CLAIMS

What is claimed is:

1. A method of managing power backoff in a wireless communication system, comprising:

identifying a bandwidth allocation corresponding to a terminal;

determining a location of the bandwidth allocation with respect to a frequency band; and

selecting a power backoff parameter corresponding to the bandwidth allocation that is pre-mapped to the determined location of the bandwidth allocation.

2. The method of claim 1, wherein the selecting comprises pre-mapping locations on the frequency band to corresponding power backoff parameters.

3. The method of claim 2, wherein the pre-mapping comprises mapping locations on the frequency band to increasing power backoff parameters as distance of the respective locations from one or more edges of the frequency band decreases.

4. The method of claim 2, wherein the selecting further comprises:

storing pre-mapped pairs of locations on the frequency band and corresponding power backoff parameters in a lookup table; and

selecting the power backoff parameter corresponding to the bandwidth allocation from the lookup table.

5. The method of claim 2, wherein the pre-mapping comprises pre-mapping the locations on the frequency band to corresponding power backoff parameters according to operating standards of the wireless communication system.

6. The method of claim 2, wherein the selecting further comprises selecting a power backoff parameter corresponding to the bandwidth allocation based at least in part on at least one of an amount of assigned frequency subcarriers in the bandwidth assignment and a modulation order associated with the bandwidth assignment.

7. The method of claim 1, further comprising selecting a data rate for the terminal based on the identified bandwidth allocation and the selected power backoff parameter.

8. The method of claim 7, further comprising:

receiving a power headroom report from the terminal that indicates a higher power backoff parameter applied at the terminal than the selected power backoff parameter; and

adjusting the data rate for the terminal based on the power headroom report received from the terminal.

9. The method of claim 1, further comprising communicating an assignment for the identified bandwidth allocation and the selected power backoff parameter to the terminal.

10. A wireless communications apparatus, comprising:

a memory that stores data relating to a system bandwidth comprising

a plurality of frequency subcarriers,

one or more allocated frequency subcarriers in the system bandwidth corresponding to a mobile station, and

a predefined mapping relationship between respective positions in the system bandwidth and corresponding maximum power reduction (MPR) values; and

a processor configured to

determine a location of the allocated frequency subcarriers within the system bandwidth, and

select a MPR value corresponding to the determined location using the predefined mapping relationship.

11. The wireless communications apparatus of claim 10, wherein the predefined mapping relationship between a location in the system bandwidth and a corresponding MPR value assigns an increasing MPR value to a location in the system bandwidth as distance of the location from one or more edges of the system bandwidth increases.

12. The wireless communications apparatus of claim 10, wherein the predefined mapping relationship between a location in the system bandwidth and a corresponding MPR value is based at least in part on a design specification for the wireless communications apparatus.

13. The wireless communications apparatus of claim 10, wherein

the memory stores data related to a modulation order associated with the allocated frequency subcarriers in the system bandwidth, and

the processor is configured to select a MPR value based at least in part on the modulation order associated with the allocated frequency subcarriers or size of the allocated frequency subcarriers in relation to size of the system bandwidth.

14. The wireless communications apparatus of claim 10, wherein the processor is configured to select a data rate for the mobile station based on the allocated frequency subcarriers for the mobile station and the selected MPR value.

15. The wireless communications apparatus of claim 14, wherein the processor is configured to

instruct receipt of a report from the mobile station that indicates a higher MPR value, and

adjust the data rate for the mobile station based on the higher MPR value.

16. The wireless communications apparatus of claim 14, wherein the processor is configured to transmit an assignment for the allocated frequency subcarriers and the selected MPR value to the mobile station.

17. An apparatus, comprising:

means for identifying a bandwidth allocation for a mobile terminal;

means for identifying a set of power reduction parameters corresponding to locations in a system frequency band; and

means for mapping the bandwidth allocation for the mobile terminal to a power reduction parameter in the set of power reduction parameters based on a location of the bandwidth allocation in the system frequency band.

