

[0083] WHAT IS CLAIMED IS:

CLAIMS

1. A method of wireless communication, comprising:
monitoring, by a user equipment (UE), for a control signal from a serving base station, wherein the control signal identifies a current transmission opportunity (TXOP) of the serving base station;
obtaining, by the UE, an autonomous random access configuration for communications outside of the current TXOP, wherein the autonomous random access configuration identifies a random access slot that includes a plurality of random access occasions; and
transmitting, by the UE, in response to a failure to detect the control signal an autonomous random access signal in a random access occasion of the plurality of random access occasions corresponding to a synchronization signal block (SSB) identified by the UE for transmission.
2. The method of claim 1, further including:
performing, by the UE, a listen before talk (LBT) procedure in a gap prior to the random access occasion, wherein each random access occasion of the plurality of random access occasions includes a corresponding gap before the each random access occasion.
3. The method of claim 2, wherein the corresponding gap is one of:
scheduled by the serving base station in the autonomous random access configuration,
or
generated by the UE by reducing each of the plurality of random access occasions by one symbol.
4. The method of claim 1, further including:
detecting, by the UE, the control signal identifying the current TXOP;
receiving, by the UE, a downlink control signal including a trigger signal to send a random access signal; and
transmitting, by the UE, the random access signal in a TXOP random access occasion.
5. The method of claim 4, further including:

receiving, by the UE, a TXOP random access configuration identifying the TXOP random access occasion within the TXOP, wherein the TXOP random access configuration is received one of: dynamically or semi-statically.

6. The method of claim 4, wherein the TXOP random access configuration is different from the autonomous random access configuration and the TXOP random access configuration replaces the autonomous random access configuration for the UE.

7. The method of claim 4, wherein the downlink control signal further includes a subset of synchronization signal blocks (SSBs) scheduled for the TXOP random access occasion of the current TXOP.

8. The method of claim 7, wherein the transmitting includes one of:
transmitting the random access signal in the TXOP random access occasion of the current TXOP according to the SSB identified by the UE for transmission within the subset of SSBs; or
transmitting the random access signal in the TXOP random access occasion of a subsequent TXOP according the SSB identified by the UE for transmission with a subsequent subset of SSBs scheduled for the TXOP random access occasion of the subsequent TXOP.

9. An apparatus configured for wireless communication, comprising:
means for monitoring, by a user equipment (UE), for a control signal from a serving base station, wherein the control signal identifies a current transmission opportunity (TXOP) of the serving base station;

means for obtaining, by the UE, an autonomous random access configuration for communications outside of the current TXOP, wherein the autonomous random access configuration identifies a random access slot that includes a plurality of random access occasions; and

means for transmitting, by the UE, in response to a failure to detect the control signal an autonomous random access signal in a random access occasion of the plurality of random access occasions corresponding to a synchronization signal block (SSB) identified by the UE for transmission.

10. The apparatus of claim 9, further including:

means for performing, by the UE, a listen before talk (LBT) procedure in a gap prior to the random access occasion, wherein each random access occasion of the plurality of random access occasions includes a corresponding gap before the each random access occasion.

11. The apparatus of claim 10, wherein the corresponding gap is one of:
scheduled by the serving base station in the autonomous random access configuration,
or
generated by the UE by reducing each of the plurality of random access occasions by one symbol.

12. The apparatus of claim 9, further including:
means for detecting, by the UE, the control signal identifying the current TXOP;
means for receiving, by the UE, a downlink control signal including a trigger signal to send a random access signal; and
means for transmitting, by the UE, the random access signal in a TXOP random access occasion.

13. The apparatus of claim 12, further including:
means for receiving, by the UE, a TXOP random access configuration identifying the TXOP random access occasion within the TXOP, wherein the TXOP random access configuration is received one of: dynamically or semi-statically.

14. The apparatus of claim 12, wherein the TXOP random access configuration is different from the autonomous random access configuration and the TXOP random access configuration replaces the autonomous random access configuration for the UE.

15. The apparatus of claim 12, wherein the downlink control signal further includes a subset of synchronization signal blocks (SSBs) scheduled for the TXOP random access occasion of the current TXOP.

16. The apparatus of claim 15, wherein the means for transmitting includes one of:

means for transmitting the random access signal in the TXOP random access occasion of the current TXOP according to the SSB identified by the UE for transmission within the subset of SSBs; or

means for transmitting the random access signal in the TXOP random access occasion of a subsequent TXOP according to the SSB identified by the UE for transmission with a subsequent subset of SSBs scheduled for the TXOP random access occasion of the subsequent TXOP.

