

CLAIMS

What is claimed is:

1. An access point (AP) that is part of a basic service set (BSS) and configured to provide multi-channel (MC) access to at least one wireless transmit/receive unit (WTRU) in the BSS, the AP comprising:

a receiver configured to monitor for beacon frames transmitted by at least one other access point/personal basic service set (PBSS) control point (AP/PCP) associated with at least one overlapping basic service set (OBSS), wherein the beacon frames include at least service period (SP) scheduling information for the OBSS;

a processor configured to generate an allocation of at least one SP associated with the BSS, on at least two channels, to be used in a beacon interval, wherein the allocation of the at least one SP on the at least two channels is based at least in part on the SP scheduling information for the OBSS; and

a transmitter configured to transmit a beacon frame to the at least one WTRU, wherein the beacon frame includes the allocation of the at least one SP on the at least two channels.

2. The AP of claim 1, wherein, on a condition that the SP scheduling information for the OBSS indicates that a first channel is not interfered by transmissions in the OBSS, the allocation of the at least one SP on the at least two channels includes the first channel.

3. The AP of claim 1, wherein, on a condition that the SP scheduling information for the OBSS indicates that a first channel is interfered by transmissions in the OBSS in at least one time block, the allocation of the at least one SP on the at least two channels does not include the first channel in the at least one time block.

4. The AP of claim 1, wherein, on a condition that the SP scheduling information for the OBSS indicates that a first channel is being used for transmissions in the OBSS in at least one time block, the allocation of the at least one SP on the at least two channels includes the first channel and an indication that the first channel is used in the OBSS in the at least one time block.

5. The AP of claim 1, wherein the allocation of the at least one SP on the at least two channels further includes at least one of the following: a truncate indicator field to indicate whether the allocation is able to be truncated; an extendable indicator field to indicate whether the allocation is extendable; or an indicator field to indicate whether the allocation is dynamic.

6. The AP of claim 1, wherein:
- the processor is further configured to group a plurality of SPs with at least one common characteristic into a first allocation group period (AGP), wherein the allocation of the at least one SP on the at least two channels includes the first AGP.
7. The AP of claim 6, wherein the at least one common characteristic includes common channel bonding and channel aggregation (CB/CA) properties.
8. The AP of claim 6, wherein the allocation of the at least one SP on the at least two channels includes a common information part indicating the at least one common characteristic of the first AGP.
9. The AP of claim 8, wherein the common information part further indicates at least one of the following: channel bonding/channel aggregation (CB/CA) information, channel allocation information, multi-input multi-output (MIMO) information, spatial sharing information and beam forming training information.
10. The AP of claim 6, wherein the allocation of the at least one SP on the at least two channels includes an individual information part indicating at least one specific characteristic of a specific SP in the plurality of SPs.
11. A method, performed by an access point (AP) that is part of a basic service set (BSS), for providing multi-channel (MC) access to at least one wireless transmit/receive unit (WTRU) in the BSS, the method comprising:
- monitoring for beacon frames transmitted by at least one other access point/personal basic service set (PBSS) control point (AP/PCP) associated with at least one overlapping basic service set (OBSS), wherein the beacon frames include at least service period (SP) scheduling information for the OBSS;
- generating an allocation of at least one SP associated with the BSS, on at least two channels, to be used in a beacon interval, wherein the allocation of the at least one SP on the at least two channels is based at least in part on the SP scheduling information for the OBSS; and
- transmitting a beacon frame to the at least one WTRU, wherein the beacon frame includes the allocation of the at least one SP on the at least two channels.

12. The method of claim 11, wherein, on a condition that the SP scheduling information for the OBSS indicates that a first channel is not interfered by transmissions in the OBSS, the allocation of the at least one SP on the at least two channels includes the first channel.

13. The method of claim 11, wherein, on a condition that the SP scheduling information for the OBSS indicates that a first channel is interfered by transmissions in the OBSS in at least one time block, the allocation of the at least one SP on the at least two channels does not include the first channel in the at least one time block.

14. The method of claim 11, wherein, on a condition that the SP scheduling information for the OBSS indicates that a first channel is being used for transmissions in the OBSS in at least one time block, the allocation of the at least one SP on the at least two channels includes the first channel and an indication that the first channel is used in the OBSS in the at least one time block.

15. The method of claim 11, wherein the allocation of the at least one SP on the at least two channels further includes at least one of the following: a truncate indicator field to indicate whether the allocation is able to be truncated; an extendable indicator field to indicate whether the allocation is extendable; or an indicator field to indicate whether the allocation is dynamic.

16. The method of claim 11, further comprising:

grouping a plurality of SPs with at least one common characteristic into a first allocation group period (AGP), wherein the allocation of the at least one SP on the at least two channels includes the first AGP.

17. The method of claim 16, wherein the at least one common characteristic includes common channel bonding and channel aggregation (CB/CA) properties.

18. The method of claim 16, wherein the allocation of the at least one SP on the at least two channels includes a common information part indicating the at least one common characteristic of the first AGP.

19. The method of claim 18, wherein the common information part further indicates at least one of the following: channel bonding/channel aggregation (CB/CA) information, channel allocation

information, multi-input multi-output (MIMO) information, spatial sharing information and beam forming training information.

20. The method of claim 16, wherein the allocation of the at least one SP on the at least two channels includes an individual information part indicating at least one specific characteristic of a specific SP in the plurality of SPs.