

CLAIMS:

1. A method performed by a wireless device, the method comprising:
detecting (612) a radio link failure (RLF);
5 performing (614) a reestablishment procedure;
determining (616) whether the reestablishment procedure was successful;
storing (618) information about the success or failure of the establishment procedure in
a RLF report;
upon the wireless device transitioning from an idle mode to a connected mode in a
10 currently connected cell, determining (620) that a reconnect cell identifier is absent from the
RLF report and conditionally including an identifier of the currently connected cell as the
reconnect cell identifier; and
transmitting (622) the RLF report to a network node.
- 15 2. The method of claim 1, wherein:
storing information about the success or failure of the establishment procedure in a RLF
report comprises, upon determining the reestablishment procedure was unsuccessful, storing
the reestablishment cell identifier in the RLF report.
- 20 3. The method of claim 2, further comprising storing one or more of the following
in the RLF report:
an indication that the reestablishment procedure failed;
an indication that no suitable cell was found; and
an indication that the wireless device received a reestablishment reject message.
- 25 4. The method of any one of claims 1-3, wherein conditionally including an
identifier of the currently connected cell as the reconnect cell identifier comprises determining
the RLF report includes a reestablishment cell identifier.

5. The method of claim 1, wherein storing information about the success or failure of the establishment procedure in a RLF report comprises storing the reestablishment cell identifier in the RLF report upon determining the reestablishment procedure was successful.

5 6. The method of claim 5, wherein conditionally including an identifier of the currently connected cell as the reconnect cell identifier comprises determining the RLF report does not include a reestablishment cell identifier.

7. The method of any one of claims 1-6, wherein conditionally including an
10 identifier of the currently connected cell as the reconnect cell identifier further comprises storing one or more of the following in the RLF report:

a global cell identifier of the reconnect cell;
a physical cell identifier of the reconnect cell;
radio frequency information for the reconnect cell;
15 a tracking area code of the reconnect cell; and
a public land mobile network identifier of the reconnect cell.

8. A wireless device (110) comprising processing circuitry (120) operable to:
detect a radio link failure (RLF);
20 perform a reestablishment procedure;
determine whether the reestablishment procedure was successful;
store information about the success or failure of the establishment procedure in a RLF
report;

upon the wireless device transitioning from an idle mode to a connected mode in a
25 currently connected cell, determine that a reconnect cell identifier is absent from the RLF report
and conditionally including an identifier of the currently connected cell as the reconnect cell
identifier; and

transmit the RLF report to a network node.

30 9. The wireless device of claim 8, wherein:

the processing circuitry is operable to store information about the success or failure of the establishment procedure in a RLF report by, upon determining the reestablishment procedure was unsuccessful, storing the reestablishment cell identifier in the RLF report.

- 5 10. The wireless device of claim 9, the processing circuitry further operable to store one or more of the following in the RLF report:
- an indication that the reestablishment procedure failed;
 - an indication that no suitable cell was found; and
 - an indication that the wireless device received a reestablishment reject message.

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11. The wireless device of any one of claims 8-10, wherein the processing circuitry is operable conditionally include an identifier of the currently connected cell as the reconnect cell identifier by determining the RLF report includes a reestablishment cell identifier.

- 15 12. The wireless device of claim 8, wherein the processing circuitry is operable to store information about the success or failure of the establishment procedure in a RLF report by storing the reestablishment cell identifier in the RLF report upon determining the reestablishment procedure was successful.

- 20 13. The wireless device of claim 12, wherein the processing circuitry is operable to conditionally include an identifier of the currently connected cell as the reconnect cell identifier by determining the RLF report does not include a reestablishment cell identifier.

- 25 14. The wireless device of any one of claims 8-13, wherein the processing circuitry operable to conditionally include an identifier of the currently connected cell as the reconnect cell identifier further is further operable to store one or more of the following in the RLF report:

- a global cell identifier of the reconnect cell;
- a physical cell identifier of the reconnect cell;
- radio frequency information for the reconnect cell;
- 30 a tracking area code of the reconnect cell; and

a public land mobile network identifier of the reconnect cell.

15. A method performed by a first network node, the method comprising:
receiving (712) a radio link failure (RLF) report from a wireless device;
5 determining (714) a reestablishment procedure failed based on a reconnect cell
identifier and the presence or absence of a reestablishment cell identifier in the RLF report; and
based on the determination that the reestablishment procedure failed, optimizing (716)
mobility parameters based on the RLF report.

10 16. The method of claim 15, wherein optimizing mobility parameters comprises
optimizing parameters at the first network node.

17. The method of claim 15, wherein optimizing mobility parameters comprises
transmitting an indication of the reestablishment failure to a second network node.

15 18. The method of claim 17, wherein the second network node is a source network
node.

19. The method of claim 17, wherein the second network node is a target network
20 node.

20. A network node (160) comprising processing circuitry (170) operable to:
receive a radio link failure (RLF) report from a wireless device;
determine a reestablishment procedure failed based on a reconnect cell identifier and
25 the presence or absence of a reestablishment cell identifier in the RLF report; and
based on the determination that the reestablishment procedure failed, optimize mobility
parameters based on the RLF report.

21. The network node of claim 20, wherein the processing circuitry is operable to
30 optimize mobility parameters by optimizing parameters at the first network node.

22. The network node of claim 20, wherein the processing circuitry is operable to optimize mobility parameters by transmitting an indication of the reestablishment failure to a second network node.

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23. The network node of claim 22, wherein the second network node is a source network node.

24. The network node of claim 22, wherein the second network node is a target
10 network node.