17. A non-transitory computer-readable medium having program code recorded thereon, the program code comprising:

program code executable by a computer for causing the computer to monitor, by a user equipment (UE), for a control signal from a serving base station, wherein the control signal identifies a current transmission opportunity (TXOP) of the serving base station;

program code executable by the computer for causing the computer to obtain, by the UE, an autonomous random access configuration for communications outside of the current TXOP, wherein the autonomous random access configuration identifies a random access slot that includes a plurality of random access occasions; and

program code executable by the computer for causing the computer to transmit, by the UE, in response to a failure to detect the control signal an autonomous random access signal in a random access occasion of the plurality of random access occasions corresponding to a synchronization signal block (SSB) identified by the UE for transmission.

18. The non-transitory computer-readable medium of claim 17, further including:

program code executable by the computer for causing the computer to perform, by the UE, a listen before talk (LBT) procedure in a gap prior to the random access occasion, wherein each random access occasion of the plurality of random access occasions includes a corresponding gap before the each random access occasion.

19. The non-transitory computer-readable medium of claim 18, wherein the corresponding gap is one of:

scheduled by the serving base station in the autonomous random access configuration,
or

generated by the UE by reducing each of the plurality of random access occasions by one symbol.

20. The non-transitory computer-readable medium of claim 17, further including:
program code executable by the computer for causing the computer to detect, by the UE, the control signal identifying the current TXOP;
program code executable by the computer for causing the computer to receive, by the UE, a downlink control signal including a trigger signal to send a random access signal; and
program code executable by the computer for causing the computer to transmit, by the UE, the random access signal in a TXOP random access occasion.

21. The non-transitory computer-readable medium of claim 20, further including:
program code executable by the computer for causing the computer to receive, by the UE, a TXOP random access configuration identifying the TXOP random access occasion within the TXOP, wherein the TXOP random access configuration is received one of:
dynamically or semi-statically.

22. The non-transitory computer-readable medium of claim 21, wherein the program code executable by the computer for causing the computer to transmit includes one of:

program code executable by the computer for causing the computer to transmit the random access signal in the TXOP random access occasion of the current TXOP according to the SSB identified by the UE for transmission within the subset of SSBs; or

program code executable by the computer for causing the computer to transmit the random access signal in the TXOP random access occasion of a subsequent TXOP according to the SSB identified by the UE for transmission with a subsequent subset of SSBs scheduled for the TXOP random access occasion of the subsequent TXOP.

23. An apparatus configured for wireless communication, the apparatus comprising:

at least one processor; and
a memory coupled to the at least one processor,
wherein the at least one processor is configured:

to monitor, by a user equipment (UE), for a control signal from a serving base station, wherein the control signal identifies a current transmission opportunity (TXOP) of the serving base station;

to obtain, by the UE, an autonomous random access configuration for communications outside of the current TXOP, wherein the autonomous random access configuration identifies a random access slot that includes a plurality of random access occasions; and

to transmit, by the UE, in response to a failure to detect the control signal an autonomous random access signal in a random access occasion of the plurality of random access occasions corresponding to a synchronization signal block (SSB) identified by the UE for transmission.

24. The apparatus of claim 23, further including configuration of the at least one processor to perform, by the UE, a listen before talk (LBT) procedure in a gap prior to the random access occasion, wherein each random access occasion of the plurality of random access occasions includes a corresponding gap before the each random access occasion.

25. The apparatus of claim 24, wherein the corresponding gap is one of:
scheduled by the serving base station in the autonomous random access configuration,
or
generated by the UE by reducing each of the plurality of random access occasions by one symbol.

26. The apparatus of claim 23, further including configuration of the at least one processor:
to detect, by the UE, the control signal identifying the current TXOP;
to receive, by the UE, a downlink control signal including a trigger signal to send a random access signal; and
to transmit, by the UE, the random access signal in a TXOP random access occasion.

27. The apparatus of claim 26, further including configuration of the at least one processor to receive, by the UE, a TXOP random access configuration identifying the TXOP random access occasion within the TXOP, wherein the TXOP random access configuration is received one of: dynamically or semi-statically.

28. The apparatus of claim 26, wherein the TXOP random access configuration is different from the autonomous random access configuration and the TXOP random access configuration replaces the autonomous random access configuration for the UE.

29. The apparatus of claim 26, wherein the downlink control signal further includes a subset of synchronization signal blocks (SSBs) scheduled for the TXOP random access occasion of the current TXOP.

30. The apparatus of claim 29, wherein the configuration of the at least one processor to transmit includes configuration of the at least one processor to one of:

transmit the random access signal in the TXOP random access occasion of the current TXOP according to the SSB identified by the UE for transmission within the subset of SSBs;
or

transmit the random access signal in the TXOP random access occasion of a subsequent TXOP according the SSB identified by the UE for transmission with a subsequent subset of SSBs scheduled for the TXOP random access occasion of the subsequent TXOP.