18. The apparatus of claim 17, wherein power reduction parameters of the set of power reduction parameters which correspond to locations near a central point of the system frequency band are less than power reduction parameters corresponding to locations near an edge of the system frequency band.

19. The apparatus of claim 17, wherein power reduction parameters of the set of power reduction parameters which correspond to locations near an edge of the system frequency band are less than power reduction parameters corresponding to locations near an opposite edge of the system frequency band.

20. The apparatus of claim 17, wherein the power reduction parameters are defined by a design specification for the wireless communication system.

21. The apparatus of claim 17, wherein the means for mapping maps the bandwidth allocation for the mobile terminal to a power reduction parameter based on at least one of a size of the bandwidth allocation and a modulation order associated with the bandwidth allocation.

22. A computer program product, comprising:

a computer-readable medium, comprising:

code for mapping locations within a system frequency band to corresponding maximum power reduction (MPR) parameters based on a predefined specification;

code for allocating frequency resources for a user equipment (UE);

code for determining a location of the frequency resources within the system frequency band; and

code for identifying a MPR parameter that is mapped to the location of the frequency resources within the system frequency band.

23. The computer program product of system 22, wherein the code for mapping comprises code for mapping increasing MPR parameters to locations within the system frequency band as distance from the respective locations to an edge of the system frequency band decreases.

24. The computer program product of system 22, wherein the computer readable medium further comprises code for instructing transmission of an assignment for the frequency resources and the identified MPR parameter to the UE.

25. An integrated circuit that executes computer-executable instructions for managing wireless terminal power usage, the instructions comprising:

identifying maximum power reductions (MPRs) associated with locations within a system frequency band;

identifying a spectral allocation for a wireless terminal comprising one or more frequency subcarriers located within the system frequency band;

determining locations of the one or more frequency subcarriers in the spectral allocation within the system frequency band; and

associating the spectral allocation with a MPR associated with the location of at least one of the one or more frequency subcarriers in the spectral allocation within the system frequency band.

26. The integrated circuit of claim 25, wherein locations within the system frequency band are associated with increasing MPRs as a distance of the locations to an edge of the system frequency band decreases.

27. A method for managing transmit power in a wireless communication system, comprising:

receiving an assignment for one or more frequency subcarriers in a system frequency band;

determining locations of the one or more assigned frequency subcarriers within the system frequency band; and

selecting one or more power amplifier (PA) backoff parameters corresponding to the assignment that are pre-mapped to the determined locations of the one or more assigned frequency subcarriers in the system frequency band.

28. The method of claim 27, further comprising:

determining whether any of the one or more selected PA backoff parameters causes a violation of one or more of a spectral mask, an interference requirement, and a PA capability; and

adjusting each PA backoff parameter causing said violation.

29. The method of claim 28, further comprising reporting an adjusted PA backoff parameter to a serving access point.

30. The method of claim 27, wherein the pre-mapped PA backoff parameters are pre-mapped to locations based on design specifications for the wireless communication system.

31. The method of claim 30, wherein locations in the system frequency band are mapped to increasing PA backoff parameters as a distance of the locations from an edge of the system frequency band decreases.

32. The method of claim 27, further comprising reporting a power headroom value to a serving access point.

33. The method of claim 32, wherein the power headroom value reported to the serving access point is reduced by a PA backoff parameter.

34. A wireless communications apparatus, comprising:

a memory that stores data relating to a system bandwidth comprising

a plurality of frequency subcarriers,

one or more assigned frequency subcarriers in the system bandwidth, and

a relationship between locations in the system bandwidth and corresponding maximum power reductions (MPRs); and

a processor configured to

determine locations of the one or more assigned frequency subcarriers within the system bandwidth,

reduce transmit power output by a MPR value corresponding to a determined location using said relationship between locations in the system bandwidth and corresponding MPRs,

determine whether the reduced transmit power output violates a spectral mask, and

respond to a determined spectral mask violation at least in part by further reducing the transmit power output.

