

CLAIMS

What is claimed is:

1. A method comprising:

transmitting, by a wireless device (156), a first preamble via a cell;

receiving a downlink grant for a random access response;

determining a failure to receive the random access response;

determining, based on the failure and a time alignment timer of the cell, an uplink signal for transmission via the cell, wherein the uplink signal is one of a second preamble and a negative acknowledgement; and

transmitting the uplink signal;

wherein the uplink signal comprises the second preamble in response to the time alignment timer, associated with the cell, not being running, and wherein the uplink signal comprises the negative acknowledgement in response to the time alignment timer being running.

2. The method of claim 1, wherein transmitting the first preamble comprises transmitting a first message comprising the first preamble and a first transport block.

3. The method of claim 2, wherein the first transport block comprises a cell radio network temporary identifier, C-RNTI, of the wireless device, and wherein receiving the downlink grant comprises receiving, based on the C-RNTI, downlink control information comprising the downlink grant.

4. The method of any one of claims 1 to 3, wherein the determining the failure is based on failing to decode the random access response.

5. A wireless device (156) comprising one or more processors and memory storing instructions that, when executed by the one or more processors, cause the wireless device to perform the method of any one of claims 1 to 4.

6. A non-transitory computer-readable storage medium comprising instructions that, when executed by one or more processors, cause the one or more processors to carry out the method of any one of claims 1 to 4.

7. A method comprising:

receiving, by a base station (160), a first preamble via a cell;

transmitting a downlink grant for a random access response; and

receiving an uplink signal, wherein the uplink signal comprises, based on a failure of a wireless device to receive the random access response and a time alignment timer of the cell, one of a second preamble and a negative acknowledgement;

wherein the uplink signal comprises a second preamble in response to the time alignment timer associated with the cell not running, and wherein the uplink signal comprises the negative

acknowledgement in response to the time alignment timer being running.

8. The method of claim 7, wherein receiving the first preamble comprises receiving a first message comprising the first preamble and a first transport block.

9. The method of claim 8, wherein the first transport block comprises a cell radio network temporary identifier, C-RNTI, of a wireless device, and wherein transmitting the downlink grant comprises transmitting, based on the C-RNTI, downlink control information comprising the downlink grant.

10. The method of any one of claims 7 to 9, wherein the failure of the wireless device to receive the random access response is based on failing to decode the random access response.

11. A base station (160) comprising:

one or more processors; and

memory storing instructions that, when executed by the one or more processors, cause the base station to perform the method of any one of claims 7 to 10.

12. A non-transitory computer-readable medium comprising instructions that, when executed by one or more processors, cause the one or more processors to perform the method of any one of claims 7 to 10.

13. A system comprising:

a base station (160) comprising: one or more first processors and first memory storing first instructions that, when executed by the one or more first processors, cause the base station to:

receive a first preamble via a cell; and

transmit a downlink grant for a random access response; and

a wireless device (156) comprising: one or more second processors; and second memory storing second instructions that, when executed by the one or more second processors, cause the wireless device to:

transmit, to the base station, the first preamble via the cell;

receive, from the base station, the downlink grant for the random access response;

determine a failure to receive the random access response;

determine, based on the failure and a time alignment timer of the cell, an uplink signal for transmission via the cell, wherein the uplink signal is one of a second preamble and a negative acknowledgement; and

transmit the uplink signal to the base station;

wherein the uplink signal comprises the second preamble in response to the time alignment timer, associated with the cell, not being running, and wherein the uplink signal comprises the negative acknowledgement in response to the time alignment timer being running.