

CLAIMS

What is claimed is:

- 1 **1.** A method for wireless communication, comprising:
2 transmitting a first random access signal at a first transmit power during a first
3 time period associated with a first beam direction;
4 determining that a random access response to the first random access signal
5 has not been received;
6 selecting one or more of a second transmit power and a second beam direction
7 based at least in part on the determination; and
8 transmitting a second random access signal using one or more of the second
9 transmit power and the second beam direction during a second time period.
- 1 **2.** The method of claim 1, further comprising:
2 determining that a second random access response to the second random
3 access signal has not been received; and
4 continuing to transmit additional random access signals until a corresponding
5 additional random access response is received, wherein successive additional random access
6 signals are alternately transmitted based on either an updated preferred beam direction or an
7 increased transmit power.
- 1 **3.** The method of claim 1, further comprising:
2 identifying a preferred beam direction based at least in part on the
3 determination that the random access response to the first random access signal has not been
4 received, wherein the preferred beam direction is not equal to the first beam direction.
- 1 **4.** The method of claim 3, further comprising:
2 identifying a next random access time period, wherein the preferred beam
3 direction is selected based at least in part on the next random access period including a
4 random access opportunity corresponding to the preferred beam direction.
- 1 **5.** The method of claim 3, further comprising:
2 determining a channel metric for each of a plurality of beam directions,
3 wherein the preferred beam direction is selected based at least in part on the channel metric
4 for each of the plurality of beam directions.

1 **6.** The method of claim 3, further comprising:
2 determining a channel metric for each of the plurality of beam directions that
3 has a corresponding random access opportunity in a next random access period, wherein the
4 preferred beam direction is selected based at least in part on a beam strength for each of the
5 plurality of beam directions that has a corresponding random access opportunity in a next
6 random access period.

1 **7.** The method of claim 3, wherein
2 the second transmit power is greater than the first transmit power and the
3 second beam direction is equal to the first beam direction.

1 **8.** The method of claim 7, further comprising:
2 determining that a second random access response to the second random
3 access signal has not been received;
4 identifying an updated preferred beam direction that is not equal to the first
5 beam direction;
6 transmitting a third random access signal using the updated preferred beam
7 direction and the second transmit power.

1 **9.** The method of claim 8, further comprising:
2 determining that a third random access response to the third random access
3 signal has not been received;
4 selecting a third transmit power that is greater than the second transmit power;
5 and
6 transmitting a fourth random access signal using the updated preferred beam
7 direction and the third transmit power.

1 **10.** The method of claim 3, wherein the second transmit power is equal to
2 the first transmit power and the second beam direction is equal to the preferred beam
3 direction.

1 **11.** The method of claim 3, wherein the second transmit power is greater
2 than the first transmit power and the second beam direction is equal to the preferred beam
3 direction.

1 **12.** The method of claim 1, further comprising:
2 receiving a power ramp up configuration from a base station, wherein the
3 second transmit power and the second beam direction are based at least in part on the power
4 ramp up indication.

1 **13.** The method of claim 12, wherein the power ramp up configuration is
2 transmitted in a system information block (SIB) message

1 **14.** An apparatus for wireless communication, in a system comprising:
2 a processor;
3 memory in electronic communication with the processor; and
4 instructions stored in the memory and operable, when executed by the
5 processor, to cause the apparatus to:
6 transmit a first random access signal at a first transmit power during a first
7 time period associated with a first beam direction;
8 determine that a random access response to the first random access signal has
9 not been received;
10 select one or more of a second transmit power and a second beam direction
11 based at least in part on the determination; and
12 transmit a second random access signal using one or more of the second
13 transmit power and the second beam direction during a second time period.

1 **15.** The apparatus of claim 14, wherein the instructions are further
2 executable by the processor to:
3 identify a preferred beam direction based at least in part on the determination
4 that the random access response to the first random access signal has not been received,
5 wherein the preferred beam direction is not equal to the first beam direction.

1 **16.** The apparatus of claim 15, wherein the instructions are further
2 executable by the processor to:
3 identify a next random access time period, wherein the preferred beam
4 direction is selected based at least in part on the next random access period including a
5 random access opportunity corresponding to the preferred beam direction.

1 **17.** The apparatus of claim 15, wherein the instructions are further
2 executable by the processor to:
3 determine a channel metric for each of a plurality of beam directions, wherein
4 the preferred beam direction is selected based at least in part on the channel metric for each
5 of the plurality of beam directions.