35. The wireless communications apparatus of claim 34, wherein the processor is configured to further reduce the transmit power output upon detecting a violation of an interference requirement or transmit power capability of the wireless communications apparatus.

36. The wireless communications apparatus of claim 34, wherein the processor is configured to report the adjusted transmit power output to an associated network.

37. The wireless communications apparatus of claim 34, wherein the relationship between locations in the system bandwidth and corresponding MPRs is based at least in part on a design specification for the wireless communications apparatus.

38. The wireless communications apparatus of claim 34, wherein MPRs corresponding to locations in the system bandwidth increase as a distance of the locations from a central point of the system bandwidth increases.

39. The wireless communications apparatus of claim 34, wherein MPRs corresponding to locations in the system bandwidth increase as a distance of the locations from an edge of the system bandwidth decreases.

40. An apparatus that facilitates power amplifier (PA) management in a wireless communication system, the apparatus comprising:

means for receiving a bandwidth assignment;

means for determining an implicit power backoff assignment based on a location of the bandwidth assignment within a frequency band for the wireless communication system;

means for determining whether the implicit power backoff assignment violates a spectral mask requirement; and

means for adjusting power backoff from the implicit power backoff assignment to correct a determined spectral mask violation.

41. The apparatus of claim 40, further comprising

means for adjusting power backoff from the implicit power backoff assignment to correct a violation of an interference requirement.

42. The apparatus of claim 40, further comprising

means for adjusting power backoff from the implicit power backoff assignment to correct a power backoff resulting in a higher transmit power than the apparatus is capable of producing.

43. The apparatus of claim 40, further comprising

means for reporting an adjusted power backoff to a serving network device.

44. The apparatus of claim 40, wherein the means for determining the implicit power backoff assignment comprises means for determining the implicit power backoff assignment based on a relationship between bandwidth locations and power backoffs provided in a design specification for the wireless communications apparatus.

45. A computer program product, comprising:

a computer-readable medium, comprising:

code for mapping locations within a system frequency band to corresponding power amplifier (PA) backoffs based on a predefined specification;

code for receiving an allocation of frequency resources;

code for determining locations of the frequency resources within a system frequency band; and

code for identifying one or more PA backoffs mapped to the locations of the frequency resources within the system frequency band.

46. The computer program product of claim 45, wherein the computer-readable medium further comprises:

code for determining whether application of an identified PA backoff causes a violation of at least one of a spectral mask and an interference regulation; and

code for modifying the PA backoff causing the violation.

47. An integrated circuit that executes computer-executable instructions for managing a power amplifier, the instructions comprising:

identifying maximum power reductions (MPRs) associated with corresponding bandwidth frequencies;

identifying a spectral allocation comprising one or more frequency subcarriers;

determining a location in frequency of the spectral allocation; and

stepping down output power of a power amplifier by a MPR associated with the location of the spectral allocation in frequency.

48. The integrated circuit of claim 47, wherein the instructions further comprise:

determining whether the output power of the power amplifier causes a spectral mask violation or excessive interference upon stepping down by the MPR associated with the location of the spectral allocation in frequency; and

stepping down the output power of the power amplifier by an additional power reduction factor upon determining that the output power of the power amplifier causes a spectral mask violation or excessive interference.

CLAIMS

1. A method of managing power backoff in a wireless communication system, comprising:

identifying a bandwidth allocation corresponding to a terminal;

determining a location and size of the bandwidth allocation with respect to a frequency band;

selecting a power backoff parameter corresponding to the bandwidth allocation that is pre-mapped to the determined location and size of the bandwidth allocation;

reducing transmit power by the power backoff parameter pre-mapped to the determined location and size;

selecting a data rate for the terminal based on the identified bandwidth allocation and the selected power backoff parameter.

2. The method of claim 1, wherein the selecting a power backoff parameter comprises pre-mapping locations and sizes on the frequency band to corresponding power backoff parameters.

