CLAIMS

1. A method of wireless communication at a user equipment (UE), comprising:

generating a narrowband physical random access channel (NPRACH) signal for transmission to a cell comprising multiple repetitions, wherein each repetition comprises multiple symbol groups;

applying a repetition level scrambling sequence to the NPRACH signal, wherein a single scrambling sequence is applied across a set of multiple repetitions comprised in the NPRACH signal in which each symbol within the multiple symbol groups of a repetition are scrambled with a same element of the scrambling sequence and each of the multiple repetitions comprised in NPRACH signal is scrambled with a different element of the scrambling sequence; and

transmitting the NPRACH signal to a base station.

2. The method of claim 1, wherein the repetition level scrambling sequence is cell specific.

3. The method of claim 2, wherein the repetition level scrambling sequence is based on a cell identifier (ID) for the base station to which the NPRACH signal is transmitted.

4. The method of claim 1, further comprising:

receiving an indication of a scrambling sequence from the base station.

5. The method of claim 4, wherein the indication comprises a scrambling sequence index comprised in Radio Resource Control (RRC) signaling or system information signaling.

6. The method of claim 1, further comprising:

applying a different frequency shift between repetitions of the NPRACH signal.

7. The method of claim 6, wherein a pattern of frequency shifts is applied to the NPRACH signal.

8. The method of claim 7, wherein the pattern of frequency shifts comprises a cell-specific frequency shift pattern corresponding to the base station to which the NPRACH signal is transmitted.

9. The method of claim 7, wherein the pattern of frequency shifts comprises a random frequency shift hopping pattern.

10. The method of claim 9, wherein the pattern of frequency shifts comprises a hopping pattern applied over each repetition.

11. The method of claim 7, wherein the pattern of frequency shifts is based on a specified function, the function being based on a repetition index and a corresponding frequency shift.

12. The method of claim 7, further comprising:

receiving an indication of the pattern of frequency shifts from the base station.

13. An apparatus for wireless communication, comprising:

means for generating a narrowband physical random access channel (NPRACH) signal for transmission to a cell comprising multiple repetitions, wherein each repetition comprises multiple symbol groups;

means for applying a repetition level scrambling sequence to the NPRACH signal, wherein a single scrambling sequence is applied across a set of multiple repetitions comprised in the NPRACH signal in which each symbol within the multiple symbol groups of a repetition are scrambled with a same element of the scrambling sequence and each of the multiple repetitions comprised in NPRACH signal is scrambled with a different element of the scrambling sequence; and

means for transmitting the NPRACH signal to a base station.

14. The apparatus of claim 13, wherein the repetition level scrambling sequence is cell specific.

15. The apparatus of claim 14, wherein the repetition level scrambling sequence is based on a cell identifier (ID) for the base station to which the NPRACH signal is transmitted.

16. The apparatus of claim 13, further comprising:

means for receiving an indication of a scrambling sequence from the base station.

17. The apparatus of claim 16, wherein the indication comprises a scrambling sequence index comprised in Radio Resource Control (RRC) signaling or system information signaling.

18. The apparatus of claim 13, further comprising:

means for applying a different frequency shift between repetitions of the NPRACH signal.

19. An apparatus for wireless communication, comprising:

a memory; and

at least one processor coupled to the memory and configured to:

generate a narrowband physical random access channel (NPRACH) signal for transmission to a cell comprising multiple repetitions, wherein each repetition comprises multiple symbol groups;

apply a repetition level scrambling sequence to the NPRACH signal, wherein a single scrambling sequence is applied across a set of multiple repetitions comprised in the NPRACH signal in which each symbol within the multiple symbol groups of a repetition are scrambled with a same element of the scrambling sequence and each of the multiple repetitions comprised in NPRACH signal is scrambled with a different element of the scrambling sequence; and

transmit the NPRACH signal to a base station.

20. The apparatus of claim 19, wherein the repetition level scrambling sequence is cell specific.

21. The apparatus of claim 20, wherein the repetition level scrambling sequence is based on a cell identifier (ID) for the base station to which the NPRACH signal is transmitted.

22. The apparatus of claim 19, wherein the at least one processor is further configured to:

receive an indication of a scrambling sequence from the base station.

23. The apparatus of claim 22, wherein the indication comprises a scrambling sequence index comprised in Radio Resource Control (RRC) signaling or system information signaling.

24. The apparatus of claim 19, wherein the at least one processor is further configured to:

apply a different frequency shift between repetitions of the NPRACH signal.

25. A non-transitory computer-readable medium storing computer executable code, comprising code to:

generate a narrowband physical random access channel (NPRACH) signal for transmission to a cell comprising multiple repetitions, wherein each repetition comprises multiple symbol groups;

apply a repetition level scrambling sequence to the NPRACH signal, wherein a single scrambling sequence is applied across a set of multiple repetitions comprised in the NPRACH signal in which each symbol within the multiple symbol groups of a repetition are scrambled with a same element of the scrambling sequence and each of the multiple repetitions comprised in NPRACH signal is scrambled with a different element of the scrambling sequence; and

transmit the NPRACH signal to a base station.

26. The non-transitory computer-readable medium of claim 25, wherein the repetition level scrambling sequence is cell specific.

27. The non-transitory computer-readable medium of claim 26, wherein the repetition level scrambling sequence is based on a cell identifier (ID) for the base station to which the NPRACH signal is transmitted.

28. The non-transitory computer-readable medium of claim 25, further comprising code to:

receive an indication of a scrambling sequence from the base station.

29. The non-transitory computer-readable medium of claim 28, wherein the indication comprises a scrambling sequence index comprised in Radio Resource Control (RRC) signaling or system information signaling.

30. The non-transitory computer-readable medium of claim 25, further comprising code to:

apply a different frequency shift between repetitions of the NPRACH signal.