

CLAIMS

1. A method of wireless communications, comprising:

obtaining, by a first wireless communication device in a broadcast communication from a long-term evolution (LTE) cell associated with an LTE network, information regarding whether the first wireless communication device is within coverage by a new radio (NR) network, the first wireless communication device supporting dual connectivity with the NR network and the LTE network;

displaying, by the first wireless communication device in response to a determination that the first wireless communication device is not restricted from connecting to the NR network, an icon indicating that the first wireless communication device is connected to the NR network on a display coupled to the first wireless communication device, the displaying the icon being associated with the information from the LTE cell; and

displaying, by the first wireless communication device in response to a determination that the first wireless communication device is restricted from connecting to the NR network, a report of no coverage by the NR network on the display.

2. The method of claim 1, wherein the first wireless communication device supports a non-standalone mode that utilizes the LTE network to support the connectivity of the first wireless communication device to the NR network.

3. The method of claim 1, wherein the NR network includes a 5G network.

4. The method of claim 1, wherein the LTE network includes a 4G network.

5. The method of claim 1, wherein the icon includes a mobile network signal strength indicator associated with the NR network.

6. The method of claim 1, wherein the NR network is associated with an NR cell.

7. The method of claim 1, wherein obtaining the information includes receiving a broadcast of a system information block (SIB) with an indication of whether the first wireless communication device is within coverage by the NR network.

8. The method of claim 7, wherein the indication includes an indication bit indicating whether the first wireless communication device is within coverage by the NR network.

9. The method of claim 1, wherein obtaining the information includes receiving a system information block (SIB) that includes a frequency list including the one or more frequencies in which the NR network operates.

10. The method of claim 1, wherein obtaining the information includes receiving a broadcast of a frequency list including the one or more frequencies in which the NR network operates.

11. The method of claim 1, wherein obtaining the information includes receiving a measurement object that includes a frequency list specifying frequencies in which the NR network operates and provides bandwidth of a frequency channel, the method further comprising:

searching, by the first wireless communication device, the one or more frequencies in accordance with the measurement object; and

measuring the one or more frequencies to determine whether the first wireless communication device is within coverage by the NR network.

12. The method of claim 11, wherein the measurement object is an NR measurement object and the frequency list specifies NR frequencies in which the NR network operates.

13. The method of claim 1, wherein obtaining the information includes retrieving the information from an acquisition database storing the information, the information including NR frequencies within which the NR network operates.

14. The method of claim 1, further comprising:

determining, by the first wireless communication device, whether the first wireless communication device has a subscription to the NR network; and

reporting no coverage by the NR network on the display in response to a determination that the first wireless communication device does not have the subscription.

15. The method of claim 14, wherein the first wireless communication device includes a Universal Integrated Circuit Card (UICC) indicating whether the first wireless communication device has the subscription to the NR network.

16. The method of claim 1, further comprising:

obtaining, by the first wireless communication device from the LTE cell, a message indicating whether the first wireless communication device is restricted from connecting to the NR network.

17. The method of claim 1, further comprising:

determining, by the first wireless communication device, whether a second device associated with the LTE cell supports dual connectivity; and
reporting no coverage by the NR network on the display in response to a determination that the second device does not support dual connectivity.

18. The method of claim 1, wherein the first wireless communication device is in at most one state of a plurality of states, wherein if the first wireless communication device is connected to the NR and LTE networks simultaneously, the first wireless communication device is in a first connected mode, wherein if the first wireless communication device is connected to the LTE network, but not the NR network, the first wireless communication device is in a second connected mode, and wherein if the first wireless communication device is idle, the first wireless communication device is in an idle mode connected to the LTE network, but not the NR network.

19. The method of claim 18, further comprising:

determining, by the first wireless communication device, whether the LTE network includes a radio link failure (RLF) while the first wireless communication device is in the first or second connected mode; and
reporting no coverage by the NR network on the display in response to a determination that the LTE network includes the RLF while the first wireless communication device is in the first or second connected mode.

20. The method of claim 18, further comprising:

detecting, by the first wireless communication device, whether the LTE network is out of service (OOS) while the first wireless communication device is in the idle mode; and
reporting no coverage by the NR network on the display in response to detecting that the LTE network is OOS while the first wireless communication device is in the idle mode.

21. The method of claim 1, wherein the displaying the icon is further based on a measurement associated with a Synchronization Signal (SS) block associated with one or more frequencies in which the NR network operates.

22. The method of claim 21, wherein obtaining the information includes receiving a frequency list including the one or more frequencies in which the NR network operates.

23. The method of claim 22, further comprising:

for one or more frequencies listed in the frequency list:

receiving, by the first wireless communication device from a third wireless communication device, the SS block including an NR-PSS (primary synchronization signal) and an NR-SSS (secondary synchronization signal), the third wireless communication device including a cell that supports the NR network;

measuring a signal strength of the NR-PSS and the NR-SSS;

determining whether the signal strength satisfies a threshold; and

at least one of:

in response to a determination that the signal strength satisfies the threshold,

determining to display the icon; or

in response to a determination that the signal strength does not satisfy the threshold,

determining to not display the icon.

24. The method of claim 22, further comprising:

for one or more frequencies listed in the frequency list:

receiving, by the first wireless communication device from a third wireless communication device, the SS block including an NR-PBCH (Physical Broadcast Channel), the third wireless communication device including a cell that supports the NR network;

determining system frame number information and an NR bandwidth of a frequency channel associated with the NR-PBCH; and

measuring a CSI-RS (Channel State Information Reference Signal) based on the system frame number information and the NR bandwidth to determine whether the first wireless communication device is within coverage by the NR network.

25. A system for wireless communications, comprising:

a receiver that obtains information, in a broadcast communication from a second device associated with a long-term evolution (LTE) network, regarding whether a first wireless communication device is within coverage by a new radio (NR) network, wherein the first wireless communication device supports dual connectivity with the NR network and the LTE network;

a user interface (UI) that displays, in response to a determination that the first wireless communication device is not restricted from connecting to the NR network, an icon indicating that the first wireless communication device is connected to the NR network on a display coupled to the first wireless communication device, associated with the information from the second device associated with the LTE network; and

the UI displays, in response to a determination that the first wireless communication device is restricted from connecting to the NR network, a report of no coverage by the NR network on the display.

26. The system of claim 25, wherein the NR network includes a 5G network.

27. The system of claim 25, wherein the LTE network includes a 4G network.

28. The system of claim 25, wherein the second device includes an LTE cell that supports the LTE network.

29. The system of claim 25, wherein the UE displays the icon further based on a measurement associated with a Synchronization Signal (SS) block associated with one or more frequencies in which the NR network operates.

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

code for obtaining, in a broadcast communication by a first wireless communication device from a second device associated with a long-term evolution (LTE) network, information regarding whether

the first wireless communication device is within coverage by a new radio (NR) network, the first wireless communication device supporting dual connectivity with the NR network and the LTE network;

code for displaying, in response to a determination that the first wireless communication device is not restricted from connecting to the NR network, an icon indicating that the first wireless communication device is connected to the NR network, associated with the information from the second device associated with the LTE network; and

code for displaying, by the first wireless communication device in response to a determination that the first wireless communication device is restricted from connecting to the NR network, a report of no coverage by the NR network on the display.