3. The method of claim 2, wherein the pre-mapping comprises mapping locations and sizes on the frequency band to increasing power backoff parameters as distance of the respective locations from one or more edges of the frequency band decreases.

4. The method of claim 2, wherein the selecting a power backoff parameter further comprises:

storing pre-mapped pairs of locations and sizes on the frequency band and corresponding power backoff parameters in a lookup table; and

selecting the power backoff parameter corresponding to the bandwidth allocation from the lookup table.

5. The method of claim 2, wherein the pre-mapping comprises pre-mapping the locations and sizes on the frequency band to corresponding power backoff parameters according to operating standards of the wireless communication system.

6. The method of claim 2, wherein the selecting a power backoff parameter further comprises selecting a power backoff parameter corresponding to the bandwidth allocation based at least in part on at least one of an amount of assigned frequency subcarriers in the bandwidth assignment and a modulation order associated with the bandwidth assignment.

7. The method of claim 1, further comprising:

receiving a power headroom report from the terminal that indicates a higher power backoff parameter applied at the terminal than the selected power backoff parameter; and

adjusting the data rate for the terminal based on the power headroom report received from the terminal.

8. The method of claim 1, further comprising communicating an assignment for the identified bandwidth allocation and the selected power backoff parameter to the terminal.

9. A wireless communications apparatus, comprising:

a memory that stores data relating to a system bandwidth comprising

a plurality of frequency subcarriers,

one or more allocated frequency subcarriers in the system bandwidth corresponding to a mobile station, and

a predefined mapping relationship between respective positions and sizes in the system bandwidth and corresponding maximum power reduction (MPR) values; and

a processor configured to

determine a location and size of the allocated frequency subcarriers within the system bandwidth,

select a MPR value corresponding to the determined location and size using the predefined mapping relationship, reduce transmit power by the MPR value corresponding to the location and size determined by the predefined mapping relationship; and

select a data rate for the mobile station based on the allocated frequency subcarriers for the mobile station and the selected MPR value.

10. The wireless communications apparatus of claim 9, wherein the predefined mapping relationship between a location and size in the system bandwidth and a corresponding MPR value assigns an increasing MPR value to a location in the system bandwidth as distance of the location from one or more edges of the system bandwidth decreases.

11. The wireless communications apparatus of claim 9, wherein the predefined mapping relationship between a location and size in the system bandwidth and a

corresponding MPR value is based at least in part on a design specification for the wireless communications apparatus.

12. The wireless communications apparatus of claim 9, wherein
the memory stores data related to a modulation order associated with the allocated frequency subcarriers in the system bandwidth, and
the processor is configured to select a MPR value based at least in part on the modulation order associated with the allocated frequency subcarriers and size of the allocated frequency subcarriers in relation to size of the system bandwidth.

13. The wireless communications apparatus of claim 9, wherein the processor is configured to
receive a report from the mobile station that indicates a higher MPR value, and
adjust the data rate for the mobile station based on the higher MPR value.

14. The wireless communications apparatus of claim 9, wherein the processor is configured to transmit an assignment for the allocated frequency subcarriers and the selected MPR value to the mobile station.

15. An apparatus, comprising:

means for identifying a bandwidth allocation for a mobile terminal;

means for identifying a set of power reduction parameters corresponding to locations and sizes in a system frequency band;

means for mapping the bandwidth allocation for the mobile terminal to a power reduction parameter in the set of power reduction parameters based on a location and size of the bandwidth allocation in the system frequency band;

means for reducing transmit power by the power reduction parameter mapped to one of the locations and sizes in the system frequency band;

means for selecting the power reduction parameter corresponding to the bandwidth allocation; and

means for selecting a data rate for the terminal based on the identified bandwidth allocation and the selected power reduction parameter.

16. The apparatus of claim 15, wherein power reduction parameters of the set of power reduction parameters which correspond to locations near a central point of the system frequency band are less than power reduction parameters corresponding to locations near an edge of the system frequency band.

