Project	**IEEE 802.16 Broadband Wireless Access Working Group** <http://ieee802.org/16>
Title	**Clarification on carrier management**
Date Submitted	**2009-02-27**
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Re:	Change request to the 802.16m SDD (section 19)
Abstract	This contribution proposes to clarify carrier management operation in 802.16m SDD.
Purpose	For review and discussion in 802.16m
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Clarification on carrier management

1 Text Proposal

----------Start of the Text----------

[Replace subclause 19.4.7 with the following texts:]

19.4.7 Carrier Management

The following steps summarize the high level sequence of procedures involved in the MC operation:

1. ABS periodically broadcasts its MC mode and MC configuration
   - The carriers listed in the MC configuration message are called *Available Carriers*. Not all available carriers can be assigned to an AMS but all available carriers are introduced to AMS's along with their respective Physical Carrier Index.
   - The ABS may also send the detailed MC configuration to the AMS broadcast messaging.

2. AMS Performs initialization and network entry. The process is the same as SC mode.
3. AMS and ABS perform MC Capability negotiation.

- Example Capabilities may include:
  - Carrier Switching Only
  - Capability to concurrently receive and aggregate MC's and Max No. of Carriers
  - Capability to concurrently aggregate and transmit on MC's, Max No. of Carriers. Note the AMS's MC capability may be different for TX and RX.
  - Capability to support Aggregation across Non-contiguous Spectrum, Max RF distance between carriers. This is in addition to AMS's support for multiple band classes.

~~Based on AMS RF capabilities, loading of available carriers or other factors, the ABS may provide more detailed configuration information on subset of available carrier designated as Assigned Secondary Carriers to AMS.~~
~~The AMS does not perform any PHY/MAC processing on Assigned Secondary Carriers until directed by the ABS.~~

4. The ABS allocates a subset of available ~~assigned secondary~~ carriers to be ready for the potential use for MC data transmission based on AMS RF capabilities, QoS requirement, loading and other factors. This subset is called the *Active Secondary Carriers*.
   - AMS performs PHY/MAC processing on those active carriers. The ABS may update the active secondary carriers based on QoS requirement, loading and other factors.
   - The ABS may assign a logical carrier index to each active secondary carrier for the AMS. Primary carrier is always assigned with logical carrier index 0. .
   - The ABS makes MC traffic allocation which may be:
   - Aggregation across all fully configured active carriers.
   - Aggregation involving at least one partially configured active carrier
   - Switching from one fully configured active carrier to another fully configured carrier which will result in primary carrier change
   - Switching to a partially configured active secondary carrier.

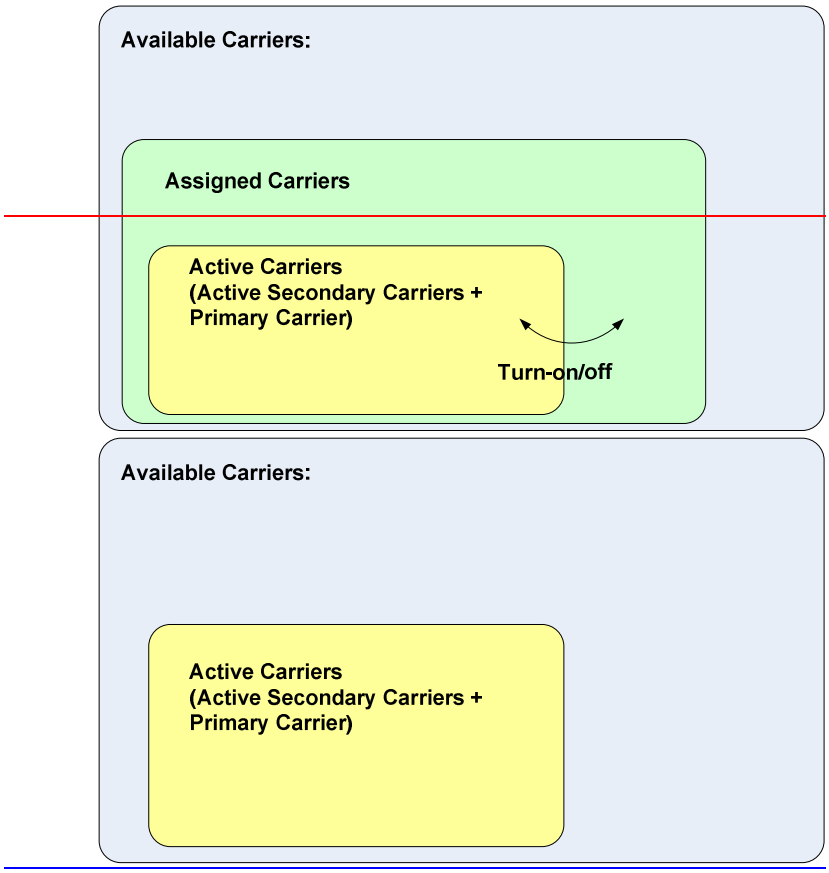

Figure xxx. Relation between Available~~, Assigned~~ and Active Carriers

Table 1. Definitions of Available~~, Assigned~~ and Active Carriers

	Definition and Properties
Available Carriers	Multiple carriers which are available in an ABS - Not all Available carriers may be supported by the AMS - No Processing on these Carriers - Referred to with Physical Carrier Indexes Unique within an ABS.
~~Assigned Carriers~~	~~Subset of Available Carriers which may be potentially used by the AMS~~ ~~Determined according to the capability of the AMS, SLA's , loading of available carriers of the ABS or other factors.~~ ~~No processing on these carriers until directed by the ABS.~~ ~~Referred to with Physical Carrier Indexes~~
Active Carriers	Subset of Available Carriers which are ready to be used for MC assignments. - Determined based on AMS's RF capabilities, QoS requirement and other factors - PHY/MAC processing are required for the active carriers. - Referred to with Logical ~~Physical~~ Carrier Indexes Unique for each AMS. [- Resource allocation information (in A MAP / E-MBS MAP) May be monitored.] - Broadcast messages (in SFH/Data Burst) should be monitored for Tx/Rx of data.]

----------End of the Text----------