-TD-T105%20Annex%204_IEEE%20Std%20802%2016m-2011.pdf (Annex V, ARIB transposition of IEEE Std 802.16m)

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2 **2.2.1.2.3 Transpositions: TTA**

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	Base specification per IEEE Std 802.16-2009	Amendment per IEEE Std 802.16j-2009	Amendment per IEEE Std 802.16h-2010	Amendment per IEEE Std 802.16m-2011
<i>Transposing Organization</i>	TTA	TTA	TTA	TTA
<i>Document number</i>	TTAE.IE-802.16-2009	TTAE.IE-802.16j	TTAE.IE-802.16h	TTAE.IE-802.16m
<i>Version</i>	1.0	1.0	1.0	1.0
<i>Date</i>	29 June 2011	29 June 2011	29 June 2011	29 June 2011
Clause 1.4: Reference models	http://www.tta.or.kr/data/tta_sDown.jsp?where=14688&pk_num=TTAE.IE-802.16-2009 (Clause 1.4, TTA transposition of IEEE Std 802.16-2009)	<i>Not applicable</i>	http://www.tta.or.kr/data/tta_sDown.jsp?where=14688&pk_num=TTAE.IE-802.16h (Clause 1.4, TTA transposition of IEEE Std 802.16h)	http://www.tta.or.kr/data/tta_sDown.jsp?where=14688&pk_num=TTAE.IE-802.16m (Clause 1.4, TTA transposition of IEEE Std 802.16m)
Clause 2: Normative references	http://www.tta.or.kr/data/tta_sDown.jsp?where=14688&pk_num=TTAE.IE-802.16-2009 (Clause 2, TTA transposition of IEEE Std 802.16-2009)	<i>Not applicable</i>	http://www.tta.or.kr/data/tta_sDown.jsp?where=14688&pk_num=TTAE.IE-802.16h (Clause 2, TTA transposition of IEEE Std 802.16h)	http://www.tta.or.kr/data/tta_sDown.jsp?where=14688&pk_num=TTAE.IE-802.16m (Clause 2, TTA transposition of IEEE Std 802.16m)

	Base specification per IEEE Std 802.16- 2009	Amendment per IEEE Std 802.16j- 2009	Amendment per IEEE Std 802.16h- 2010	Amendment per IEEE Std 802.16m- 2011
Clause 3: Definitions	http://www.tta.or.kr/data/tta_sDown.jsp?where=14688&pk_num=TTAE.IE-802.16-2009 (Clause 3, TTA transposition of IEEE Std 802.16-2009)	http://www.tta.or.kr/data/tta_sDown.jsp?where=14688&pk_num=TTAE.IE-802.16j (Clause 3, TTA transposition of IEEE Std 802.16j)	http://www.tta.or.kr/data/tta_sDown.jsp?where=14688&pk_num=TTAE.IE-802.16h (Clause 3, TTA transposition of IEEE Std 802.16h)	http://www.tta.or.kr/data/tta_sDown.jsp?where=14688&pk_num=TTAE.IE-802.16m (Clause 3, TTA transposition of IEEE Std 802.16m)
Clause 4: Abbreviations and acronyms	http://www.tta.or.kr/data/tta_sDown.jsp?where=14688&pk_num=TTAE.IE-802.16-2009 (Clause 4, TTA transposition of IEEE Std 802.16-2009)	http://www.tta.or.kr/data/tta_sDown.jsp?where=14688&pk_num=TTAE.IE-802.16j (Clause 4, TTA transposition of IEEE Std 802.16j)	http://www.tta.or.kr/data/tta_sDown.jsp?where=14688&pk_num=TTAE.IE-802.16h (Clause 4, TTA transposition of IEEE Std 802.16h)	http://www.tta.or.kr/data/tta_sDown.jsp?where=14688&pk_num=TTAE.IE-802.16m (Clause 4, TTA transposition of IEEE Std 802.16m)
Clause 5.2: Packet convergence sublayer	http://www.tta.or.kr/data/tta_sDown.jsp?where=14688&pk_num=TTAE.IE-802.16-2009 (Clause 5.2, TTA transposition of IEEE Std 802.16-2009)	<i>Not applicable</i>	<i>Not applicable</i>	http://www.tta.or.kr/data/tta_sDown.jsp?where=14688&pk_num=TTAE.IE-802.16m (Clause 5.2, TTA transposition of IEEE Std 802.16m)
Clause 16: <i>WirelessMAN- Advanced</i> air interface	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://www.tta.or.kr/data/tta_sDown.jsp?where=14688&pk_num=TTAE.IE-802.16m (Clause 16, TTA transposition of IEEE Std 802.16m)
Annex R: MAC control messages	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://www.tta.or.kr/data/tta_sDown.jsp?where=14688&pk_num=TTAE.IE-802.16m (Annex R, TTA transposition of IEEE Std 802.16m)
Annex S: Test vectors	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://www.tta.or.kr/data/tta_sDown.jsp?where=14688&pk_num=TTAE.IE-802.16m (Annex S, TTA transposition of IEEE Std 802.16m)
Annex T: Supported frequency bands	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://www.tta.or.kr/data/tta_sDown.jsp?where=14688&pk_num=TTAE.IE-802.16m (Annex T, TTA transposition of IEEE Std 802.16m)
Annex U: Radio specifications	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://www.tta.or.kr/data/tta_sDown.jsp?where=14688&pk_num=TTAE.IE-802.16m (Annex U, TTA transposition of IEEE Std 802.16m)

