CLAIMS

What is claimed is:

~~1. A method for wireless communications at a user equipment (UE), comprising:~~

~~determining to establish a communication link between the UE and a serving cell of a base station;~~

~~selecting, by the UE to establish the communication link, a first beam of a plurality of candidate beams of the serving cell; and~~

~~transmitting, to the base station, an indication of the selected first beam in a media access control (MAC) control element on an uplink resource based at least in part on a comparison of a timing of an availability of the uplink resource to a threshold value.~~

~~2. The method of claim 1, further comprising:~~

~~initiating a request for uplink resources for transmitting, to the base station, the indication of the selected first beam.~~

~~3. The method of claim 2, further comprising:~~

~~transmitting the request on uplink control resources that indicate, to the base station, a beam of the serving cell that has failed; and~~

~~receiving, from the base station in response to the transmitted request, an indication of uplink resources in a second serving cell for the UE to use to transmit the indication of the selected first beam.~~

~~4. The method of claim 2, wherein the request comprises a configuration of uplink control resources that are associated with beam failure recovery procedure, the method further comprising:~~

~~transmitting the request on dedicated uplink control resources configured to indicate, to the base station, a beam or a plurality of beams configured for the serving cell that have failed; and~~

~~receiving, from a second serving cell of the base station in response to the transmitted request, downlink control information indicating uplink resources of the second serving cell for the UE to use to transmit the indication of the selected first beam.~~

5. The method of claim 2, further comprising:

transmitting the request on uplink control resources of a transmission occasion, the uplink control resources indicating, to the base station, that a beam of the serving cell has failed, and the transmission occasion of the uplink control resources associated with a set of serving cells to indicate the serving cell on which the beam has failed; and

receiving, from the base station in response to the transmitted request, an indication of uplink resources in a second serving cell different than the serving cell for the UE to use to transmit the indication of the selected first beam.

6. The method of claim 2, wherein the request comprises a random access message of a random access procedure to establish the communication link between the UE and the serving cell of the base station.

7. The method of claim 1, wherein determining to establish the communication link comprises:

communicating with the base station via the communication link;

identifying a beam failure for the communication link between the UE the serving cell; and

determining to establish the communication link between the UE and the serving cell based at least in part on the identified beam failure.

8. The method of claim 1, wherein transmitting the indication of the selected first beam in the MAC control element based at least in part on the comparison comprises:

obtaining the uplink resource for the UE to transmit the indication of the first beam;

comparing a threshold number of slots to a number of slots between a current time and the uplink resource, wherein the threshold value comprises the threshold number of slots;

determine the availability of the uplink resource based at least in part on the number of slots between the current time and the uplink resource being less than the threshold number of slots; and

~~transmitting, based at least in part on the determined availability indicating that the number of slots between the current time and the uplink resource is less than the threshold number of slots, the indication of the selected first beam in the MAC control element.~~

~~9. The method of claim 1, wherein transmitting the indication of the selected first beam in the MAC control element based at least in part on the comparison comprises:~~

~~obtaining the uplink resource for the UE to transmit the indication of the first beam;~~

~~comparing a threshold number of slots to a number of slots between a current time and the uplink resource, wherein the threshold value comprises the threshold number of slots;~~

~~determine the availability of the uplink resource based at least in part on the number of slots between the current time and the uplink resource being less than the threshold number of slots;~~

~~transmitting a request for uplink resources to the base station based at least in part on the determined availability indicating that the number of slots between the current time and the uplink resource is greater than the threshold number of slots;~~

~~receiving an indication of the uplink resources in response to the transmitted request; and~~

~~transmitting, on the indicated uplink resources, the indication of the selected first beam in the MAC control element.~~

~~10. The method of claim 9, further comprising:~~

~~receiving a configuration for beam failure recovery, the request for the uplink resources transmitted based at least in part on the received configuration.~~

~~11. The method of claim 9, wherein transmitting the request for the uplink resources to the base station comprises:~~

~~transmitting a scheduling request sequence indicating the request to the base station.~~

12. The method of claim 11, wherein the scheduling request sequence is transmitted on the uplink resources corresponding to a highest priority logical channel configured for the UE.

13. The method of claim 1, wherein transmitting the indication of the selected first beam comprises:

transmitting, to the base station, the MAC control element in a random access message of a random access procedure.

14. The method of claim 1, further comprising:

determining that a second beam of the plurality of candidate beams is available to transmit the indication of the first beam prior to the availability of the uplink resource by at least the threshold value, wherein the uplink resource comprises the first beam, and the indication of the selected first beam is transmitted in a MAC control element on the second beam based at least in part on the determination that the second beam is available.

15. The method of claim 14, wherein the indication of the selected first beam is transmitted on the second beam in a first message of a two-step random access procedure.

16. The method of claim 14, wherein the indication of the selected first beam is transmitted on the second beam in a connection request message of a four-step random access procedure.

17. The method of claim 1, further comprising:

performing a logical channel prioritization procedure for a MAC protocol data unit comprising the MAC control element, wherein the logical channel prioritization procedure provides a priority for the MAC control element greater than each other MAC control element of the MAC protocol data unit, greater than data of the MAC protocol data unit, and less than information of a common control channel message of the MAC protocol data unit.

