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Title	**Legacy Support Modes in D3 (16.3.3.7)**
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Re:	Category: P802.16m/D3 comments for LB30b Area: Chapter 16.3.3.7
Abstract	The current backward compatibility modes in D3 do not meet the requirements for legacy support in the SRD. Specifically, the performance does not scale with the fraction of deployed 16m mobiles. The current draft requires that a minimum of 2 subframes be allocated to 16m even when there are no 16m mobiles with data queued. As a result, 40% of the downlink capacity will be lost to 16e mobiles as soon as the 16m mode is enabled.
Purpose	To be discussed and adopted by TGm for the 802.16m Amendment.
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Legacy Support Modes in D3 (16.3.3.7)

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1. Introduction

The current backward compatibility modes in D3 do not meet the requirements for legacy support in the SRD. Specifically, the performance does not scale with the fraction of deployed 16m mobiles. The current draft requires that a minimum of 2 subframes be allocated to 16m even when there are no 16m mobiles with data queued. As a result, 40% of the downlink capacity will be lost to 16e mobiles as soon as the 16m mode is enabled.

The remedy below proposes the following:

1) Reduce minimum number of 16m subframes to one subframe instead of two.

2) Introduce a new set of frame configurations with a DL length of 1 for a 5:3 TDD split

3) Introduce backward compatible frame configurations for 6:2 TDD split.

4) Introduce a special 4 symbol subframe configuration such that both a 16m pre-amble and 16m MIMO midamble can be included in the same sub-frame

2. Proposed Text Changes in P802.16m/D3

[Remedy 1: Insert the following entries into Table 771 on the page 313. Replace "" with next available "No" and "Frame configuration index" as appropriate]*

Table 765 – Frame Configuration and Indexing (5/10/20MHz channel bandwidth).

No.	BW	CP	Frame configuration index	Duplex	D:U	Subframe provision			Subframe Type								TTG /RTG (μs)
						DL offset	DL length	UL length	#0	#1	#2	#3	#4	#5	#6	#7	
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…
*	5/10/20	1/8	*	TDD	5:3	2	1	3	DL Type1	Not used	Not used	UL Type1	UL Type1	UL Type1	Not used	Not used	105.714 / 60
*	5/10/20	1/8	*	TDD	5:3	1	1	3	DL Type1	Not used	Not used	Not used	UL Type1	UL Type1	UL Type1	Not used	105.714 / 60
*	5/10/20	1/8	*	TDD	6:2	1	1	2	DL Type1	Not used	Not used	Not used	Not used	UL Type1	UL Type1	Not used	105.714 / 60
*	5/10/20	1/8	*	TDD	6:2	1	2	2	DL Type1	DL Type1	Not used	Not used	Not used	UL Type1	UL Type1	Not used	105.714 / 60
*	5/10/20	1/8	*	TDD	6:2	1	3	2	DL Type1	DL Type1	DL Type1	Not used	Not used	UL Type1	UL Type1	Not used	105.714 / 60
*	5/10/20	1/8	*	TDD	6:2	1	4	2	DL Type1	DL Type1	DL Type1	DL Type1	Not used	UL Type1	UL Type1	Not used	105.714 / 60
*	5/10/20	1/8	*	TDD	6:2	1	5	2	DL Type1	DL Type1	DL Type1	DL Type1	DL Type1	UL Type1	UL Type1	Not used	105.714 / 60

*	5/10/20	1/8	*	TDD	6:2	2	1	2	DL Type1	Not used	Not used	Not used	UL Type1	UL Type1	Not used	Not used	105.714 / 60
*	5/10/20	1/8	*	TDD	6:2	2	2	2	DL Type1	DL Type1	Not used	Not used	UL Type1	UL Type1	Not used	Not used	105.714 / 60
*	5/10/20	1/8	*	TDD	6:2	3	3	2	DL Type1	DL Type1	DL Type1	Not used	UL Type1	UL Type1	Not used	Not used	105.714 / 60
*	5/10/20	1/8	*	TDD	6:2	4	4	2	DL Type1	DL Type1	DL Type1	DL Type1	UL Type1	UL Type1	Not used	Not used	105.714 / 60

[Remedy 2: Modify the text in section 16.3.5.4.2 MIMO mid-amble on page 341]

MIMO midamble is used for PMI selection in closed loop MIMO. For OL MIMO, midamble can be used to calculate CQI. MIMO midamble shall be transmitted every frame on the second last DL AAI subframe. The midamble signal occupies the ~~first~~ last OFDMA symbol in the first DL type-1 or type-2 AAI subframe of a frame. ~~For the type-1 AAI subframe case, the remaining 5 consecutive symbols form a type-3 AAI subframe. For the type-2 AAI subframe case, the remaining 6 consecutive symbols form a type-1 AAI subframe~~.