	Base specification per IEEE Std 802.16-2009	Amendment per IEEE Std 802.16j-2009	Amendment per IEEE Std 802.16h-2010	Amendment per IEEE Std 802.16m-2011
Annex V: Default capability class and parameters	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://www.tta.or.kr/data/tta/Down.jsp?where=14688&pk_num=TTAE.IE-802.16m (Annex V, TTA transposition of IEEE Std 802.16m)

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2 **2.2.1.2.4 Transpositions: WiMAX Forum**

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	Base specification per IEEE Std 802.16-2009	Amendment per IEEE Std 802.16j-2009	Amendment per IEEE Std 802.16h-2010	Amendment per IEEE Std 802.16m-2011
<i>Transposing Organization</i>	WIMAX FORUM	WIMAX FORUM	WIMAX FORUM	WIMAX FORUM
<i>Document number</i>	T28-001-R020v01, WIMAX FORUM transposition of IEEE Std 802.16-2009	T28-001-R020v01, WIMAX FORUM transposition of IEEE Std 802.16j	T28-001-R020v01, WIMAX FORUM transposition of IEEE Std 802.16h	T28-001-R020v01, WIMAX FORUM transposition of IEEE Std 802.16m
<i>Version</i>	V01	V01	V01	V01
<i>Date</i>	20 September 2011	20 September 2011	20 September 2011	20 September 2011
Clause 1.4: Reference models	http://www.wimaxforum.org/files/WMF-IMT-Advanced-Spec-T28-001-R020v01.pdf (Clause 1.4, WIMAX FORUM transposition of IEEE Std 802.16-2009)	<i>Not applicable</i>	http://www.wimaxforum.org/files/WMF-IMT-Advanced-Spec-T28-001-R020v01.pdf (Clause 1.4, WIMAX FORUM transposition of IEEE Std 802.16h)	http://www.wimaxforum.org/files/WMF-IMT-Advanced-Spec-T28-001-R020v01.pdf (Clause 1.4, WIMAX FORUM transposition of IEEE Std 802.16m)
Clause 2: Normative references	http://www.wimaxforum.org/files/WMF-IMT-Advanced-Spec-T28-001-R020v01.pdf (Clause 2, WIMAX FORUM transposition of IEEE Std 802.16-2009)	<i>Not applicable</i>	http://www.wimaxforum.org/files/WMF-IMT-Advanced-Spec-T28-001-R020v01.pdf (Clause 2, WIMAX FORUM transposition of IEEE Std 802.16h)	http://www.wimaxforum.org/files/WMF-IMT-Advanced-Spec-T28-001-R020v01.pdf (Clause 2, WIMAX FORUM transposition of IEEE Std 802.16m)
Clause 3: Definitions	http://www.wimaxforum.org/files/WMF-IMT-Advanced-Spec-T28-001-R020v01.pdf (Clause 3, WIMAX FORUM transposition of IEEE Std 802.16-2009)	http://www.wimaxforum.org/files/WMF-IMT-Advanced-Spec-T28-001-R020v01.pdf (Clause 3, WIMAX FORUM transposition of IEEE Std 802.16j)	http://www.wimaxforum.org/files/WMF-IMT-Advanced-Spec-T28-001-R020v01.pdf (Clause 3, WIMAX FORUM transposition of IEEE Std 802.16h)	http://www.wimaxforum.org/files/WMF-IMT-Advanced-Spec-T28-001-R020v01.pdf (Clause 3, WIMAX FORUM transposition of IEEE Std 802.16m)
Clause 4: Abbreviations and acronyms	http://www.wimaxforum.org/files/WMF-IMT-Advanced-Spec-T28-001-R020v01.pdf (Clause 4, WIMAX FORUM transposition of IEEE Std 802.16-2009)	http://www.wimaxforum.org/files/WMF-IMT-Advanced-Spec-T28-001-R020v01.pdf (Clause 4, WIMAX FORUM transposition of IEEE Std 802.16j)	http://www.wimaxforum.org/files/WMF-IMT-Advanced-Spec-T28-001-R020v01.pdf (Clause 4, WIMAX FORUM transposition of IEEE Std 802.16h)	http://www.wimaxforum.org/files/WMF-IMT-Advanced-Spec-T28-001-R020v01.pdf (Clause 4, WIMAX FORUM transposition of IEEE Std 802.16m)

