CLAIMS

1. A method comprising: demodulating, at a gateway, channel state information from a plurality of user terminals via a satellite; encoding by the gateway a plurality of blocks into a plurality of encoded blocks, each block for a corresponding user terminal, wherein the gateway encodes each block according to the value of the channel state information of its corresponding user terminal; modulating by the gateway the plurality of encoded blocks into a plurality of modulated and encoded blocks, wherein the gateway modulates each encoded block according to the value of the channel state information of its corresponding user terminal; and transmitting by the gateway to the plurality of user terminals via the satellite a slot comprising the plurality of modulated and encoded blocks.

2. The method of claim 1, wherein the encoding by the gateway comprises a first encoding of a block into a first encoded block according to the value of the channel state information of its corresponding user terminal; and wherein the modulating by the gateway comprises a first modulating of the first encoded block into a first modulated and encoded block according to the value of the channel state information of its corresponding user terminal; the method further comprising: receiving a negative acknowledgement for the first modulated and encoded block; a second encoding by the gateway of the block into a second encoded block; a second modulating by the gateway of the second encoded block into a second modulated and encoded block; and transmitting by the gateway a second slot comprising the second modulated and encoded block.

3. The method of claim 2, wherein the second encoding provides greater error correction than the first encoding.

4. The method of claim 3, wherein the second modulating has a lower order than the first modulating.

5. The method of claim 3, wherein the first modulating and the second modulating are the same modulating scheme.

6. The method of claim 3, wherein the first encoding does not include an outer code.

7. The method of claim 6, wherein the second encoding includes concatenated encoding.

8. The method of claim 2, wherein the second modulating has a lower order than the first modulating.

9. The method of claim 8, wherein the first encoding and the second encoding are the same encoding scheme.

10. The method of claim 1, the slot comprising a pilot for synchronization of the plurality of user terminals.

11. The method of claim 1, wherein the encoding by the gateway comprises: selecting a first modulation and coding scheme with no concatenated coding, the first modulation and coding scheme having an error floor; and encoding and modulating a block according to the first modulation and coding scheme if a target block error rate for the block and the error floor satisfy a relationship, otherwise if the target block error rate for the block and the error floor do not satisfy the relationship then encoding and modulating the block according to a second modulation and coding scheme where the second modulation and coding scheme includes an outer code.

12. The method of claim 11, wherein the relationship is the less than inequality.

13. The method of claim 11, wherein the second modulation and coding scheme includes an inner turbo code and an outer BCH code.

14. A gateway comprising: a modem; and at least one processor in communication with the modem, the at least one processor and the modem configured, in combination, to: demodulate channel state information from a plurality of user terminals via a satellite; encode a

plurality of blocks into a plurality of encoded blocks, each block for a corresponding user terminal, wherein each block is encoded according to the value of the channel state information of its corresponding user terminal; modulate the plurality of encoded blocks into a plurality of modulated and encoded blocks, wherein each encoded block is modulated according to the value of the channel state information of its corresponding user terminal; and cause the gateway to transmit the plurality of user terminals via the satellite a slot comprising the plurality of modulated and encoded blocks.

15. The gateway of claim 14, wherein the at least one processor and the modem are further configured, in combination, to: encode a block into a first encoded block according to the value of the channel state information of its corresponding user terminal; modulate the first encoded block into a first modulated and encoded block according to the value of the channel state information of its corresponding user terminal; and in response to the gateway receiving a negative acknowledgement for the first modulated and encoded block, encode the block into a second encoded block, modulate the second encoded block into a second modulated and encoded block, and cause the gateway to transmit a second slot comprising the second modulated and encoded block.

16. The gateway of claim 15, wherein the second encoded block has greater error correction than the first encoded block.

17. The gateway of claim 16, wherein the second modulated and encoded block has a lower order modulation than the first modulated and encoded block.

18. The gateway of claim 16, wherein the at least one processor and the modem are further configured, in combination, to modulate the first encoded block and the second encoded block according to the same modulation scheme.

19. The gateway of claim 16, wherein the at least one processor and the modem are further configured, in combination, to encode the block into the first encoded block without concatenating encoding.

20. The gateway of claim 19, wherein the at least one processor and the modem are further configured, in combination, to encode the block into the second encoded block with concatenated encoding.

21. The gateway of claim 15, wherein the second modulated and encoded block has a lower order modulation than the first modulated and encoded block.

22. The gateway of claim 21, wherein the at least one processor and the modem are further configured, in combination, to encode the block into the first encoded block and encode the block into the second encoded block according to the same encoding scheme.

23. The gateway of claim 14, the slot comprising a pilot for synchronization of the plurality of user terminals.

24. The gateway of claim 14, wherein the at least one processor and the modem are further configured, in combination, to select a first modulation and coding scheme with no concatenated coding, where the first modulation and coding scheme has an error floor; and encode and modulate a block according to the first modulation and coding scheme if a target block error rate for the block and the error floor satisfy a relationship, otherwise if the target block error rate for the block and the error floor do not satisfy the relationship, then encode and modulate the block according to a second modulation and coding scheme where the second modulation and coding scheme includes an outer code.

25. The gateway of claim 24, wherein the relationship is the less than inequality.

26. The gateway of claim 24, wherein the second modulation and coding scheme comprises an inner turbo code and an outer BCH code.