1 **18.** The apparatus of claim 15, wherein the instructions are further
2 executable by the processor to:
3 determine a channel metric for each of the plurality of beam directions that has
4 a corresponding random access opportunity in a next random access period, wherein the
5 beam direction is selected based at least in part on a beam strength for each of the plurality of
6 beam directions that has a corresponding random access opportunity in a next random access
7 period.

1 **19.** The apparatus of claim 15, wherein the second transmit power is
2 greater than the first transmit power and the second beam direction is equal to the first beam
3 direction.

1 **20.** The apparatus of claim 15, wherein the second transmit power is equal
2 to the first transmit power and the second beam direction is equal to the preferred beam
3 direction.

1 **21.** The apparatus of claim 15, wherein the second transmit power is
2 greater than the first transmit power and the second beam direction is equal to the preferred
3 beam direction.

1 **22.** The apparatus of claim 14, wherein the instructions are further
2 executable by the processor to:
3 receive a power ramp up configuration from a base station, wherein the second
4 transmit power and the second beam direction are based at least in part on the power ramp up
5 indication.

1 **23.** The apparatus of claim 22, wherein the power ramp up configuration is
2 transmitted in a system information block (SIB) message.

1 **24.** An apparatus for wireless communication, comprising:

2 means for transmitting a first random access signal at a first transmit power
3 during a first time period associated with a first beam direction;
4 means for determining that a random access response to the first random
5 access signal has not been received;
6 means for selecting a second transmit power and a second beam direction
7 based at least in part on the determination; and
8 means for transmitting a second random access signal using the second
9 transmit power during a second time period associated with the second beam direction.

1 **25.** The apparatus of claim 24, further comprising:
2 means for determining that a second random access response to the second
3 random access signal has not been received; and
4 means for continuing to transmit additional random access signals until a
5 corresponding additional random access response is received, wherein successive additional
6 random access signals are alternately transmitted based on either an updated preferred beam
7 direction or an increased transmit power.

1 **26.** The apparatus of claim 24, further comprising:
2 means for identifying a preferred beam direction based at least in part on the
3 determination that the random access response to the first random access signal has not been
4 received, wherein the preferred beam direction is not equal to the first beam direction.

1 **27.** The apparatus of claim 26, further comprising:
2 means for identifying a next random access time period, wherein the preferred
3 beam direction is selected based at least in part on the next random access period including a
4 random access opportunity corresponding to the preferred beam direction.

1 **28.** The apparatus of claim 26, further comprising:
2 means for determining a channel metric for each of a plurality of beam
3 directions, wherein the preferred beam direction is selected based at least in part on the
4 channel metric for each of the plurality of beam directions.

1 **29.** The apparatus of claim 26, further comprising:
2 means for determining a channel metric for each of the plurality of beam
3 directions that has a corresponding random access opportunity in a next random access
4 period, wherein the beam direction is selected based at least in part on a beam strength for

5 each of the plurality of beam directions that has a corresponding random access opportunity
6 in a next random access period.

1 **30.** The apparatus of claim 29, further comprising:
2 means for determining that a second random access response to the second
3 random access signal has not been received;
4 means for identifying an updated preferred beam direction that is not equal to
5 the first beam direction;
6 means for transmitting a third random access signal using the updated
7 preferred beam direction and the second transmit power.

1 **31.** The apparatus of claim 30, further comprising:
2 means for determining that a third random access response to the third random
3 access signal has not been received;
4 means for selecting a third transmit power that is greater than the second
5 transmit power; and
6 means for transmitting a fourth random access signal using the updated
7 preferred beam direction and the third transmit power.

1 **32.** The apparatus of claim 26, wherein the second transmit power is equal
2 to the first transmit power and the second beam direction is equal to the preferred beam
3 direction.

1 **33.** The apparatus of claim 26, wherein the second transmit power is
2 greater than the first transmit power and the second beam direction is equal to the preferred
3 beam direction.

1 **34.** The apparatus of claim 24, further comprising:
2 means for receiving a power ramp up configuration from a base station,
3 wherein the second transmit power and the second beam direction are based at least in part on
4 the power ramp up indication.

1 **35.** A non-transitory computer readable medium storing code for wireless
2 communication, the code comprising instructions executable by a processor to:
3 transmit a first random access signal at a first transmit power during a first
4 time period associated with a first beam direction;

5 determine that a random access response to the first random access signal has
6 not been received;
7 select a second transmit power and a second beam direction based at least in
8 part on the determination; and
9 transmit a second random access signal using the second transmit power
10 during a second time period associated with the second beam direction.