	Base specification per IEEE Std 802.16- 2009	Amendment per IEEE Std 802.16j- 2009	Amendment per IEEE Std 802.16h- 2010	Amendment per IEEE Std 802.16m- 2011
Clause 5.2: Packet convergence sublayer	http://www.wimaxforum.org/files/WMF-IMT-Advanced-Spec-T28-001-R020v01.pdf (Clause 5.2, WIMAX FORUM transposition of IEEE Std 802.16-2009)	<i>Not applicable</i>	<i>Not applicable</i>	http://www.wimaxforum.org/files/WMF-IMT-Advanced-Spec-T28-001-R020v01.pdf (Clause 5.2, WIMAX FORUM transposition of IEEE Std 802.16m)
Clause 16: <i>WirelessMAN- Advanced</i> air interface	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://www.wimaxforum.org/files/WMF-IMT-Advanced-Spec-T28-001-R020v01.pdf (Clause 16, WIMAX FORUM transposition of IEEE Std 802.16m)
Annex R: MAC control messages	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://www.wimaxforum.org/files/WMF-IMT-Advanced-Spec-T28-001-R020v01.pdf (Annex R, WIMAX FORUM transposition of IEEE Std 802.16m)
Annex S: Test vectors	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://www.wimaxforum.org/files/WMF-IMT-Advanced-Spec-T28-001-R020v01.pdf (Annex S, WIMAX FORUM transposition of IEEE Std 802.16m)
Annex T: Supported frequency bands	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://www.wimaxforum.org/files/WMF-IMT-Advanced-Spec-T28-001-R020v01.pdf (Annex T, WIMAX FORUM transposition of IEEE Std 802.16m)
Annex U: Radio specifications	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://www.wimaxforum.org/files/WMF-IMT-Advanced-Spec-T28-001-R020v01.pdf (Annex U, WIMAX FORUM transposition of IEEE Std 802.16m)
Annex V: Default capability class and parameters	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>	http://www.wimaxforum.org/files/WMF-IMT-Advanced-Spec-T28-001-R020v01.pdf (Annex V, WIMAX FORUM transposition of IEEE Std 802.16m)

1 **2.3 Detailed specification of the radio interface technology²⁰**

2 The material in Section 2.3 reflects the structure of the IEEE specifications subsequent to the IEEE
3 revising the structure of the relevant IEEE specifications related to *WirelessMAN-Advanced* on 8
4 June 2013 beginning with Revision 1 of Recommendation ITU-R M.2012 (2014).

5 Detailed specifications described in this Annex are developed around a “Global Core Specification”
6 (GCS)²¹, which is related to externally developed materials incorporated by specific references for a
7 specific technology. The process and use of the GCS, references, and related notifications and
8 certifications are found as Document IMT-ADV/24 Rev.-1²².

9 The IMT-Advanced standards contained in this section are derived from the global core
10 specification for *WirelessMAN-Advanced* contained at [http://ties.itu.int/u/ITU-r/ede/rsg5/IMT-](http://ties.itu.int/u/ITU-r/ede/rsg5/IMT-Advanced/GCS/WirelessMAN-Advanced/)
11 [Advanced/GCS/WirelessMAN-Advanced/](http://ties.itu.int/u/ITU-r/ede/rsg5/IMT-Advanced/GCS/WirelessMAN-Advanced/). The following notes apply to the sections below:

12 1) The identified relevant ***Transposing Organizations***²³ should make their reference
13 material available from their website.

