CLAIMS

1. One or more computer-readable media having instructions that, when executed, cause a user equipment (UE) to:

monitor a high speed downlink packet access (HSDPA) channel, wherein the HSDPA channel includes at least one of a high speed shared control channel (HS-SCCH), or a high speed physical downlink shared channel (HS-PDSCH);

determine a channel quality of the HSDPA channel, wherein the channel quality is determined based at least in part on a ratio of energy per chip to power density;

declare a radio link failure if the determined channel quality of the HSDPA channel remains below a predetermined threshold over a predetermined period of time; and

invoke a procedure to recover the radio link.

2. The one or more computer-readable media of claim 1, wherein the at least one processor is to execute instructions to control transmission of hybrid automatic repeat request (H-ARQ) feedback on a high speed dedicated physical control channel (HS-DPCCH) in response to receiving a successful transmission on the HS-SCCH or the HS-PDSCH.

3. The one or more computer-readable media of claim 1, wherein declaration of the radio link failure is based on whether a ratio of an acknowledgement (ACK) to negative acknowledgment (NACK), which is obtained from a cyclic redundancy check (CRC) on the HS-PDSCH transmission, falls below a predetermined threshold.

4. The one or more computer-readable media of claim 1, wherein the at least one processor is to execute instructions to further determine the channel quality based at least in part on a common pilot channel (CPICH) reception.

5. The one or more computer-readable media of claim 1, wherein the at least one processor is to execute instructions to control transmission a channel quality indicator (CQI) in response to the determined channel quality.

6. One or more computer-readable media having instructions that, when executed, cause a user equipment (UE) to:

monitor at least a high speed shared control channel (HS-SCCH);

determine a channel quality of the HS-SCCH, wherein the channel quality is determined based at least in part on a ratio of energy per chip to power density;

declare a radio link failure if the determined channel quality of the HS-SCCH remains below a predetermined threshold over a predetermined period of time; and

invoke a procedure to recover the radio link.

7. The one or more computer-readable media of claim 6, wherein the at least one processor is to execute instructions to control transmission of hybrid automatic repeat request (H-ARQ) feedback on a high speed dedicated physical control channel (HS-DPCCH) in response to receiving a successful transmission on the HS-SCCH or a high speed physical downlink shared channel (HS-PDSCH).

8. The one or more computer-readable media of claim 6, wherein declaration of the radio link failure is based on whether a ratio of an acknowledgement (ACK) to negative acknowledgment (NACK) , which is obtained from a cyclic redundancy check (CRC) on a high speed physical downlink shared channel (HS-PDSCH) transmission, falls below a predetermined threshold.

9. The one or more computer-readable media of claim 6, wherein the at least one processor is to execute instructions to further determine the channel quality based at least in part on a common pilot channel (CPICH) reception.

10. The one or more computer-readable media of claim 6, wherein the at least one processor is to execute instructions to control transmission a channel quality indicator (CQI) in response to the determined channel quality.

11. An apparatus to be employed by a user equipment (UE), the apparatus comprising:

means for monitoring at least a high speed shared control channel (HS-SCCH);

means for determining a channel quality of the HS-SCCH, wherein the channel quality is determined based at least in part on a ratio of energy per chip to power density;

means for declaring a radio link failure if the determined channel quality of the HS-SCCH remains below a predetermined threshold over a predetermined period of time;

means for invoking a procedure to recover the radio link; and

means for transmitting hybrid automatic repeat request (H-ARQ) feedback on a high speed dedicated physical control channel (HS-DPCCH) in response to receiving a successful

transmission on the HS-SCCH or a high speed physical downlink shared channel (HS-PDSCH).