17. The apparatus of claim 15, wherein power reduction parameters of the set of power reduction parameters which correspond to locations near an edge of the system frequency band are less than power reduction parameters corresponding to locations near an opposite edge of the system frequency band.

18. The apparatus of claim 15, wherein the power reduction parameters are defined by a design specification for a wireless communication system.

19. The apparatus of claim 15, wherein the means for mapping maps the bandwidth allocation for the mobile terminal to a power reduction parameter based on at least one of a size of the bandwidth allocation and a modulation order associated with the bandwidth allocation.

20. A computer-readable medium, comprising:

code for mapping locations and sizes within a system frequency band to corresponding maximum power reduction (MPR) parameters based on a predefined specification;

code for allocating frequency resources for a user equipment (UE);

code for determining a location and size of the frequency resources within the system frequency band;

code for identifying a MPR parameter that is mapped to the location and size of the frequency resources within the system frequency band;

code for reducing transmit power by the identified MPR parameter mapped to the location and size of the frequency resources in the system frequency band;

code for selecting the MPR parameter corresponding to the allocated frequency resource; and

code for selecting a data rate for the UE based on the allocated frequency resource and the selected MPR parameter.

21. The computer-readable medium of claim 20, wherein the code for mapping comprises code for mapping increasing MPR parameters to locations within the system frequency band as distance from the respective locations to an edge of the system frequency band decreases.

22. The computer-readable medium of claim 20, further comprising code for instructing transmission of an assignment for the frequency resources and the identified MPR parameter to the UE.

23. An integrated circuit that executes computer-executable instructions for managing wireless terminal power usage, the instructions comprising:

identifying maximum power reductions (MPRs) associated with locations and sizes within a system frequency band;

identifying a spectral allocation for a wireless terminal comprising one or more frequency subcarriers located within the system frequency band;

determining locations and sizes of the one or more frequency subcarriers in the spectral allocation within the system frequency band;

associating the spectral allocation with a MPR, wherein the MPR is associated with the location and size of at least one of the one or more frequency subcarriers in the spectral allocation within the system frequency band; reducing transmit power by the MPR;

selecting the MPR corresponding to the spectral allocation; and

selecting a data rate for the wireless terminal based on the identified spectral allocation and the selected MPR.

24. The integrated circuit of claim 23, wherein locations within the system frequency band are associated with increasing MPRs as a distance of the locations to an edge of the system frequency band decreases.

25. A method for managing transmit power in a wireless communication system, comprising:

receiving an assignment for one or more frequency subcarriers in a system frequency band;

determining locations and sizes of the one or more assigned frequency subcarriers within the system frequency band;

selecting one or more power amplifier (PA) backoff parameters corresponding to the assignment, wherein the one or more PA backoff parameters are pre-mapped to the determined locations and sizes of the one or more assigned frequency subcarriers in the system frequency band;

reducing transmit power output by the selected one or more PA backoff parameters;

determining whether the reduced transmit power output violates a spectral mask requirement; and

responding to a spectral mask violation at least in part by further reducing the transmit power output.

26. The method of claim 25, further comprising:

determining whether any of the one or more selected PA backoff parameters causes a violation of one or more of a spectral mask, an interference requirement, and a PA capability; and

adjusting each PA backoff parameter causing said violation.

27. The method of claim 26, further comprising reporting an adjusted PA backoff parameter to a serving access point.

28. The method of claim 25, wherein the pre-mapped PA backoff parameters are pre-mapped to locations and sizes based on design specifications for the wireless communication system.

29. The method of claim 28, wherein locations in the system frequency band are mapped to increasing PA backoff parameters as a distance of the locations from an edge of the system frequency band decreases.

30. The method of claim 25, further comprising reporting a power headroom value to a serving access point.

31. The method of claim 30, wherein the power headroom value reported to the serving access point is reduced by a PA backoff parameter.

