CLAIMS:

1. A method increasing band utilization by a network component in a wireless network comprising:

allocating, at the network component, secondary communications to a guard band, the guard band separating data bands assigned for primary communications using OFDM-based waveform;

modulating, at the network component, symbols for the secondary communications with a spectrally contained wave form, the spectrally contained wave form having a smaller bandwidth than the guard band, wherein modulating the symbols for the secondary communications with the spectrally contained wave form includes modulating the symbols for the secondary communications in the guard band with filtered orthogonal frequency-division multiplexing (F-OFDM) or with joint orthogonal frequency-division multiplexing (OFDM) and Offset Quadrature Amplitude Modulation (OQAM); and

transmitting, at the network component, the modulated symbols for the secondary communications within the guard band.

2. The method of claim 1 further comprising transmitting data for the primary communications within the data bands.

3. The method of claim 1, wherein the primary communications and the secondary communications carry independent information.

4. The method of claim 1, wherein the guard band has a smaller bandwidth than the data bands.

5. The method of claim 1, wherein the method further includes synchronizing, at the network component, a timing of at least a portion of the secondary communications with transmissions of another network component, and wherein the transmitting includes transmitting the synchronized secondary communications within the guard band.

6. The method of claim 5, wherein the secondary communications are synchronized according to synchronization signals for the primary communications.

7. The method of claim 5, wherein the secondary communications are synchronized according to synchronization signals for the secondary communications and independent of transmissions of the primary communications.

8. The method of claim 1, wherein the method further includes timing at least a portion of the secondary communications to be asynchronous with transmissions of another network component, and wherein the transmitting includes transmitting the asynchronized secondary communications within the guard band.

9. The method of claim 1, wherein the guard band is shared by the network component and another network component, and wherein a subcarrier shared between the network component and the other network component is reserved in frequency for the guard band.

10. A network component for increasing band utilization in a wireless network, the network component comprising:

at least one processor; and

a non-transitory computer readable storage medium storing programming for execution by the processor, the programming including instructions to:

allocate secondary communications to a guard band, the guard band separating data bands assigned for primary communications using OFDM-based waveform;

modulate symbols for the secondary communications with a spectrally contained wave form, the spectrally contained wave form having a smaller bandwidth than the guard band, wherein the instructions to modulate the symbols for the secondary communications with the spectrally contained wave form include instructions to modulate the symbols for the secondary communications in the guard band with filtered orthogonal frequency-division multiplexing (F-OFDM) or with joint orthogonal frequency-division multiplexing (OFDM) and Offset Quadrature Amplitude Modulation (OQAM); and

transmit the modulated symbols for the secondary communications within the guard band.

11. The network component of claim 10, wherein the network component is a user equipment (UE).

12. The network component of claim 10, wherein the secondary communications are machine-to-machine (M2M) system communications.

13. The network component of claim 10, wherein the secondary communications are device-to-device (D2D) communications.

14. The network component of claim 10, wherein the secondary communications are lower power communications relative to the primary communications.

15. A method increasing band utilization by a network component in a wireless network comprising:

receiving, at the network component, secondary communications within a guard band, the guard band separating data bands assigned for primary communications using OFDM-based waveform; and

detecting, in the received secondary communications, symbols modulated according to a spectrally contained wave form, the spectrally contained wave form having a smaller bandwidth than the guard band, wherein the detected symbols are filtered OFDM (F-OFDM) symbols or joint orthogonal frequency-division multiplexing (OFDM) and Offset Quadrature Amplitude Modulation (OQAM) symbols.

16. The method of claim 15 further comprising receiving data for the primary communications within the data bands.

17. A network component for increasing band utilization in a wireless network, the network component comprising:

at least one processor; and

a non-transitory computer readable storage medium storing programming for execution by the processor, the programming including instructions to:

receive secondary communications within a guard band, the guard band separating data bands assigned for primary communications using OFDM-based waveform; and

detect, in the received secondary communications, symbols modulated according to a spectrally contained wave form, the spectrally contained wave form having a smaller bandwidth than the guard band, wherein the detected symbols are filtered orthogonal

frequency-division multiplexing (F-OFDM) symbols or joint OFDM and Offset Quadrature Amplitude Modulation (OQAM) symbols.

18. The network component of claim 17, wherein the network component is a base station.

19. The network component of claim 17, wherein the guard band is a dedicated guard band assigned to a user equipment (UE).

20. The network component of claim 17, wherein the guard band is a shared guard band assigned to multiple user equipments (UEs).