

Reference	Claim Limitation
Claim 1	
[1.0]	A method for increasing data rates and data throughput in a network, the method comprising:
[1.1]	selecting at least a first channel and a second channel, wherein the first channel and the second channel are adjacent without any other channels therebetween, wherein the first channel and the second channel each have a plurality of data subcarriers, wherein the data subcarriers of the first channel and the data subcarriers of the second channel are separated by a frequency gap corresponding to one or more guard bands between the first and second channels;
[1.2]	partially filling the frequency gap between the first channel and the second channel by adding one or more data subcarriers into the frequency gap such that the one or more guard bands are at least partially filled with at least some of the one or more data subcarriers using full spectral synthesis capability of a fast fourier transform or an inverse fast fourier transform;
[1.3]	combining the first channel and the second channel using channel bonding with orthogonal frequency division multiplexing (OFDM); and
[1.4]	transmitting data subcarriers occupying the first channel, the second channel, and the frequency gap in parallel to a receiver.
Claim 2	
[2.0]	The method of claim 1, wherein combining the first channel and the second channel further comprises: interleaving one of a legacy signal and a wide signal during packet transmission.

Claim 3	
[3.0]	The method of claim 2, wherein the legacy signal comprises one channel and the wide signal comprises multiple channels.

Claim 4	
[4.0]	The method of claim 1, wherein transmitting the first channel and the second channel comprises transmitting to multiple radios.

Claim 5	
[5.0]	The method of claim 1, wherein transmitting the first channel and the second channel comprises transmitting to a single radio.

Claim 6	
[6.0]	The method of claim 1, wherein the method is extensible to additional channels.

Claim 7	
[7.0]	7. The method of claim 1, further comprising eliminating synthesizer frequency popping during bandwidth switching between packets.

Claim 8	
[8.0]	8. The method of claim 1 further comprising: tuning a first synthesizer to the first channel, wherein the first synthesizer remains tuned to the first channel during mode switching; and
[8.1]	tuning a second synthesizer to the second channel, wherein the second synthesizer remains tuned to the second channel during mode switching.

Claim 9	
[9]	9. The method of claim 1, wherein channel bonding comprises use of common synthesizers.

Claim 10	
[10]	10. The method of claim 1, wherein the plurality of data subcarriers are OFDM subcarriers.

Claim 11	
[11.0]	11. The method of claim 10, further comprising: identifying additional points in a Fast Fourier Transform (FFT) across the first and second channels; and
[11.1]	adding subcarriers to the additional points.

Claim 12	
[12]	12. The method of claim 11, wherein the additional points exist on an outer edge of the first channel or the second channel.

Claim 13	
[13]	13. The method of claim 12, wherein a guard band on each edge is filled with data.

Claim 14	
[14]	14. The method of claim 1, further comprising utilizing an anti-aliasing technique at a receiver.

Claim 15	
[15]	15. The method of claim 14, wherein the anti-aliasing technique comprises passing upper signals and lower signals through a first filter and a second filter.

Claim 16	
[16.0]	16. A system for increasing data rates and data throughput in a network, the system comprising:
[16.1]	means for selecting at least a first channel and a second channel, wherein the first channel is adjacent to the second channel without any other channels therebetween, wherein the first channel comprises a first plurality of subcarriers, and the second channel comprises a second plurality of subcarriers, wherein a frequency gap corresponding to at least one guard band between the first channel and the second channel separates the first plurality of subcarriers from the second plurality of subcarriers;
[16.2]	means for partially filling the frequency gap with at least one additional subcarrier such that the one or more guard bands are at least partially filled with at least some of the one or more data subcarriers using full spectral synthesis capability of a fast fourier transform or an inverse fast fourier transform;
[16.3]	means for combining the first channel and the second channel using channel bonding with orthogonal frequency division multiplexing (OFDM); and
[16.4]	means for transmitting the first plurality of subcarriers, the second plurality of subcarriers, and the at least one additional subcarrier in parallel to a receiver.

Claim 17	
[17]	17. The system of claim 16, wherein the frequency gap is filled with a portion of the first plurality of subcarriers and a portion of the second plurality of subcarriers.

Claim 18	
[18.0]	18. A non-transitory computer-readable medium having instructions stored thereon, the instructions comprising:
[18.1]	instructions to select at least a first channel and a second channel, wherein the first channel and the second channel are adjacent without any other channels therebetween, wherein the first channel and the second channel each have a plurality of data subcarriers, wherein the data subcarriers of the first channel and the data subcarriers of the second channel are separated by a frequency gap corresponding to one or more guard bands between the first and second channels;
[18.2]	instructions to partially fill the frequency gap between the first channel and the second channel by adding one or more data subcarriers into the frequency gap such that the one or more guard bands are at least partially filled with at least some of the one or more data subcarriers using full spectral synthesis capability of a fast fourier transform or an inverse fast fourier transform;
[18.3]	instructions to combine the first channel and the second channel using channel bonding with orthogonal frequency division multiplexing (OFDM); and
[18.4]	instructions to transmit data subcarriers occupying the first channel, the second channel, and the frequency gap in parallel to a receiver.