²⁰ On 8 June 2012, the IEEE-SA Standards Board approved IEEE Std 802.16.1 (*WirelessMAN-*
Advanced Air Interface for Broadband Wireless Access Systems) as a new IEEE standard. IEEE Std
802.16.1 encompasses the WirelessMAN-Advanced air interface, with some minor improvements.
On the same date, the Standards Board approved IEEE Std 802.16-2012 as a new revision of IEEE
Std 802.16, which now excludes the WirelessMAN-Advanced air interface.

Accordingly, the material in Section 2.3 reflects IEEE’s transfer of the WirelessMAN-Advanced air
interface specification to IEEE Std 802.16.1. The WirelessMAN-Advanced GCS for Section 2.3
includes IEEE Std 802.16.1 but not IEEE Std 802.16.

IEEE has further enhanced IEEE Std 802.16.1 with two amendments:

- IEEE Std 802.16.1a: WirelessMAN-Advanced Air Interface for Broadband Wireless
Access Systems - Amendment: Higher Reliability Networks.
- IEEE Std 802.16.1b: WirelessMAN-Advanced Air Interface for Broadband Wireless
Access Systems – Amendment: Enhancements to Support Machine-to-Machine
Applications.

The content of these two standards is also included in Section 2.3

²¹ A “GCS” (Global Core Specification) is the set of specifications that defines a single RIT, an
SRIT, or a RIT within an SRIT.

²² Document IMT-ADV/24 Rev.1 is available on the ITU-R WP 5D webpage under the link “[IMT-](#)
[Advanced documents](#)”.

²³ The following identified Transposing Organizations have provided their transposed sets of
standards information contained in this section:

- [Institute of Electrical and Electronics Engineers, Inc. \(IEEE\).](#)
- [Association of Radio Industries and Businesses \(ARIB\).](#)
- [Telecommunications Technology Association \(TTA\).](#)
- [WiMAX Forum.](#)
- [Industrial Technology Research Institute \(ITRI\).](#)

2) This information was supplied by the *Transposing Organizations* and relates to their own deliverables of the transposed global core specification.

2.3.1 Description of the global core specification and the transposed standards

IEEE Std 802.16.1 is composed of IEEE Std 802.16.1-2012, as amended, consecutively, by IEEE Std 802.16.1b-2012 and IEEE Std 802.16.1a-2013. IEEE Std 802.16.1 is described in Section 2.3.1.1.

TABLE 2.7

Description of the *WirelessMAN-Advanced GCS*

<u>IEEE Std 802.16.1 Clause and Subject</u>	<u>IEEE Std 802.16.1-2012</u>	<u>IEEE Std 802.16.1b-2012</u>	<u>IEEE Std 802.16.1a-2013</u>
<u>Clause 1: Overview</u>	<u>Base specification</u>	<u>Amended</u>	<u>Amended</u>
<u>Clause 2: Normative references</u>	<u>Base specification</u>		
<u>Clause 3: Definitions</u>	<u>Base specification</u>	<u>Amended</u>	<u>Amended</u>
<u>Clause 4: Abbreviations and acronyms</u>	<u>Base specification</u>		<u>Amended</u>
<u>Clause 5: Service-Specific Convergence Sublayer</u>	<u>Base specification</u>		<u>Amended</u>
<u>Clause 6: <i>WirelessMAN-Advanced Air Interface</i></u>	<u>Base specification</u>	<u>Amended</u>	<u>Amended</u>
<u>Annex A: Bibliography</u>	<u>Base specification</u>		
<u>Annex B: Control Messages</u>	<u>Base specification</u>	<u>Amended</u>	<u>Amended</u>
<u>Annex C: Test Vectors</u>	<u>Base specification</u>		
<u>Annex D: Supported frequency bands</u>	<u>Base specification</u>		
<u>Annex E: Radio specifications</u>	<u>Base specification</u>		
<u>Annex F: Default capability class and parameters</u>	<u>Base specification</u>		

2.3.1.1 IEEE Std 802.16.1

IEEE Std 802.16.1 is summarized here.

IEEE Std 802.16.1: IEEE Standard for WirelessMAN-Advanced Air Interface for Broadband Wireless Access Systems

This standard specifies the WirelessMAN-Advanced Air Interface, including the medium access control layer (MAC) and physical layer (PHY), of a broadband wireless access (BWA) system supporting multiple services

IEEE Std 802.16.1 is composed of IEEE Std 802.16.1-2012, as amended, consecutively, by IEEE Std 802.16.1b-2012 and IEEE Std 802.16.1a-2013.

