Attachment 3-2-2

WiMAX Forum™ Mobile System Profile

Release 1.5 TDD Part

WiMAX Forum™ Mobile System Profile Specification

Release 1.5 TDD Specific Part

WMF-T23-002-R015v01
WiMAX Forum Approved
(2009-08-01)

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Revision History

Table 1. Change Control Revision History

Version	Date	Comment
v01	2009-08-01	WiMAX Forum Approved

Abstract

This document specifies the TDD-specific aspects of WiMAX Forum Mobile System Profile Release 1.5.

1. Scope

This document provides the TDD-specific aspects of the WiMAX Forum Mobile System Profile Release 1.5 specification. It serves primarily for the purpose of certification of conformant Subscriber Stations and Base Stations.

This document is complementary to WiMAX Forum Mobile System Profile Release 1.5 [2] Common Part and includes only the additional specifications required for TDD mode. At the beginning of each subsection of Sections 4 and 5, instructions are provided for inclusion of specifications relevant to WiMAX Forum Mobile System Profile Release 1.5 Common Part [2].

This specification makes use of IEEE Std 802.16 as a normative reference.

2. Normative References

The following documents contain provisions that, through reference in this text, constitute provisions of the present document. References are either specific (identified by date of publication and/or edition number or version number) or nonspecific. For a specific reference, subsequent revisions do not apply. For a non-specific reference, the latest version applies.

[1] **IEEE Std 802.16-2009**, IEEE Standard for Local and metropolitan area networks - Part 16: Air Interface for Broadband Wireless Access Systems

[2] **WiMAX Forum WMF-T23-001-R015v01,** WiMAX Forum® Mobile System Profile, Release 1.5 Common Part (2009-08-01)

3. Definitions

3.1 *Abbreviations*

3.2 *Definitions of system profiles*

3.3 *Conventions*

3.3.1 Item column

The *Item* column contains a number that identifies each description in the table.

3.3.2 Description column

The *Description* column describes in free text each respective item (e.g., parameters, timers, etc.).

3.3.3 Reference column

The *Reference* column indicates the section of the referenced standard from which the requirement for the item is derived.

3.3.4 Status column

The following notations are used in the *Status* column to indicate whether each item is mandatory or optional in the referenced standard.

Table 2. Status Column Entries

m	Explicitly shown as mandatory in the standard. Mandatory items are automatically required in the profile for implementation.
pm	Potentially mandatory. Essential for the system to perform basic operations, although not explicitly mandatory in the standard). Potentially mandatory items are required in the profile for implementation.
o	Explicitly mentioned as optional in the standard or is not explicitly optional but has capability negotiations. These items may or may not be required in the profile for implementation.
oi	Qualified option – for mutually exclusive or selectable options from a set. One or more of the options from the set shall be supported.
po	Potentially optional. Not explicitly mentioned as mandatory in the standard and not required for the system to perform basic operations.
n/a	Not applicable – in the given context, it is impossible to use the capability.

3.3.5 BS/MS Required column

The Required column indicates whether the item is required for every BS/MS to implement for WiMAX certification purposes.

Table 3. Required Column Entries

Y or y	Required for compliance to this specification.

N or n	Not required for compliance to this specification.
IO-NNNN	Interoperable Options for BS: Item belongs to NNNN group of features of BS equipment. More specifically ▪ The item is not required for compliance to this specification and ▪ The item is required for compliance with the IO-NNNN capability.
IOMS-NNNN	Interoperable Options for MS: Item belongs to NNNN group of features for which it is requested to provide testing procedure and distinct labeling of MS equipment. More specifically ▪ The item is not required compliance to this specification and ▪ The item is required for compliance with the IOMS-NNNN capability.
n/a	Not applicable

3.3.6 BS/MS Values column

This column indicates the specific value or range of values for each BS/MS to implement for compliance to this specification.

Table 4. Value Column Entries

xx	Set to value xx
aa - bb	Set to range aa - bb
n/a	Not applicable

3.3.7 Comment column

This column provides additional clarification and explanation.

4. PHY Profile

4.1 *Profiles of BS and MS*

4.1.1 System Parameters

[Add the following text and table as the content of Section 4.1.1 of Reference [2].]

The supported uplink-downlink duplexing modes are specified in Table 5.

