CLAIMS

1. A first wireless transmit/receive unit (WTRU) comprising:

a processor configured to:

receive an indication of a first set of carriers for sidelink transmissions;

receive a message indicating a second set of carriers, wherein the second set of carriers are carriers where a second WTRU supports reception of sidelink transmissions;

select a plurality of carriers for a sidelink transmission, wherein the plurality of carriers are selected based on the first set of carriers and the second set of carriers, wherein the sidelink transmission is a groupcast or broadcast transmission; and

send the sidelink transmission via the plurality of carriers to at least one other WTRU, wherein the plurality of carriers comprises at least one carrier from the second set of carriers.

2. The first WTRU of claim 1, wherein the second WTRU does not support reception of sidelink transmissions on carriers other than the second set of carriers.

3. The first WTRU of claim 1, wherein the plurality of carriers comprises at least one carrier that is part of the first set of carriers but is not part of the second set of carriers.

4. The first WTRU of claim 1, wherein the first set of carriers comprise one or more carriers that the first WTRU is configured to send one or more sidelink transmissions.

5. The first WTRU of claim 1, wherein the processor is configured to:

select the plurality of carriers for the sidelink transmission based on a quality of service (QoS) associated with the sidelink transmission.

6. The first WTRU of claim 1, wherein the second set of carriers of the second WTRU are associated with a quality of service (QoS).

7. The first WTRU of claim 1, wherein the processor is configured to:

select the plurality of carriers for the sidelink transmission based on a received signal received power (RSRP) threshold associated with the sidelink transmission, wherein the plurality of carriers are selected based on a condition that the plurality of carriers have a measured RSRP that is above the RSRP threshold.

8. The first WTRU of claim 1, wherein the processor is configured to:

select the plurality of carriers for the sidelink transmission based on a channel busy ratio (CBR) threshold associated with the sidelink transmission, wherein the plurality of carriers are selected based on a condition that the plurality of carriers have a CBR that is below the CBR threshold.

9. The first WTRU of claim 1, wherein the processor is configured to:

select the plurality of carriers for the sidelink transmission based on a listen-before-talk (LBT) failure threshold associated with the sidelink transmission, wherein the plurality of carriers are selected based on a condition that the plurality of carriers experience LBT failure less than the LBT failure threshold over a preconfigured time period.

10. The first WTRU of claim 1, wherein the processor is configured to:

select the plurality of carriers for the sidelink transmission based on a hybrid automatic repeat request (HARQ) threshold associated with the sidelink transmission, wherein the plurality of carriers are selected based on a condition that the plurality of carriers have a ratio of ACK to NACK that is above the HARQ threshold.

11. A method performed by a first wireless transmit/receive unit (WTRU), the method comprising:

receiving an indication of a first set of carriers for sidelink transmissions;

receiving a message indicating a second set of carriers, wherein the second set of carriers are carriers where a second WTRU supports reception of sidelink transmissions;

selecting a plurality carriers for a sidelink transmission, wherein the plurality of carriers are selected based on the first set of carriers and the second set of carriers, wherein the sidelink transmission is a groupcast or broadcast transmission; and

sending the sidelink transmission via the plurality of carriers to at least one other WTRU, wherein the plurality of carriers comprises at least one carrier from the second set of carriers.

12. The method of claim 11, wherein the second WTRU does not support reception of sidelink transmissions on carriers other than the second set of carriers.

13. The method of claim 11, wherein the plurality of carriers comprises at least one carrier that is part of the first set of carriers but is not part of the second set of carriers.

14. The method of claim 11, wherein the first set of carriers comprise one or more carriers that the first WTRU is configured to send one or more sidelink transmissions.

15. The method of claim 11, wherein the method further comprises:

selecting the plurality of carriers for the sidelink transmission based on a quality of service (QoS) associated with the sidelink transmission.

16. The method of claim 11, wherein the second set of carriers of the second WTRU are associated with a quality of service (QoS).

17. The method of claim 11, wherein the method further comprises:

selecting the plurality of carriers for the sidelink transmission based on a received signal received power (RSRP) threshold associated with the sidelink transmission, wherein the plurality of carriers are selected based on a condition that the plurality of carriers have a measured RSRP that is above the RSRP threshold.

18. The method of claim 11, wherein the method further comprises:

selecting the plurality of carriers for the sidelink transmission based on a channel busy ratio (CBR) threshold associated with the sidelink transmission, wherein the plurality of carriers are selected based on a condition that the plurality of carriers have a CBR that is below the CBR threshold.

19. The method of claim 11, wherein the method further comprises:

selecting the plurality of carriers for the sidelink transmission based on a listen-before-talk (LBT) failure threshold associated with the sidelink transmission, wherein the plurality of carriers are selected based on a condition that the plurality of carriers experience LBT failure less than the LBT failure threshold over a preconfigured time period.

20. The method of claim 11, wherein the method further comprises:

selecting the plurality of carriers for the sidelink transmission based on a hybrid automatic repeat request (HARQ) threshold associated with the sidelink transmission, wherein the plurality of carriers are selected based on a condition that the plurality of carriers have a ratio of ACK to NACK that is above the HARQ threshold.