

CLAIMS

1. A method for wireless communications at a user equipment (UE), comprising:
 - communicating, by the UE, with a satellite via a first beam associated with a first frequency transmitted by the satellite;
 - receiving, by the UE from the satellite, configuration information comprising a list of a plurality of beams transmitted by the satellite that are associated with a plurality of frequencies, the plurality of beams comprising at least the first beam and a second beam associated with a second frequency transmitted by the satellite, wherein the plurality of frequencies comprises at least the first frequency and the second frequency;
 - receiving, by the UE from the satellite, a synchronization signal for the first beam, the synchronization signal indicating a timing configuration for communications between the UE and the satellite via the first beam, wherein the timing configuration indicates both an upstream timing configuration and a downstream timing configuration;
 - determining, by the UE based at least in part on receiving the synchronization signal for the first beam, whether the timing configuration indicated via the synchronization signal for the communications between the UE and the satellite via the first beam associated with the first frequency is common for both the communications between the UE and the satellite via the first beam associated with the first frequency and for communications between the UE and the satellite via the second beam associated with the second frequency;
 - receiving, by the UE from the satellite, an indication for the UE to perform a handover procedure to transition from communicating with the satellite via the first beam associated with the first frequency to communicating with the satellite via the second beam associated with the second frequency, the indication transmitted by the satellite based at least in part on a motion of the UE relative to the satellite; and
 - after transitioning to the second beam, communicating, by the UE, with the satellite via the second beam while using the timing configuration that is common for the communications between the UE and the satellite via the first beam associated with the first frequency and for the communications between the UE and the satellite via the second beam

associated with the second frequency, wherein the UE previously determined the timing configuration based at least in part on the synchronization signal received for the first beam.

2. The method of claim 1, further comprising:

receiving, by the UE from the satellite via a downstream control channel, a grant for a shared channel that includes a beam identifier (ID) for one of the plurality of beams transmitted by the satellite.

3. The method of claim 2, wherein receiving the indication to transition

from communicating with the satellite via the first beam to communicating with the satellite via the second beam comprises:

determining, by the UE, that the grant for the shared channel includes a beam ID for the second beam associated with the second frequency.

4. The method of claim 1, wherein receiving the indication to transition

from communicating with the satellite via the first beam to communicating with the satellite via the second beam comprises:

receiving, by the UE from the satellite, a media access control (MAC) control element (MAC-CE) that includes a beam identifier (ID) for the second beam associated with the second frequency.

5. The method of claim 1, wherein receiving the indication to transition

from communicating with the satellite via the first beam to communicating with the satellite via the second beam comprises:

receiving, by the UE from the satellite, an indication of a time limit for the communications by the first beam associated with the first frequency.

6. The method of claim 5, wherein receiving the indication to transition

from communicating with the satellite via the first beam associated with the first frequency to communicating with the satellite via the second beam associated with the second frequency further comprises:

receiving, by the UE from the satellite, an ordered sequence of beams transmitted by the satellite; and

identifying, by the UE, the second beam associated with the second frequency based at least in part on the ordered sequence of beams.

7. The method of claim 1, further comprising:

receiving, by the UE from the satellite and prior to receiving the indication to transition from communicating with the satellite via the first beam associated with the first frequency to communicating with the satellite via the second beam, an indication of a frequency of the second beam that indicates that the second beam is associated with the second frequency, wherein communicating with the satellite via the second beam is based at least in part on the indication of the second frequency associated with the second beam.

8. The method of claim 1, further comprising:

transmitting, by the UE to the satellite while communicating with the satellite via the first beam associated with the first frequency, channel quality information regarding the first beam associated with the first frequency and the second beam associated with the second frequency transmitted by the satellite.

9. The method of claim 1, wherein:

a first cell corresponds to a first set of one or more beams transmitted by the satellite at the first frequency, the first set of one or more beams comprising at least the first beam; and

a second cell corresponds to a second set of one or more beams transmitted by the satellite at the second frequency, the second set of one or more beams comprising at least the second beam.