32. A wireless communications apparatus, comprising:

a memory that stores data relating to a system bandwidth comprising

a plurality of frequency subcarriers,

one or more assigned frequency subcarriers in the system bandwidth, and

a relationship between locations and sizes in the system bandwidth and corresponding maximum power reductions (MPRs); and

a processor configured to

determine locations and sizes of the one or more assigned frequency subcarriers within the system bandwidth,

reduce transmit power output by a MPR value,

determine whether the reduced transmit power output violates a spectral mask, and

respond to a determined spectral mask violation at least in part by further reducing the transmit power output.

33. The wireless communications apparatus of claim 32, wherein the processor is configured to further reduce the transmit power output upon detecting a violation of an interference requirement or transmit power capability of the wireless communications apparatus.

34. The wireless communications apparatus of claim 32, wherein the processor is configured to report an adjusted transmit power output to an associated network.

35. The wireless communications apparatus of claim 32, wherein the relationship between locations and sizes in the system bandwidth and corresponding MPRs is based at least in part on a design specification for the wireless communications apparatus.

36. The wireless communications apparatus of claim 32, wherein MPRs corresponding to locations in the system bandwidth increase as a distance of the locations from a central point of the system bandwidth increases.

37. The wireless communications apparatus of claim 32, wherein MPRs corresponding to locations in the system bandwidth increase as a distance of the locations from an edge of the system bandwidth decreases.

38. An apparatus that facilitates power amplifier (PA) management in a wireless communication system, the apparatus comprising:

means for receiving a bandwidth assignment;

means for determining an implicit power backoff assignment based on a location and size of the bandwidth assignment within a frequency band for the wireless communication system;

means for reducing transmit power output by the implicit power backoff assignment;

means for determining whether the implicit power backoff assignment violates a spectral mask requirement; and

means for responding to a spectral mask violation at least in part by further reducing the transmit power output.

39. The apparatus of claim 38, further comprising

means for adjusting power backoff from the implicit power backoff assignment to correct a violation of an interference requirement.

40. The apparatus of claim 38, further comprising

means for adjusting power backoff from the implicit power backoff assignment to correct a power backoff resulting in a higher transmit power than the apparatus is capable of producing.

41. The apparatus of claim 38, further comprising

means for reporting an adjusted power backoff to a serving network device.

42. The apparatus of claim 38, wherein the means for determining the implicit power backoff assignment comprises means for determining the implicit power backoff assignment based on a relationship between bandwidth locations and sizes and power backoffs provided in a design specification for the wireless communications apparatus.

43. A computer-readable medium, comprising:

code for mapping locations and sizes within a system frequency band to corresponding power amplifier (PA) backoffs based on a predefined specification;

code for receiving an allocation of frequency resources;

code for determining locations and sizes of the frequency resources within a system frequency band;

code for identifying one or more PA backoffs mapped to the locations and sizes of the frequency resources within the system frequency band; code for reducing transmit power by the one or more PA backoff mapped;

code for determining whether the reduced transmit power output violates a spectral mask requirement; and

code for responding to a spectral mask violation at least in part by further reducing the transmit power output.

44. The computer-readable medium of claim 43, further comprising:

code for modifying the PA backoff causing the violation.

45. An integrated circuit that executes computer-executable instructions for managing a power amplifier, the instructions comprising:

identifying maximum power reductions (MPRs), wherein the MPSs are associated with corresponding bandwidth frequencies;

identifying a spectral allocation comprising one or more frequency subcarriers;

determining a location and size in frequency of the spectral allocation;

stepping down output power of a power amplifier by a MPR;

determining whether the stepped down output power violates a spectral mask requirement; and

responding to a spectral mask violation at least in part by further stepping down output power of the power amplifier.

46. The integrated circuit of claim 45, wherein the instructions further comprise:

determining whether the output power of the power amplifier causes a spectral mask violation or excessive interference upon stepping down by the MPR associated with the location of the spectral allocation in frequency; and

stepping down the output power of the power amplifier by an additional power reduction factor upon determining that the output power of the power amplifier causes a spectral mask violation or excessive interference.