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| Project | **IEEE 802.16 Broadband Wireless Access Working Group** <http://ieee802.org/16> |
| Title | **TDD Frame Structure Configuration for IEEE 802.16m Draft** |
| Date Submitted | **2009-01-07** |
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| Re: | IEEE 802.16m-08/053r1 "Call for comments and contributions on Project 802.16m Amendment Working Document"<br>Target topic: comment associated contribution (about frame structure) |
| Abstract | This contribution proposes text for the 802.16m TDD frame structure configuration. |
| Purpose | To be discussed and adopted by TGm for incorporation in the P802.16m Amendment Working Document. |
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# TDD Frame Structure Configuration for IEEE 802.16m

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## Introduction

This contribution proposes text for the TDD frame structure configuration for the 802.16m amendment.

In the 802.16 TDD systems, there are multiple system parameters, including DL/UL split, offset between 16m frame and legacy frame when legacy support is enabled, and number of switching points, which will determine a TDD frame structure configuration.

The 802.16 TDD BS shall make its TDD frame structure configuration known to MSs at the network entry time. In this contribution, we propose to define a 4-bit TDD frame structure configuration code to present different TDD frame configurations, and the TDD BS shall announce its TDD frame configuration by providing the frame configuration code in the P-BCH.

## Proposed Changes in 802.16 Amendment Working Document (802.16m-08/050)

**Proposed Change #1:**

On page 22, line 32, change the section number from 15.3.3.6 to 15.3.3.7.

**Proposed Change #2:**

Add the following text into line 29 on page 22.

---------- Text Start ----------

### 15.3.3.6 TDD Frame Structure Configurations

The TDD frame configurations are defined in Table 648, where each TDD frame structure configuration is assigned a 4-bit configuration code. The TDD BS shall announce its TDD frame configuration by providing the frame configuration code in the P-BCH.

**Table 648. TDD Frame Structure Configurations**

| Configuration code (4 bits) | Frame Configuration<br>D= 6-symbol DL; U= 6-symbol UL<br>$D_s$=5-symbol DL; $U_s$=5-symbol UL | Transition Gaps | Notes |
|---|---|---|---|
| 0b0000 | D D D $D_s$ $g_0$ U U U U $g_1$ | $g_0$= 102.86 μs;<br>$g_1$= 62.86 μs; | $T_{offset}$ = 0, i.e., AAIF only.<br>DL/UL split: 4:4 |

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|---|---|---|---|
| | | | # of switching points = 2. |
| 0b0001 | D D D D $D_s$ $g_0$ U U U $g_1$ | $g_0$= 102.86 μs;<br>$g_1$= 62.86 μs; | $T_{offset}$ = 0, i.e., AAIF only.<br>DL/UL split: 5:3<br># of switching points = 2. |
| 0b0010 | D D D D D $D_s$ $g_0$ U U $g_1$ | $g_0$= 102.86 μs;<br>$g_1$= 62.86 μs; | $T_{offset}$ = 0, i.e., AAIF only.<br>DL/UL split: 6:2<br># of switching points = 2. |
| 0b0011 | D D D D D D D D $g_1$ | $g_1$= 62.86 μs; | $T_{offset}$ = 0, i.e., AAIF only.<br>DL/UL split: 8:0 (DL only) |
| 0b0100 | D D $g_0$ U U $g_1$ D $D_s$ $g_2$ U U $g_3$ | $g_0$ = 50 μs;<br>$g_1$= 32.86 μs;<br>$g_2$ = 50 μs;<br>$g_3$ = 32.86 μs; | $T_{offset}$ = 0, i.e., AAIF only.<br>DL/UL split: 4:4<br># of switching points = 4. |
| 0b0101 | D D $D_s$ $g_0$ U $g_1$ D D $g_2$ U U $g_3$ | $g_0$ = 50 μs;<br>$g_1$= 32.86 μs;<br>$g_2$ = 50 μs;<br>$g_3$ = 32.86 μs; | $T_{offset}$ = 0; i.e., AAIF only<br>DL/UL split: 5:3<br># of switching points = 4. |
| 0b0110 | D D $D_s$ $g_0$ U $g_1$ D D D $g_2$ U $g_3$ | $g_0$ = 50 μs;<br>$g_1$= 32.86 μs;<br>$g_2$ = 50 μs;<br>$g_3$ = 32.86 μs; | $T_{offset}$ = 0; i.e., AAIF only<br>DL/UL split: 6:2<br># of switching points = 4. |
| 0b0111 | D $D_s$ $g_0$ U U U U $g_1$ D D | $g_0$=102.86 μs;<br>$g_1$= 62.86 μs; | $T_{offset}$ = 2 Type-1 subframes;<br>DL/UL split: 4:4<br># of switching points = 2. |
| 0b1000 | D $g_0$ U U U $U_s$ $g_1$ D D D | $g_0$=102.86 μs;<br>$g_1$= 62.86 μs; | $T_{offset}$ = 3 Type-1 subframes;<br>DL/UL split: 4:4<br># of switching points = 2. |
| 0b1001 | D D $D_s$ $g_0$ U U U $g_1$ D D | $g_0$=102.86 μs;<br>$g_1$= 62.86 μs; | $T_{offset}$ = 2 Type-1 subframes;<br>DL/UL split: 5:3<br># of switching points = 2. |

| | | | |
|---|---|---|---|
| 0b1010 | D $D_s$ $g_0$ U U U $g_1$ D D D | $g_0$=102.86 μs;<br>$g_1$= 62.86 μs; | $T_{offset}$ = 3 Type-1 subframes;<br>DL/UL split: 5:3<br># of switching points = 2. |
| 0b1011 | D D D $D_s$ $g_0$ U U $g_1$ D D | $g_0$=102.86 μs;<br>$g_1$= 62.86 μs; | $T_{offset}$ = 2 Type-1 subframes;<br>DL/UL split: 6:2<br># of switching points = 2. |
| 0b1100 | D $D_s$ $g_0$ U U $g_1$ D D D D | $g_0$=102.86 μs;<br>$g_1$= 62.86 μs; | $T_{offset}$ = 4 Type-1 subframes;<br>DL/UL split: 6:2<br># of switching points = 2. |
| 0b1101 | D $g_0$ U $U_s$ $g_1$ D $g_2$ U U $g_3$ D D | $g_0$ = 50 μs;<br>$g_1$= 32.86 μs;<br>$g_2$ = 50 μs;<br>$g_3$ = 32.86 μs; | $T_{offset}$ = 2 Type-1 subframes;<br>DL/UL split: 4:4<br># of switching points = 4. |
| 0b1110 | D $D_s$ $g_0$ U $g_1$ D $g_2$ U U $g_3$ D D | $g_0$ = 50 μs;<br>$g_1$= 32.86 μs;<br>$g_2$ = 50 μs;<br>$g_3$ = 32.86 μs; | $T_{offset}$ = 2 Type-1 subframes;<br>DL/UL split: 5:3<br># of switching points = 4. |
| 0b1111 | D $D_s$ $g_0$ U $g_1$ D D $g_2$ U $g_3$ D D | $g_0$ = 50 μs;<br>$g_1$= 32.86 μs;<br>$g_2$ = 50 μs;<br>$g_3$ = 32.86 μs; | $T_{offset}$ = 2 Type-1 subframes;<br>DL/UL split: 6:2<br># of switching points = 4. |

---------- Text End ----------

## References

[1] IEEE 802.16m-08/003r6, “IEEE 802.16m System Description Document”

[2] IEEE 802.16m-07/002r6, “IEEE 802.16m System Requirements”