CLAIMS

1. An apparatus for wireless communications, comprising: a processing system configured to generate at least one first frame indicating a first number of beamforming transmit sectors for the apparatus to use for a first type of sector sweep procedure and a second number of beamforming transmit sectors for the apparatus to use for a second type of sector sweep procedure; and a first interface configured to output the at least one first frame for transmission to a wireless node.

2. The apparatus of claim 1, wherein the at least one first frame comprises a beamforming refinement phase (BRP) frame.

3. The apparatus of claim 1, further comprising: a second interface configured to obtain, from the wireless node, at least a second frame indicating a third number of beamforming transmit sectors for the wireless node to use for the first type of sector sweep procedure and a fourth number of beamforming transmit sectors for the wireless node to use for the second type of sector sweep procedure; and the processing system is further configured to detect a loss of a communication link with the wireless node and, after the detection, participate in the first type of sector sweep procedure according to the first number of transmit sectors and the third number of transmit sectors.

4. The apparatus of claim 1, wherein: the second type of sector sweep procedure uses a set of beamforming transmit sectors; and the first type of sector sweep procedure comprises a partial sector sweep procedure using only a subset of the set of beamforming transmit sectors used for the second type of sector sweep procedure.

5. The apparatus of claim 1, wherein: the at least one first frame also indicates a number of receive antennas for the apparatus to use for both the first type of sector sweep procedure and the second type of sector sweep procedure.

6. The apparatus of claim 1, wherein: the at least one first frame also indicates a request for the apparatus to change from an initiator role to a responder role for the first type of sector sweep procedure or from a responder role to an initiator role for the first type of sector sweep procedure; the apparatus further comprises a second interface configured to obtain, from the wireless node, at least a second frame indicating a response to the request; and the processing system is further configured to participate in the first type of sector sweep procedure in the initiator role or the responder role according to the response.

7. The apparatus of claim 1, wherein: the apparatus further comprises a second interface configured to obtain, from the wireless node, at least a second frame indicating a request from the wireless node for the apparatus to change from an initiator role to a responder role for the first type of sector sweep procedure or from a responder role to an initiator role for the first type of sector sweep procedure; the at least one first frame also indicates a response to the request;

and the processing system is further configured to participate in the first type of sector sweep procedure in the initiator role or the responder role according to the response.

8. The apparatus of claim 4, wherein: the processing system is further configured to detect a loss of a communication link with the wireless node; and the at least one first frame also includes an indication of a time, after the detection, to at least begin to participate in the partial sector sweep procedure with the wireless node.

9. The apparatus of claim 4, wherein: the processing system is further configured to detect a loss of a communication link with the wireless node; the at least one first frame also includes an indication of a time, the detection, to at least begin to participate in the second type of sector sweep procedure; and the processing system is further configured to participate in the second type of sector sweep procedure with the wireless node, according to the second number of transmit sectors if the communication link is not re-established by performing the partial sector sweep procedure before the time.

10. An apparatus for wireless communications, comprising: a first interface configured to obtain, from a wireless node, at least one first frame indicating a first number of beamforming transmit sectors for the wireless node to use for a first type of sector sweep procedure and a second number of beamforming transmit sectors for the wireless node to use for a second type of sector sweep procedure; and a processing system configured to detect a loss of a communication link with the wireless node and, after the detection, participate in the first type of sector sweep procedure with the wireless node, according to the first number of transmit sectors.

11. The apparatus of claim 10, wherein the processing system is further configured to participate in the second type of sector sweep procedure with the wireless node, according to the second number of transmit sectors if the communication link is not re-established by performing the first type of sector sweep.

12. The apparatus of claim 10, wherein the at least one first frame comprises a beamforming refinement phase (BRP) frame.

13. The apparatus of claim 10, further comprising a second interface, wherein: the processing system is further configured to generate at least a second frame indicating a third number of beamforming transmit sectors for the apparatus to use for the first type of sector sweep procedure and a fourth number of beamforming transmit sectors for the apparatus to use for the second type of sector sweep procedure; the second interface is configured to output the at least a second frame for transmission to the wireless node; and the processing system is further configured to detect a loss of a communication link with the wireless node and, after the detection, participate in the first type of sector sweep procedure according to the first number of transmit sectors and the third number of transmit sectors.

14. The apparatus of claim 10, wherein: the second type of sector sweep procedure uses a set of beamforming transmit sectors; and the first type of sector sweep procedure comprises a partial sector sweep procedure using a subset of the beamforming transmit sectors used for the second type of sector sweep procedure.

15. The apparatus of claim 10, wherein: the at least one first frame also indicates a number of receive antennas for the wireless node to use for both the first type of sector sweep procedure and the second type of sector sweep procedure.

16. The apparatus of claim 10, further comprising a second interface, wherein: the at least one first frame also indicates a request for the first wireless node to change from an initiator role to a responder role for the first type of sector sweep procedure or from a responder role to an initiator role for the first type of sector sweep procedure; the processing system is further configured to generate at least a second frame indicating a response to the request; the second interface is configured to output the at least a second frame for transmission to the first wireless node; and the processing system is configured to participate in the first type of sector sweep procedure according to the response.

17. The apparatus of claim 10, further comprising a second interface, wherein: the processing system is further configured to generate at least one second frame indicating a request from the apparatus for the first wireless node to change from an initiator role to a responder role for the first type of sector sweep procedure or from a responder role to an initiator role for the first type of sector sweep procedure; the second interface is configured to output the at least one second frame for transmission to the first wireless node; the at least one first frame also indicates a response to the request; and the processing system is configured to participate in the first type of sector sweep procedure according to the response.

18. The apparatus of claim 10, further comprising at least one antenna via which the at least one first frame is obtained, wherein the apparatus is configured as a wireless station.

19. The apparatus of claim 14, wherein: the processing system is further configured to detect a loss of a communication link with the wireless node, at a time indicated in the at least one first frame and, after the detection, begin to participate in the partial sector sweep procedure with the wireless node, at a time indicated in the at least one first frame.

20. The apparatus of claim 14, wherein: the processing system is further configured to detect a loss of a communication link with the wireless node and, after the detection, begin to participate in the second type of sector sweep procedure, at a time indicated in the at least one first frame if the communication link is not re-established by performing the partial sector sweep procedure.

21. A wireless station, comprising: a processing system configured to generate at least one first frame indicating a first number of beamforming transmit sectors for the wireless station to use for a first type of sector sweep procedure and a second number of beamforming transmit sectors

for the wireless station to use for a second type of sector sweep procedure; and a transmitter configured to transmit the at least one first frame to a wireless node.