12. An apparatus to be employed by a user equipment (UE), the apparatus comprising:

means for monitoring at least a high speed shared control channel (HS-SCCH);

means for determining a channel quality of the HS-SCCH, wherein the channel quality is determined based at least in part on a ratio of energy per chip to power density;

means for declaring a radio link failure if the determined channel quality of the HS-SCCH remains below a predetermined threshold over a predetermined period of time; and

means for invoking a procedure to recover the radio link, wherein declaration of the radio link failure is based on whether a ratio of an acknowledgement (ACK) to negative acknowledgment (NACK), which is obtained from a cyclic redundancy check (CRC) on a high speed physical downlink shared channel (HS-PDSCH) transmission, falls below a predetermined threshold.

13. An apparatus to be employed by a user equipment (UE), the apparatus comprising:

means for monitoring at least a high speed shared control channel (HS-SCCH);

means for determining a channel quality of the HS-SCCH, wherein the channel quality is determined based at least in part on a ratio of energy per chip to power density;

means for declaring a radio link failure if the determined channel quality of the HS-SCCH remains below a predetermined threshold over a predetermined period of time; and

means for invoking a procedure to recover the radio link,

wherein the means for determining the channel quality of the HS-SCCH includes means for determining the channel quality based at least in part on a common pilot channel (CPICH) reception.

14. An apparatus to be employed by a user equipment (UE), the apparatus comprising:

means for monitoring at least a high speed shared control channel (HS-SCCH);

means for determining a channel quality of the HS-SCCH, wherein the channel quality is determined based at least in part on a ratio of energy per chip to power density;

means for declaring a radio link failure if the determined channel quality of the HS-SCCH remains below a predetermined threshold over a predetermined period of time;

means for invoking a procedure to recover the radio link; and

means for transmitting a channel quality indicator (CQI) in response to the determined channel quality.

15. An apparatus to be implemented in a user equipment (UE) capable of detecting a radio link (RL) failure, the apparatus comprising:

a measurement unit to:

monitor a high speed shared control channel (HS-SCCH) or a high speed physical downlink shared channel (HS-PDSCH) of a high speed downlink packet access (HSDPA) channel, wherein the HSDPA channel is provided by a Node B; and

determine a channel quality of the HSDPA channel; and

a controller coupled with the measurement unit, the controller to:

declare a radio link (RL) failure if the determined channel quality remains below a predetermined threshold over a predetermined period of time; and

invoke a procedure to recover the RL when the RL failure is declared, wherein the controller is to declare the RL failure based on whether a ratio of an acknowledgement (ACK) to negative acknowledgment (NACK), which is obtained from a cyclic redundancy check (CRC) on the HS-PDSCH transmission, falls below a predetermined threshold.

16. One or more computer-readable media having instructions that, when executed, cause a user equipment (UE) to:

monitor a high speed shared control channel (HS-SCCH) or a high speed physical downlink shared channel (HS-PDSCH) of a high speed downlink packet access (HSDPA) channel, wherein the HSDPA channel is provided by a Node B; and

determine a channel quality of the HSDPA channel;

declare a radio link (RL) failure if the determined channel quality remains below a predetermined threshold over a predetermined period of time; and

invoke a procedure to recover the RL when the RL failure is declared.

17. The one or more computer-readable media of claim 16, wherein the at least one processor is to execute instructions to further determine the channel quality based at least in part on a signal-to-interference ratio (SIR) or a block error ratio (BLER).

18. The one or more computer-readable media of claim 16, wherein the at least one processor is to execute instructions to control transmission of hybrid automatic repeat request (H-ARQ) feedback on a high speed dedicated physical control channel (HS-DPCCH) in response to receiving a successful transmission on the HS-SCCH or the HS-PDSCH, and the at least one

processor is to execute instructions control transmission a channel quality indicator (CQI) in response to the determined channel quality.

19. The one or more computer-readable media of claim 16, wherein declaration of the radio link failure is based on whether a ratio of an acknowledgement (ACK) to negative acknowledgment (NACK), which is obtained from a cyclic redundancy check (CRC) on the HS-PDSCH transmission, falls below a predetermined threshold.

20. The one or more computer-readable media of claim 16, wherein the at least one processor is to execute instructions to further determine the channel quality based at least in part on a common pilot channel (CPICH) reception.