CLAIMS

What is claimed is:

1. A method to coordinate transmissions of devices on a wireless network, the method comprising:

~~determining, by a first communications device, a time slot schedule between beacon frame transmissions;~~

~~generating, by the first communications device, a first beacon frame indicating the time slot schedule;~~

transmitting, by ~~the~~a first communications device, a beacon in a communication channel, the beacon having a time slot schedule for multiple time slots to be included in a beacon interval~~the first beacon frame~~;

~~generating, by the first communications device, a first synch frame unless a communications channel is busy; and~~

transmitting, by the first communications device, ~~the synch frame at a slot boundary between beacon frame transmissions unless the communications channel is busy~~ a first synch frame at a slot boundary of a first time slot if the communication channel is not busy at the slot boundary; and

not transmitting, by the first communications device, the first synch frame at the slot boundary of the first time slot if the communication channel is busy at the slot boundary.

2. The method of claim 1, further comprising:

determining a significant probability of collisions between two or more other communications devices;

determining a distribution of accesses by the two or more other communications devices;

generating a second beacon frame indicating the distribution of accesses; and

transmitting the second beacon frame.

3. The method of claim 2, wherein determining a significant probability of collisions comprises detecting a collision with a transmission from at least one of the other communications devices.

4. The method of claim 1, further comprising~~wherein~~ determining the time slot schedule between beacon frame transmissions by~~comprises~~ determining the time slot schedule with time slots, wherein each time slot may be a time duration of at least a duration for transmission of a physical layer convergence procedure protocol data unit plus a short interframe space.

5. The method of claim 1, further comprising~~wherein~~ determining the time slot schedule between beacon frame transmissions by~~comprises~~ dividing the beacon interval into more than one time slots, wherein each time slot may be a time duration of at least a duration for transmission of a physical layer convergence procedure protocol data unit plus a short interframe space plus a duration for transmission of an acknowledgement frame.

6. The method of claim 1, wherein the slot boundary corresponds to a time for a second wireless communications device to awake from a doze state to receive the synch frame.

7~~6~~. A first wireless communication device~~An apparatus to coordinate transmissions of devices on a wireless network, the apparatus~~ comprising:

at least one processor, memory, a medium access control (MAC) layer logic ~~to determine a time slot schedule between beacon frame transmissions and to generate a first beacon frame indicating the time slot schedule;~~ and

a physical (PHY) layer logic, ~~coupled with the medium access control logic to generate and transmit a first synch frame unless a communications channel is busy and to encapsulate and transmit the first beacon frame~~ the first wireless communication device to

transmit a beacon in a communication channel, the beacon having a time slot schedule for multiple time slots to be included in a beacon interval;

transmit a first synch frame at a slot boundary of a first time slot if the communication channel is not busy at the slot boundary;

not transmit the first synch frame at the slot boundary of the first time slot if the communication channel is busy at the slot boundary.

87. The ~~apparatus~~first wireless communication device of claim 76, further comprising an antenna to transmit the beacon and the first synch frame ~~encapsulated by the preamble~~, the memory to store the time slot schedule.

98. The ~~apparatus~~first wireless communication device of claim 87, further comprising memory coupled with the ~~medium access control~~MAC layer logic to store the time slot schedule.

109. The ~~apparatus~~first wireless communication device of claim 76, wherein the ~~medium access control~~MAC layer logic comprises logic to determine a significant probability of collisions between two or more other communications devices; determine a distribution of accesses by the two or more other communications devices; generate a frame indicating the distribution of accesses; and to instruct the physical layer logic to transmit the frame.

1110. The ~~apparatus~~first wireless communication device of claim 76, wherein the ~~medium access control~~MAC layer logic comprises logic to determine the time slot schedule with time slots, wherein each time slot may be a time duration of at least a duration for transmission of a physical layer convergence procedure protocol data unit plus a short interframe space plus a duration for transmission of an acknowledgement frame.

1211. The ~~apparatus~~first wireless communication device of claim 76, wherein the ~~physical~~PHY layer logic comprises logic to generate the synch frame with six or more orthogonal frequency division multiplexing symbols.

13. The first wireless communication device of claim 7, wherein the slot boundary corresponds to a time for a second wireless communications device to awake from a doze state to receive the synch frame.

1412. A method to coordinate transmissions of devices on a wireless network, the method comprising:

receiving, by a first communications device from a second communications device, a first beacon frame during a beacon interval indicating a time slot schedule during the beacon interval~~, wherein the time slot schedule indicates one or more time slots between beacon frame transmissions~~;

waking, by the first communications device, from a doze state to an awake state to receive a first synch frame at a boundary of a time slot; and

receiving, from the second communications device, the first synch frame to synch with a channel during the beacon interval; and

transmitting a communication to the second communications device~~ an access point~~ after synching with the channel.

15~~13~~. The method of claim 14~~12~~, further comprising

receiving a second beacon frame indicating ~~the~~a distribution of accesses;

storing a time slot access based upon the distribution of accesses in memory; and

waking from the doze state at the time slot access to receive another synch frame.

16~~14~~. The method of claim 14~~12~~, further comprising

receiving, by the first communications device, a second beacon frame;

waking, by the first communications device, from the doze state to the awake state to receive another synch frame at a boundary of a time slot; and

waiting for a packet to synch with the channel after failing to detect the other synch frame.

17~~15~~. The method of claim 14~~12~~, wherein receiving the first synch frame comprises synching with the channel in response to receiving a physical layer frame with six or more orthogonal frequency division multiplexing symbols.

18~~16~~. An apparatus to coordinate transmissions of devices on a wireless network, the apparatus comprising:

at least one processor;

memory;

a medium access control logic to receive a first beacon frame during a beacon interval indicating a time slot schedule during the beacon interval~~, wherein~~

~~the time slot schedule indicates one or more time slots between beacon frame transmissions~~; wake from a doze state to an awake state to receive a first synch frame, from the second communications device, at a boundary of a time slot; and

a physical layer logic coupled with the medium access control logic to receive, from the second communications device, the first synch frame to synch with a channel during the beacon interval; inform the medium access control logic of receipt of the first synch frame; and transmit a communication to the second communications device ~~an access point~~ after synching with the channel.

19~~17~~. The apparatus of claim 18~~16~~, further comprising an antenna coupled with the physical layer logic to transmit the communication.

20~~18~~. The apparatus of claim 18~~16~~, wherein the medium access control logic comprises logic to receive a second beacon frame indicating ~~the~~a distribution of accesses; store a time slot access based upon the distribution of accesses in memory; and wake from the doze state at the time slot access to receive another synch frame.

21~~19~~. The apparatus of claim 18~~16~~, wherein the medium access control logic comprises logic to receive a second beacon frame; wake from the doze state to the awake state to receive another synch frame at a boundary of a time slot; and wait for a packet to synch with the channel after failing to detect the other synch frame.