10. A method for wireless communications at a user equipment (UE), comprising:

communicating, by the UE, with a satellite via a first beam associated with a first frequency;

receiving, by the UE from the satellite, configuration information comprising a list of a plurality of beams used by the satellite that are associated with a plurality of frequencies, the plurality of beams comprising at least the first beam and a second beam associated with a

second frequency used by the satellite, wherein the plurality of frequencies comprises at least the first frequency and the second frequency;

receiving, by the UE from the satellite, a synchronization signal for the first beam, the synchronization signal indicating a timing configuration for communications between the UE and the satellite via the first beam, wherein the timing configuration indicates both an upstream timing configuration and a downstream timing configuration;

determining, by the UE based at least in part on receiving the synchronization signal for the first beam, whether the timing configuration indicated via the synchronization signal for the communications between the UE and the satellite via the first beam associated with the first frequency is common for both the communications between the UE and the satellite via the first beam associated with the first frequency and for communications between the UE and the satellite via the second beam associated with the second frequency;

determining, by the UE, to perform a handover procedure to transition from communicating with the satellite via the first beam associated with the first frequency to communicating with the satellite via the second beam associated with the second frequency based at least in part on a motion of the UE relative to the satellite; and

after transitioning to the second beam, transmitting, by the UE, an upstream transmission to the satellite via the second beam while using the timing configuration that is common for the communications between the UE and the satellite via the first beam associated with the first frequency and for the communications between the UE and the satellite via the second beam associated with the second frequency, wherein the upstream transmission is in accordance with the upstream timing configuration indicated via the timing configuration, and wherein the UE previously determined the timing configuration based at least in part on the synchronization signal received for the first beam.

11. The method of claim 10, wherein transmitting the upstream transmission comprises:

determining, by the UE, a timing configuration of an upstream control channel of the second beam based at least in part on the timing configuration for the communications with the satellite via the first beam and on the timing configuration indicating the upstream timing configuration; and

transmitting, by the UE to the satellite, an access request via the upstream control channel of the second beam.

12. The method of claim 11, wherein:

the access request comprises at least one of a UE identifier (ID), a beam ID for the first beam, or a beam ID for the second beam associated with the second frequency.

13. The method of claim 10, further comprising:

monitoring, by the UE, a downstream control channel of the second beam associated with the second frequency for a denial of access to the second beam, wherein the monitoring is in accordance with the downstream timing configuration indicated via the timing configuration;

determining, by the UE, an absence of the denial; and

communicating, by the UE, with the satellite via the second beam associated with the second frequency based at least in part on determining the absence of the denial.

14. The method of claim 10, further comprising:

receiving, by the UE and from the satellite via a downstream control channel of the second beam associated with the second frequency, a denial of access to the second beam in accordance with the downstream timing configuration indicated via the timing configuration;

determining, by the UE, to return to the first beam associated with the first frequency based at least in part on receiving the denial; and

communicating, by the UE, with the satellite via the first beam associated with the first frequency based at least in part on the determination to return and the timing configuration for the communications with the satellite via the first beam.

15. The method of claim 14, wherein receiving the denial comprises:

receiving, by the UE from the satellite, a downstream control message that includes at least one of a denial message or an allocation of shared resources that grants no resources to the UE, wherein the downstream control message is received in accordance with the downstream timing configuration indicated via the timing configuration.

16. The method of claim 14, wherein receiving the denial comprises:
monitoring, by the UE and for a duration after transmitting the upstream transmission via the second beam associated with the second frequency, the downstream control channel of the second beam for a grant of resources of a shared channel of the second beam, wherein the monitoring is in accordance with the downstream timing configuration indicated via the timing configuration; and

determining, by the UE, an absence of the grant from the downstream control channel during the duration.

17. The method of claim 10, further comprising:
receiving, by the UE from the satellite, an indication of a time limit for the communications via the first beam associated with the first frequency;
receiving, by the UE from the satellite, an ordered sequence of beams within the plurality of beams supported by the satellite; and
determining, by the UE, to transition from communicating with the satellite via the first beam associated with the first frequency to communicating with the satellite via the second beam associated with the second frequency based at least in part on the time limit and the ordered sequence of beams.

18. The method of claim 10, further comprising:
determining, by the UE, a location of at least one of the satellite or the UE; and
determining, by the UE, to transition from communicating with the satellite via the first beam associated with the first frequency to communicating with the satellite via the second beam associated with the second frequency based at least in part on the location.

19. The method of claim 10, further comprising:
monitoring, by the UE while communicating by the first beam associated with the first frequency, a channel quality associated with the second beam associated with the second frequency; and
determining, by the UE, to transition from communicating with the satellite via the first beam associated with the first frequency to communicating with the satellite via the

second beam associated with the second frequency based at least in part on the channel quality associated with the second beam.