27. A non-transitory computer-readable media having stored instructions that, when executed by at least one processor in a gateway, cause the gateway to perform a method

comprising: demodulating channel state information from a plurality of user terminals via a satellite; encoding a plurality of blocks into a plurality of encoded blocks, each block for a corresponding user terminal, wherein each block is encoded according to the value of the channel state information of its corresponding user terminal; modulating the plurality of encoded blocks into a plurality of modulated and encoded blocks, wherein each encoded block is modulated according to the value of the channel state information of its corresponding user terminal; and transmitting to the plurality of user terminals via the satellite a slot comprising the plurality of modulated and encoded blocks.

28. The non-transitory computer-readable media of claim 27, wherein the encoding in the method comprises a first encoding of a block into a first encoded block according to the value of the channel state information of its corresponding user terminal; and wherein the modulating in the method comprises a first modulating of the first encoded block into a first modulated and encoded block according to the value of the channel state information of its corresponding user terminal; the method further comprising: receiving a negative acknowledgement for the first modulated and encoded block; a second encoding of the block into a second encoded block; a second modulating of the second encoded block into a second modulated and encoded block; and transmitting a second slot comprising the second modulated and encoded block.

29. The non-transitory computer-readable media of claim 28, wherein the second encoding provides greater error correction than the first encoding.

30. The non-transitory computer-readable media of claim 29, wherein the second modulating has a lower order than the first modulating.

31. The non-transitory computer-readable media of claim 29, wherein the first modulating and the second modulating are the same modulating scheme.

32. The non-transitory computer-readable media of claim 29, wherein the first encoding does not include an outer code.

33. The non-transitory computer-readable media of claim 32, wherein the second encoding includes concatenated encoding.

34. The non-transitory computer-readable media of claim 28, wherein the second modulating has a lower order than the first modulating.

35. The non-transitory computer-readable media of claim 34, wherein the first encoding and the second encoding are the same encoding scheme.

36. The non-transitory computer-readable media of claim 27, the slot comprising a pilot for synchronization of the plurality of user terminals.

37. The non-transitory computer-readable media of claim 27, wherein the encoding in the method comprises: selecting a first modulation and coding scheme with no concatenated coding, the first modulation and coding scheme having an error floor; and encoding and modulating a block according to the first modulation and coding scheme if a target block error rate for the block and the error floor satisfy a relationship, otherwise if the target block error rate for the block and the error floor do not satisfy the relationship, then encoding and modulating the block according to a second modulation and coding scheme where the second modulation and coding scheme includes an outer code.

38. The non-transitory computer-readable media of claim 37, wherein the relationship is the less than inequality.

39. The non-transitory computer-readable media of claim 37, wherein the second modulation and coding scheme includes an inner turbo code and an outer BCH code.

40. A gateway comprising: means for demodulating, at the gateway, channel state information from a plurality of user terminals via a satellite; means for encoding by the gateway a plurality of blocks into a plurality of encoded blocks, each block for a corresponding user terminal, wherein the gateway encodes each block according to the value of the channel state

information of its corresponding user terminal; means for modulating by the gateway the plurality of encoded blocks into a plurality of modulated and encoded blocks, wherein the gateway modulates each encoded block according to the value of the channel state information of its corresponding user terminal; and means for transmitting by the gateway to the plurality of user terminals via the satellite a slot comprising the plurality of modulated and encoded blocks.

41. The gateway of claim 40, wherein the means for encoding by the gateway comprises a first encoding of a block into a first encoded block according to the value of the channel state information of its corresponding user terminal; wherein the means for modulating by the gateway comprises a first modulating of the first encoded block into a first modulated and encoded block according to the value of the channel state information of its corresponding user terminal; and wherein if the gateway receives a negative acknowledgement for the first modulated and encoded block, the means for encoding comprises a second encoding by the gateway of the block into a second encoded block, the means for modulating comprises a second modulating by the gateway of the second encoded block into a second modulated and encoded block, and the means for transmitting comprises the gateway transmitting a second slot comprising the second modulated and encoded block.

42. The gateway of claim 41, wherein the second encoding provides greater error correction than the first encoding.

43. The gateway of claim 42, wherein the second modulating has a lower order than the first modulating.

44. The gateway of claim 42, wherein the first modulating and the second modulating are the same modulating scheme.

45. The gateway of claim 42, wherein the first encoding does not include an outer code.

46. The gateway of claim 45, wherein the second encoding includes concatenated encoding.

47. The gateway of claim 41, wherein the second modulating has a lower order than the first modulating.

48. The gateway of claim 47, wherein the first encoding and the second encoding are the same encoding scheme.

49. The gateway of claim 40, the slot comprising a pilot for synchronization of the plurality of user terminals.

50. The gateway of claim 40, wherein the means for encoding by the gateway comprises: selecting a first modulation and coding scheme with no concatenated coding, the first modulation and coding scheme having an error floor; and encoding and modulating a block according to the first modulation and coding scheme if a target block error rate for the block and the error floor satisfy a relationship, otherwise if the target block error rate for the block and the error floor do not satisfy the relationship, then encoding and modulating the block according to a second modulation and coding scheme where the second modulation and coding scheme includes an outer code.

51. The gateway of claim 50, wherein the relationship is the less than inequality.

52. The gateway of claim 50, wherein the second modulation and coding scheme includes an inner turbo code and an outer BCH code.