2.3.1.1.1 IEEE Std 802.16.1-2012

IEEE Standard for WirelessMAN-Advanced Air Interface for Broadband Wireless Access Systems This standard specifies the WirelessMAN-Advanced Air Interface, including the medium

access control layer (MAC) and physical layer (PHY), of a broadband wireless access (BWA) system supporting multiple services.

2.3.1.1.2 IEEE Std 802.16.1b-2012

IEEE Standard for WirelessMAN-Advanced Air Interface for Broadband Wireless Access Systems – Amendment 1: Enhancements to Support Machine-to-Machine Applications

-This amendment specifies enhancements to the WirelessMAN-Advanced Air Interface. The enhancements provide improved support for machine-to-machine applications. As of the approval date, the applicable version of IEEE Std 802.16.1 is IEEE Std 802.16.1-2012, as amended by IEEE 802.16.1b-2012.

2.3.1.1.3 IEEE Std 802.16.1a-2013

IEEE Standard for WirelessMAN-Advanced Air Interface for Broadband Wireless Access Systems – Amendment 2: Higher Reliability Networks

This amendment updates and expands IEEE Std 802.16.1, specifying enhanced mechanisms to support Higher Reliability Networks. As of the publication date, the current version of IEEE Std 802.16.1 is IEEE Std 802.16.1-2012, as amended by IEEE Std 802.16.1b-2012 and IEEE Std 802.16.1a-2013.

2.3.1.2 Transposed standards

2.3.1.2.1 Transpositions: IEEE

	<u>Base standard per IEEE Std 802.16.1-2012</u>	<u>Amendment per IEEE Std 802.16.1b- 2012</u>	<u>Amendment per IEEE Std 802.16.1a-2013</u>
<i>Transposing Organization</i>	IEEE	IEEE	IEEE
<i>Document Number</i>	IEEE Std 802.16.1-2012	IEEE Std 802.16.1b-2012	IEEE Std 802.16.1a-2013
<i>Version</i>	2012	2012	2013
<i>Issued Date</i>	8 June 2012	30 August 2012	6 March 2013
<i>Document</i>	<URL1> [IEEE transposition of IEEE Std 802.16.1-2012]	<URL1b> [IEEE transposition of IEEE Std 802.16.1b-2012]	<URL1a> [IEEE transposition of IEEE Std 802.16.1a-2013]

1 **2.3.1.3.2 Transpositions: ARIB**

	<u>Base standard per IEEE Std 802.16.1-2012</u>	<u>Amendment per IEEE Std 802.16.1b- 2012</u>	<u>Amendment per IEEE Std 802.16.1a-2013</u>
<i>Transposing Organization</i>	<u>ARIB</u>	<u>ARIB</u>	<u>ARIB</u>
<i>Document Number</i>			
<i>Version</i>			
<i>Issued Date</i>			
<i>Document</i>			

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3 **2.3.1.2.3 Transpositions: TTA**

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	<u>Base standard per IEEE Std 802.16.1-2012</u>	<u>Amendment per IEEE Std 802.16.1b- 2012</u>	<u>Amendment per IEEE Std 802.16.1a-2013</u>
<i>Transposing Organization</i>	<u>TTA</u>	<u>TTA</u>	<u>TTA</u>
<i>Document Number</i>			
<i>Version</i>			
<i>Issued Date</i>			
<i>Document</i>			

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6 **2.3.1.2.4 Transpositions: WiMAX Forum**

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	<u>Base standard per IEEE Std 802.16.1-2012</u>	<u>Amendment per IEEE Std 802.16.1b- 2012</u>	<u>Amendment per IEEE Std 802.16.1a-2013</u>
<i>Transposing Organization</i>	<u>WiMAX Forum</u>	<u>WiMAX Forum</u>	<u>WiMAX Forum</u>
<i>Document Number</i>			
<i>Version</i>			
<i>Issued Date</i>			
<i>Document</i>			

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9 **2.3.1.2.5 Transpositions: ITRI**

10

	<u>Base standard per IEEE Std 802.16.1-2012</u>	<u>Amendment per IEEE Std 802.16.1b- 2012</u>	<u>Amendment per IEEE Std 802.16.1a-2013</u>
<u>Transposing Organization</u>	<u>ITRI</u>	<u>ITRI</u>	<u>ITRI</u>
<u>Document Number</u>			
<u>Version</u>			
<u>Issued Date</u>			
<u>Document</u>			

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