purpose of minimizing interference and maintaining synchronization between an access terminal **24** and a base station **26**.

Those skilled in the art should readily appreciate that the system and methods for synchronization message power control as defined herein are deliverable to a wireless device in many forms, including but not limited to a) information permanently stored on non-writeable storage media such as ROM devices, b) information alterably stored on writeable storage media such as floppy disks, magnetic tapes, CDs, RAM devices, and other magnetic and optical media, or c) information conveyed to a computer through communication media, for example using baseband signaling or broadband signaling techniques, as in an electronic network such as the Internet or telephone modem lines. The operations and methods may be implemented in a software executable by a processor or as a set of instructions embedded in a carrier wave. Alternatively, the operations and methods may be embodied in whole or in part using hardware components, such as Application Specific Integrated Circuits (ASICs), state machines, controllers or other hardware components or devices, or a combination of hardware, software, and firmware components.

While this invention has been particularly shown and described with references to preferred embodiments thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the scope of the invention encompassed by the appended claims.

What is claimed is:

1. A subscriber unit comprising:

an antenna;

a circuit operatively coupled to the antenna, the circuit configured to transmit traffic data to a network on a first type of channel, and control information to the network on a second type of channel that does not carry traffic data, wherein the control information is transmitted on the second type of channel in at least one second time period between a first time period in which traffic data is being transmitted on the first type of channel and a third time period in which traffic data is being transmitted on the first type of channel;

wherein the circuit is further configured to receive first power commands for the first type of channel from the network and second power commands for the second type of channel from the network; and

wherein the circuit is further configured to set a transmission power level for the first type of channel in response to the first power commands and not the second power commands and set a transmission power level for the second type of channel in response to the second power commands and not the first power commands.

2. The subscriber unit of claim **1** wherein the second type of channel includes an indication that the subscriber unit has traffic data to transmit on the first type of channel.

3. The subscriber unit of claim **1** wherein the second type of channel is a maintenance channel.

4. The subscriber unit of claim **1** wherein the second type of channel is not transmitted continuously.

5. The subscriber unit of claim **1** wherein the transmission power level of the first type of channel after transmission of the second type of channel is based on first power commands received before and after transmission of the second type of channel.

6. The subscriber unit of claim **1**, wherein the at least one second time period comprises a continuous transmission interval.

7. The subscriber unit of claim **1**, wherein the at least one second time period comprises multiple transmission intervals.

8. The subscriber unit of claim **1**, wherein the at least one second time period does not occur during the first time period or the third time period.

9. The subscriber unit of claim **1**, wherein the first type of channel is a data traffic channel.

10. A method comprising:

transmitting, by a subscriber unit, traffic data to a network on a first type of channel and control information to the network on a second type of channel that does not carry traffic data, wherein the control information is transmitted on the second type of channel in at least one second time period between a first time period in which traffic data is being transmitted on the first type of channel and a third time period in which traffic data is being transmitted on the first type of channel;

receiving, by the subscriber unit, first power commands for the first type of channel from the network and second power commands for the second type of channel from the network; and

setting, by the subscriber unit, a transmission power level for the first type of channel in response to the first power commands and not the second power commands and a transmission power level for the second type of channel in response to the second power commands and not the first power commands.

11. The method of claim **10** wherein the second type of channel includes an indication that the subscriber unit has data to transmit on the first type of channel.

12. The method of claim **10** wherein the second type of channel is a maintenance channel.

13. The method of claim **10** wherein the second type of channel is not transmitted continuously.

14. The method of claim **10** wherein the transmission power level of the first type of channel after transmission of the second type of channel is based on first power commands received before and after transmission of the second type of channel.

15. The method of claim **10**, wherein the at least one second time period comprises a continuous transmission interval.

16. The method of claim **10**, wherein the at least one second time period comprises multiple transmission intervals.

17. The method of claim **10**, wherein the at least one second time period does not occur during the first time period or the third time period.

18. The method of claim **10**, wherein the first type of channel is a data traffic channel.

19. A network device comprising:

an antenna;

a circuit operatively coupled to the antenna, the circuit configured to receive traffic data from a subscriber unit on a first type of channel and control information from the subscriber unit on a second type of channel that does not carry traffic data, wherein the control information on the second type of channel is received in at least one second time period between a first time period in which traffic data is being received on the first type of a channel and a third time period in which traffic data is being received on the first type of channel;

wherein the circuit is further configured to derive first power commands for the first type of channel and second power commands for the second type of channel; and