20. A method for wireless communications at a user equipment (UE), comprising:
 - communicating, by the UE, with a satellite using a first bandwidth part (BWP) of a cell comprising a plurality of BWPs, the first BWP being associated with a first frequency;
 - receiving, by the UE from the satellite while using the first BWP, configuration information for each of the plurality of BWPs of the cell, the plurality of BWPs comprising at least the first BWP and a second BWP of the cell, wherein the second BWP is associated with a second frequency, and wherein the configuration information comprises a frequency for each of the plurality of BWPs of the cell comprising at least the first frequency and the second frequency;
 - receiving, by the UE from the satellite and after receiving the configuration information for each of the plurality of BWPs of the cell, an indication to perform a handover procedure to transition from communicating with the satellite via the first BWP of the cell associated with the first frequency to communicating with the satellite via the second BWP of the cell associated with the second frequency based at least in part on a motion of the UE relative to the satellite; and
 - after transitioning to the second BWP associated with the second frequency, communicating, by the UE with the satellite using the second BWP of the cell while using a timing configuration that is common for both communications between the UE and the satellite via the first BWP associated with the first frequency and for communications between the UE and the satellite via the second BWP associated with the second frequency, the communicating further using the configuration information that the UE previously received for the second BWP while using the first BWP, wherein the timing configuration indicates both an upstream timing configuration and a downstream timing configuration.

21. The method of claim 20, wherein receiving the indication to transition from communicating with the satellite via the first BWP associated with the first frequency of

the cell to communicating with the satellite via the second BWP associated with the second frequency of the cell comprises:

receiving, by the UE from the satellite via a downstream control channel, a grant for a shared channel, wherein the grant includes an identifier (ID) of the second BWP associated with the second frequency of the cell, wherein the grant for the shared channel is received in accordance with the downstream timing configuration indicated via the timing configuration.

22. The method of claim 20, wherein receiving the indication to transition from communicating with the satellite via the first BWP associated with the first frequency of the cell to communicating with the satellite via the second BWP associated with the second frequency of the cell comprises:

receiving, by the UE from the satellite, the indication to transition from communicating with the satellite via the first BWP associated with the first frequency of the cell to communicating with the satellite via the second BWP associated with the second frequency of the cell via at least one of radio resource control (RRC) signaling or a media access control (MAC) control element (MAC-CE).

23. The method of claim 20, further comprising:

receiving, by the UE from the satellite, an indication of a time limit for the communications using the first BWP associated with the first frequency of the cell, wherein the indication of the time limit comprises the indication to transition from communicating with the satellite via the first BWP of the cell to communicating with the satellite via the second BWP associated with the second frequency of the cell;

receiving, by the UE from the satellite, an ordered sequence of BWPs of the cell;
and

identifying, by the UE, the second BWP associated with the second frequency of the cell based at least in part on the ordered sequence of BWPs.

24. The method of claim 20, wherein communicating with the satellite using the second BWP associated with the second frequency of the cell comprises:

using, by the UE, the second BWP associated with the second frequency of the cell for both upstream and downstream communications with the satellite in accordance with

both the upstream timing configuration and the downstream timing configuration indicated via the timing configuration.

25. The method of claim 20, wherein:

the first BWP associated with the second frequency of the cell is one of a first set of BWPs, the first set of BWPs comprising a first pair of downstream and upstream BWPs;

communicating with the satellite using the first set of BWPs comprises using, by the UE, the first pair of downstream and upstream BWPs in accordance with the upstream timing configuration and the downstream timing configuration indicated via the timing configuration;

the second BWP associated with the second frequency of the cell is one of a second set of BWPs, the second set of BWPs comprising a second pair of downstream and upstream BWPs; and

communicating with the satellite using the second set of BWPs comprises using, by the UE, the second pair of downstream and upstream BWPs in accordance with the upstream timing configuration and the downstream timing configuration indicated via the timing configuration.

26. The method of claim 20, further comprising:

determining, by the UE while using the first BWP associated with the second frequency of the cell, channel quality information for the second BWP associated with the second frequency of the cell; and

transmitting, by the UE to the satellite while using the first BWP associated with the second frequency of the cell, the channel quality information for the second BWP associated with the second frequency of the cell.

27. The method of claim 20, wherein:

the first BWP associated with the second frequency of the cell corresponds to a first beam transmitted by the satellite at the first frequency; and

the second BWP associated with the second frequency of the cell corresponds to a second beam transmitted by the satellite at the second frequency.