18. The method of claim 1, further comprising:

initiating a timer and a counter based at least in part on determining to establish the communication link;

incrementing the counter based at least in part on transmitting the indication of the selected first beam; and

retransmitting the indication of the selected first beam in the MAC control element based at least in part on the timer expiring before a message is received on the selected first beam and the counter being below a counter threshold.

19. An apparatus for wireless communications at a user equipment (UE), comprising:

means for determining to establish a communication link between the UE and a serving cell of a base station;

means for selecting, by the UE to establish the communication link, a first beam of a plurality of candidate beams of the serving cell; and

means for transmitting, to the base station, an indication of the selected first beam in a media access control (MAC) control element on an uplink resource based at least in part on a comparison of a timing of an availability of the uplink resource to a threshold value.

20. The apparatus of claim 19, further comprising:

means for initiating a request for uplink resources for transmitting, to the base station, the indication of the selected first beam.

21. The apparatus of claim 20, wherein the request comprises a configuration of uplink control resources that are associated with beam failure recovery procedure, the apparatus further comprising:

means for transmitting the request on dedicated uplink control resources configured to indicate, to the base station, a beam or a plurality of beams configured for the serving cell that have failed; and

means for receiving, from a second serving cell of the base station in response to the transmitted request, downlink control information indicating uplink resources of the second serving cell for the UE to use to transmit the indication of the selected first beam.

22. The apparatus of claim 19, wherein the means for transmitting the indication of the selected first beam in the MAC control element based at least in part on the comparison further comprise:

means for obtaining the uplink resource for the UE to transmit the indication of the first beam;

means for comparing a threshold number of slots to a number of slots between a current time and the uplink resource, wherein the threshold value comprises the threshold number of slots;

means for determining the availability of the uplink resource based at least in part on the number of slots between the current time and the uplink resource being less than the threshold number of slots; and

means for transmitting, based at least in part on the determined availability indicating that the number of slots between the current time and the uplink resource is less than the threshold number of slots, the indication of the selected first beam in the MAC control element.

23. The apparatus of claim 19, wherein the means for transmitting the indication of the selected first beam in the MAC control element based at least in part on the comparison comprise:

means for obtaining the uplink resource for the UE to transmit the indication of the first beam;

means for comparing a threshold number of slots to a number of slots between a current time and the uplink resource, wherein the threshold value comprises the threshold number of slots;

means for determining the availability of the uplink resource based at least in part on the number of slots between the current time and the uplink resource being less than the threshold number of slots;

means for transmitting a request for uplink resources to the base station based at least in part on the determined availability indicating that the number of slots between the current time and the uplink resource is greater than the threshold number of slots;

means for receiving an indication of the uplink resources in response to the transmitted request; and

means for transmitting, on the indicated uplink resources, the indication of the selected first beam in the MAC control element.

24. The apparatus of claim 23, further comprising:

means for receiving a configuration for beam failure recovery, the request for the uplink resources transmitted based at least in part on the received configuration.

25. The apparatus of claim 23, wherein the means for transmitting the request for the uplink resources to the base station further comprise:

means for transmitting a scheduling request sequence indicating the request to the base station.

26. The apparatus of claim 19, further comprising:

means for determining that a second beam of the plurality of candidate beams is available to transmit the indication of the first beam prior to the availability of the uplink resource by at least the threshold value, wherein the uplink resource comprises the first beam, and the indication of the selected first beam is transmitted in a MAC control element on the second beam based at least in part on the determination that the second beam is available.

27. The apparatus of claim 19, further comprising:

means for performing a logical channel prioritization procedure for a MAC protocol data unit comprising the MAC control element, wherein the logical channel prioritization procedure provides a priority for the MAC control element greater than each other MAC control element of the MAC protocol data unit, greater than data of the MAC protocol data unit, and less than information of a common control channel message of the MAC protocol data unit.

28. The apparatus of claim 19, further comprising:

means for initiating a timer and a counter based at least in part on determining to establish the communication link;

means for incrementing the counter based at least in part on transmitting the indication of the selected first beam; and

means for retransmitting the indication of the selected first beam in the MAC control element based at least in part on the timer expiring before a message is received on the selected first beam and the counter being below a counter threshold.

29. An apparatus for wireless communications at a user equipment (UE), comprising:

a processor,

memory coupled with the processor; and

~~instructions stored in the memory and executable by the processor to cause the apparatus to:~~

~~determine to establish a communication link between the UE and a serving cell of a base station;~~

~~select, by the UE to establish the communication link, a first beam of a plurality of candidate beams of the serving cell; and~~

~~transmit, to the base station, an indication of the selected first beam in a media access control (MAC) control element on an uplink resource based at least in part on a comparison of a timing of an availability of the uplink resource to a threshold value.~~

~~30. A non-transitory computer-readable medium storing code for wireless communications at a user equipment (UE), the code comprising instructions executable by a processor to:~~

~~determine to establish a communication link between the UE and a serving cell of a base station;~~

~~select, by the UE to establish the communication link, a first beam of a plurality of candidate beams of the serving cell; and~~

~~transmit, to the base station, an indication of the selected first beam in a media access control (MAC) control element on an uplink resource based at least in part on a comparison of a timing of an availability of the uplink resource to a threshold value.~~

1. An invention not claimed in any divisional application.