

CLAIMS

1. An apparatus for wireless communications, comprising:
a processing system configured to generate at least one frame including information designed to enable one or more neighboring wireless nodes that are not part of a distribution network to communicate during one or more time slots assigned to the apparatus for simplex communications in the distribution network; and
an interface configured to output the at least one frame for transmission during the one or more time slots.
2. The apparatus of claim 1, wherein the information comprises:
an interference sensitivity factor (ISF) from which the neighboring wireless nodes are able to estimate a potential level of interference at the apparatus due to communication between the neighboring wireless nodes.
3. The apparatus of claim 2, wherein the information further comprises an interference threshold to enable the neighboring wireless nodes to determine whether their communication, during the one or more time slots, will potentially interfere with reception by the apparatus.
4. The apparatus of claim 1, wherein the information comprises a schedule of time slots assigned to the apparatus for reception of simplex communications in the distribution network via a receive antenna pattern corresponding to an antenna transmit pattern used for transmission of the at least one frame.
5. The apparatus of claim 4, wherein the schedule indicates a start times and lengths of the time slots assigned to the apparatus for reception of simplex communications in the distribution network.
6. The apparatus of claim 1, wherein the at least one frame also comprises one or more training fields designed to allow the neighboring wireless nodes to estimate at least one of a direction or an antenna weight vector (AWV) of reception of the at least one frame.

7. The apparatus of claim 1, wherein the at least one frame comprises at least one of a Request to Send (RTS) frame or a Clear to Send (CTS) frame.
8. The apparatus of claim 1, wherein the information is carried in at least one of a header or a control trailer (CT) of the at least one frame.
9. The apparatus of claim 1, wherein the information is related to receive and transmit antenna gain reciprocity.
10. The apparatus of claim 1, wherein the information is related to a transmit power applied to an antenna and a receive and transmit antenna gain reciprocity.
11. The apparatus of claim 1, wherein the processing system is further configured to adjust the information based at least in part on at least one of an interference level allowed at the apparatus or an interference level encountered at the apparatus.
12. The apparatus of claim 11, wherein the interference level allowed at the apparatus depends on at least one of a receiver sensitivity or link quality between the apparatus and the second wireless node.
13. The apparatus of claim 1, wherein the processing system is further configured to perform transmit power control (TPC) when outputting the at least one frame for transmission.
14. An apparatus for wireless communications, comprising:
 - a first interface configured to obtain at least one first frame from a first wireless node that belongs to a distribution network;
 - a processing system configured to decide, based on information in the at least one first frame, that the apparatus is allowed to output frames for transmission during one or more time slots assigned to the first wireless node for reception of simplex communications in the distribution network and to generate at least one second frame;
 - and

a second interface configured to output the at least one second frame for transmission, during at least one of the one or more time slots, to a second wireless node that is not a member of the distribution network.

15. The apparatus of claim 14, wherein:
 - the information comprises an interference sensitivity factor (ISF); and
 - the processing system is configured to estimate, based at least on the ISF, a potential level of interference at the first wireless node due to communication between the apparatus and the second wireless node; and
 - the decision is based at least in part on the estimation.
16. The apparatus of claim 15, wherein:
 - the information further comprises an interference threshold; and
 - the processing system is configured to estimate the potential level of interference at the first wireless node due to communication between the apparatus and the second wireless node and decide the apparatus is allowed to communicate with the second wireless node during the one or more time slots if the estimated interference level is less than or equal to the interference threshold.
17. The apparatus of claim 14, wherein:
 - the information comprises a schedule of time slots assigned to the first wireless node for reception of simplex communications in the distribution network using a receive antenna pattern corresponding to an antenna transmit pattern used for transmission of the at least one second frame; and
 - the decision is based at least in part on the schedule.
18. The apparatus of claim 17, wherein the schedule indicates a start times and lengths of the time slots assigned to the first wireless node for reception of simplex communications in the distribution network.
19. The apparatus of claim 14, wherein:
 - the at least one first frame also comprises one or more training fields;

the processing system is configured to estimate at least one of a direction or an antenna weight vector (AWV) of reception of the at least one first frame based on the one or more training fields; and

the processing system is also configured to use the estimated direction or AWV to adjust transmit antenna settings for transmission during at least one of the one or more time slots.

20. The apparatus of claim 14, wherein:

the processing system is further configured to generate one or more third frames including information regarding time slots assigned to the first wireless node for reception of simplex communications in the distribution network during which the apparatus can estimate potential interference caused to the first wireless node by outputting the one or more third frames for transmission; and

the second interface is further configured to output the one or more third frames for transmission to the second wireless node that is not a member of the distribution network.

21. The apparatus of claim 14, wherein the processing system is further configured to take one or more actions to reduce the estimated potential level of interference at the first wireless node.

22. The apparatus of claim 21, wherein the one or more actions comprise performing transmit power control (TPC) when outputting the at least one second frame for transmission.

23. The apparatus of claim 21, wherein the one or more actions comprise changing an antenna configuration.

24. The apparatus of claim 23, wherein changing the antenna configuration comprises changing a beamforming configuration.

25. The apparatus of claim 23, wherein changing the antenna configuration comprises applying attenuation in a specific direction.

26. The apparatus of claim 23, wherein changing the antenna configuration comprises at least one of changing or switching at least one of an antenna module or antenna array.

27. A method for wireless communications by an apparatus, comprising:
generating at least one frame including information designed to enable one or more neighboring wireless nodes that are not part of a distribution network to communicate during one or more time slots assigned to the apparatus for simplex communications in the distribution network; and
outputting the frame for transmission during the one or more time slots.

28. A method for wireless communications by an apparatus, comprising:
obtaining at least one first frame from a first wireless node that belongs to a distribution network;
deciding, based on information in the frame, that the apparatus is allowed to output frames for transmission during one or more time slots assigned to the first wireless node for reception of simplex communications in the distribution network and to generate at least one second frame; and
outputting the second frame for transmission, during at least one of the one or more time slots, to a second wireless node that is not a member of the distribution network.