28. The method of claim 27, wherein the cell comprises all beams transmitted by the satellite.

29. A method for wireless communications at a user equipment (UE), comprising:

- communicating, by the UE, with a satellite using a first bandwidth part (BWP) of a cell comprising a plurality of BWPs, the first BWP being associated with a first frequency;
- receiving, by the UE from the satellite while using the first BWP, configuration information for each of the plurality of BWPs of the cell, the plurality of BWPs comprising at least the first BWP and a second BWP of the cell, wherein the second BWP is associated with a second frequency, and wherein the configuration information comprises a frequency for each of the plurality of BWPs of the cell comprising at least the first frequency and the second frequency;
- determining, by the UE, to perform a handover procedure to transition from communicating with the satellite via the first BWP of the cell associated with the first frequency to communicating with the satellite via the second BWP of the cell associated with the second frequency based at least in part on a motion of the UE relative to the satellite; and
- after transitioning to the second BWP associated with the second frequency, transmitting, by the UE, an upstream transmission to the satellite using the second BWP of the cell and a timing configuration that is common for both communications between the UE and the satellite via the first BWP associated with the first frequency and for communications between the UE and the satellite via the second BWP associated with the second frequency, the communicating further using the configuration information that the UE previously received for the second BWP while using the first BWP, wherein the timing configuration indicated both an upstream timing configuration and a downstream timing configuration, and wherein the upstream is in accordance with the upstream timing configuration indicated via the timing configuration.

30. The method of claim 29, wherein transmitting the upstream transmission comprises:

- determining, by the UE, a configuration of an upstream control channel of the second BWP associated with the second frequency of the cell based at least in part on the configuration information for the second BWP of the cell; and
- transmitting, by the UE to the satellite, an access request via the upstream control channel of the second BWP associated with the second frequency of the cell.

31. The method of claim 30, wherein:

the access request comprises at least one of a UE identifier (ID), a BWP ID for the first BWP associated with the first frequency, or a BWP ID for the second BWP associated with the second frequency.

32. The method of claim 29, wherein transmitting the upstream transmission comprises:

determining, by the UE, a configuration of an upstream shared channel of the second BWP associated with the second frequency of the cell based at least in part on the configuration information for the second BWP of the cell; and

transmitting, by the UE to the satellite, a grant-free transmission via the upstream shared channel of the second BWP associated with the second frequency of the cell.

33. The method of claim 29, further comprising:

receiving, by the UE from the satellite, an indication of a time limit for the communications using the first BWP associated with the first frequency of the cell;

receiving, by the UE from the satellite, an ordered sequence of the plurality of BWPs of the cell; and

determining, by the UE, to transition from communicating with the satellite via the first BWP associated with the first frequency of the cell to communicating with the satellite via the second BWP associated with the second frequency of the cell based at least in part on the time limit and the ordered sequence.

34. The method of claim 29, further comprising:

determining, by the UE, a location of at least one of the satellite or the UE; and

determining, by the UE, to transition from communicating with the satellite via the first BWP associated with the first frequency of the cell to communicating with the satellite via the second BWP associated with the second frequency of the cell based at least in part on the location.

35. The method of claim 29, further comprising:

monitoring, by the UE while communicating with the satellite using the first BWP of the cell, a channel quality associated with the second BWP of the cell; and

determining, by the UE, to transition from communicating with the satellite via the first BWP associated with the first frequency of the cell to communicating with the satellite via the second BWP associated with the second frequency of the cell based at least in part on the channel quality associated with the second BWP of the cell.

36. The method of claim 29, wherein:

the first BWP associated with the first frequency of the cell is one of a first set of BWPs, the first set of BWPs comprising a first pair of downstream and upstream BWPs;

the second BWP associated with the second frequency of the cell is one of a second set of BWPs, the second set of BWPs comprising a second pair of downstream and upstream BWPs; and

determining to transition from communicating with the satellite via the first BWP associated with the first frequency of the cell to communicating with the satellite via the second BWP associated with the second frequency of the cell comprises determining, by the UE, to transition from using the first pair of downstream and upstream BWPs to using the second pair of downstream and upstream BWPs.

37. The method of claim 29, wherein:

the first BWP associated with the first frequency of the cell corresponds to a first beam transmitted by the satellite via the first frequency; and

the second BWP associated with the second frequency of the cell corresponds to a second beam transmitted by the satellite via the second frequency.