Table 5. Duplexing Mode

Item	Description	Reference	Status	BS Required	MS Required	Comment
1	TDD	8.4.4.1	oi	Y	Y	

4.1.1.1 *PHY Mode*

4.1.1.2 *Channel bandwidths and corresponding FFT sizes*

4.1.1.3 *Sampling Factor*

4.1.1.4 *Cyclic Prefix*

4.1.1.5 *Frame Configuration*

4.1.1.6 *TTG/RTG*

Table 6. TTG/RTG

Item	Description	Reference	Status	BS Required	BS Values	MS Required	Comment
1	TTG	8.4.5.2	m	Y	296 PS for 10 MHz, 218 PS for 8.75 MHz, 376 PS for 7 MHz, 148 PS for 5 MHz and 188 PS for 3.5 MHz	n/a	5 µs minimum specified in the referred section. The requirement is equivalent to "5 ms - (RTG+ Number of OFDM symbols x symbol duration)" where "Number of OFDM symbols" = 47 for 10 and 5 MHz, 42 for 8.75 MHz and 33 for 7 MHz.
2	RTG	8.4.5.2	m	Y	168 PS for 10 MHz, 186 PS for 8.75 MHz, 120 PS for 7 MHz, 84 PS	n/a	5 µs minimum specified in the referred section. The requirement is equivalent to 60 µs

Item	Description	Reference	Status	BS Required	BS Values	MS Required	Comment
					for 5 MHz and 60 PS for 3.5 MHz		for 5, 10 and 7 MHz BW and 74.4 µs for 8.75 MHz BW.

4.1.1.7 *Frame and Subframe Parameters*

Parameters of Table 7 specify number of OFDM symbols in DL and UL subframes.

Table 7. Number of OFDM Symbols in DL and UL Subframe in TDD Mode

Item	Description	Reference	Status	BS Required	BS Values	MS Required	MS Values	Comment
1	Number of OFDM Symbols in DL and UL for 5 and 10 MHz BW	8.4.4.1	oi	Y	(35, 12), (34, 13), (33, 14), (32, 15), (31, 16), (30, 17), (29, 18), (28, 19), (27, 20), (26, 21)	Y	The same as BS values	
2	Number of OFDM Symbols in DL and UL for 8.75 MHz BW	8.4.4.1	oi	Y	(30, 12), (29, 13), (28, 14), (27, 15), (26, 16), (25, 17), (24, 18)	Y	The same as BS values	
3	Number of OFDM Symbols in DL and UL for 7 and 3.5 MHz BW	8.4.4.1	oi	Y	(24, 09), (23, 10), (22, 11), (21, 12), (20, 13), (19, 14), (18, 15)	Y	The same as BS values	

4.1.2 Subcarrier Allocation

4.1.2.1 *DL Subcarrier Allocation*

4.1.2.2 *UL Subcarrier Allocation*

4.1.2.3 *Common SYNC Symbol*

4.1.2.4 *UL Sounding*

[Add Table 8 to the end of Section 4.1.2.4 [2].]

Table 8. UL Sounding 3

Item	Description	Reference	Status	BS Required	MS Required	Comment
1	Two Antenna UL Sounding: Multi-Antenna Flag enabled for Cyclic Shift Separation	8.4.6.2.7	o	IO-MIM4	IOMS-MIM4	
2	Two Antenna UL Sounding: Multi-Antenna Flag enabled for Decimation Separation	8.4.6.2.7	o	IO-MIM4	IOMS-MIM4	

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4.1.3.2 *HO Ranging*

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4.1.11.10 *MIMO Feedback*

4.1.11.11 *MIMO Midamble*

[Append the table in Section 4.1.11.11 of Reference [2] with Table 9.]

Table 9. MIMO Midamble

Item	Description	Reference	Status	BS Required	MS Required	Comment
1	MIMO Midamble with 2 antennas: MIMO midamble support in STC zone with optional AMC permutation	6.3.2.3.38.6.7 , 8.4.8.5, 11.8.3.5.5 11.11 11.12	o	N	N	

2	MIMO Midamble with 2 antennas: MIMO Midamble support STC zone with PUSC permutation	6.3.2.3.38.6.7 & 8.4.8.5, 11.8.3.5.5 11.11 11.12	o	N	N	
3	MIMO Midamble with 4 antennas: MIMO midamble support in STC zone with optional AMC permutation	6.3.2.3.38.6.7 & 8.4.8.5, 11.8.3.5.5 11.11 11.12	o	N	N	
4	MIMO Midamble with 4 antennas: MIMO Midamble support STC zone with PUSC permutation	6.3.2.3.38.6.7 & 8.4.8.5, 11.8.3.5.5 11.11 11.12	o	N	N	

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4.2.1 MS Minimum Performance

4.2.1.1 *SSTTG/SSRTG*

Table 10. SSTTG/SSRTG for TDD

Item	Description	Reference	Status	MS Required	MS Values	Comment
1	SSTTG	8.4.4.3	m	Y	50 µs	
2	SSRTG	8.4.4.3	m	Y	50 µs	

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