Proposal for IEEE 802.16m SDD Text on Preamble in Multi-Carrier Operation

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Re: "SDD Session 56 Cleanup, Call for PHY Details" and "PHY: Multi-Carrier Operation" ; in response to the Call for Contributions and Comments on Project 802.16m System Description Document (SDD) 802.16m-08/033 for Session 57

Purpose: Adopt the proposal into the IEEE 802.16m System Description Document

Scope

- This contribution presents a proposal for IEEE 802.16m SDD text on preamble in multi-carrier operation

IEEE 802.16m System Requirements

- The TGm SRD (IEEE 802.16m-07/002r4) specifies the following requirements:

5.5 Operating bandwidths

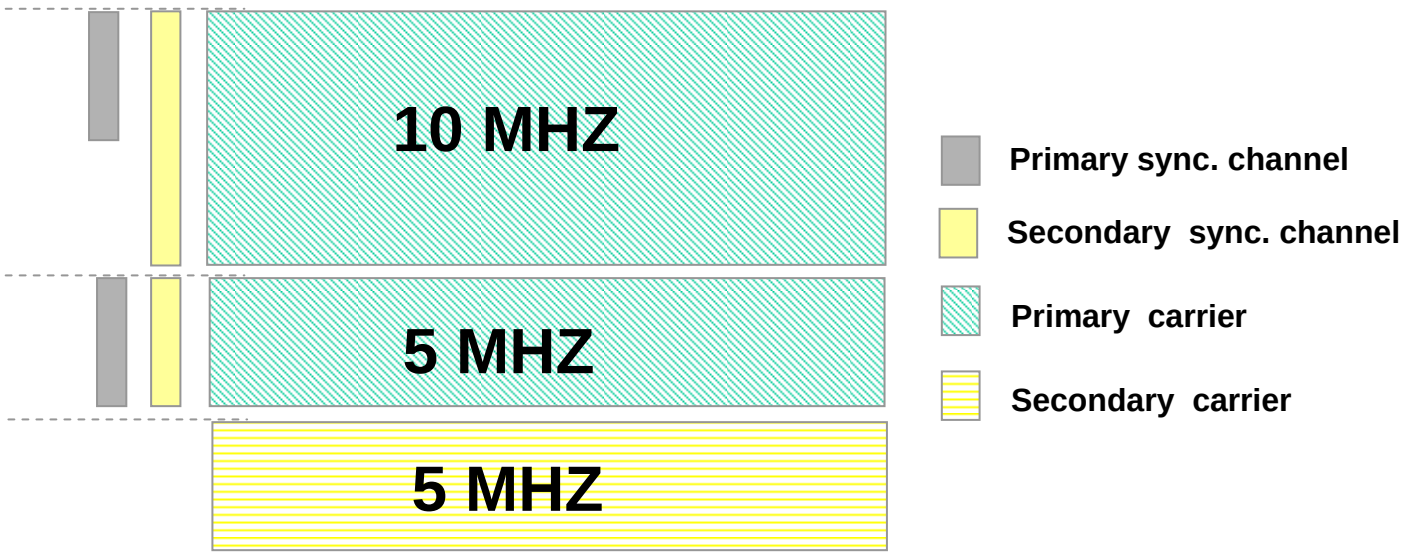
Scalable bandwidth is the ability to operate with different bandwidth allocations. IEEE 802.16m shall support scalable bandwidths from 5 to 40 MHz. This bandwidth may be supported by single or multiple RF carriers. Other bandwidths shall be considered as necessary to meet operator and ITU-R requirements.

Synchronization Channel(s) Location on Primary Carriers (1/2)

- Synchronization channel(s) location for multi-carrier support should have a minimum impact in terms of overhead and complexity.
  - The synchronization channels SCH (or P-SCH in case hierarchical) should be located aligned with an edge of the primary carrier, where a primary carrier is a carrier that has control information.
  - The mobile can then acquire the S-SCH (if present).

- Aligning the SCH with the edge of a primary carrier also assists the mobile in acquiring the legacy preamble.
  - If the legacy preamble is being used for the 16m S-SCH, the mobile needs only to search through the possible legacy deployment bandwidths (5 MHz, and 10 MHz).
  - Locating the SCH at the carrier edge reduces the number of possible locations for an SCH in comparison to locating the SCH at the centre of the carrier frequency
  - Note that the legacy preamble is always present for primary carriers supporting mixed deployments.

Synchronization Channel(s) Location on Primary Carriers (2/2)



- In order to support multicarrier operation, the P-SCH is on only the primary carriers (carriers with control information), and is aligned in frequency with one edge of the carrier.
- For hierarchical synchronization channels, the primary synchronization channel is limited to the minimum MS capability bandwidth (5 MHz).
- Secondary carriers do not have synchronization channels

Proposed SDD Text

11.7.2.1.2.4 Multicarrier and multi-bandwidth support

[Replace existing text]

In order to support multicarrier operation, the synchronization channels are located on only the primary carriers (carriers with control information).

The SCH is aligned in frequency with one edge of the carrier.