

CLAIMS

1. A method for reporting a Master Cell Group (MCG) failure by a wireless communication device, comprising:

receiving, from a first wireless communication node, a configuration message that includes a first indicator;

detecting a first MCG failure; and

reporting the first MCG failure to the first wireless communication node, via a second wireless communication node, according to the first indicator, a first failure type of the first MCG failure, a status of a Secondary Cell Group (SCG), and a Signal Radio Bearer (SRB) configuration, wherein the first indicator is configured to indicate whether the wireless communication device is allowed to report the first MCG failure.

2. The method of claim 1, wherein the first failure type comprises an MCG Radio Link Failure (RLF).

3. The method of claim 1, wherein reporting the first MCG failure to the first wireless communication node comprising:

transmitting a first message to the second wireless communication node;

transmitting a second message to the first wireless communication node from the second wireless communication node;

determining an MCG reconfiguration by the first wireless communication node;

receiving a third message by the second wireless communication node from the first wireless communication node; and

receiving a fourth message by the wireless communication device from the second wireless communication node,

wherein the first message and the second message each comprises information of an MCG failure report, and wherein the third message and the fourth message each comprises information of the MCG reconfiguration.

4. The method of claim 1, wherein the first MCG failure is reported through one of the following: an SRB3 or an SCG leg of a split SRB1.

5. The method of claim 1, wherein reporting the first MCG failure to the first wireless communication node comprises transmitting an MCG failure report to the second wireless communication node, and the MCG failure report comprises at least one of the following: the first failure type, measurement results of at least one serving cell, or measurement results of at least one neighboring cell.

6. The method of claim 3, wherein the fourth message is transmitted through an SRB3 or an SCG leg of a split SRB1.

7. The method of claim 3, wherein the MCG failure report is encapsulated in at least one RRC container and wherein the MCG reconfiguration is encapsulated in at least one RRC container.

8. The method of claim 1, further comprising performing at least one of the following:
terminating a first timer;
starting a second timer; or
resetting an MCG MAC.

9. The method of claim 8, wherein the first timer is configured for RL monitoring and beam failure detection, and wherein the second timer is configured for MCG failure report.

10. The method of claim 1, further comprising performing an RRC re-establishment, in response to at least one of the following conditions is met: when a SCG is not available; when an on-going procedure, comprising a primary secondary cell (PSCell) change procedure, is performed; or when a second timer is expired.

11. A method for performing a Master Cell Group (MCG) reconfiguration by a first wireless communication node, comprising:

sending, to a wireless communication device, a configuration message that includes a first indicator;

receiving an MCG failure report of a first MCG failure reported from the wireless communication device, via a second wireless communication node, according to the first indicator, a first failure type of the first MCG failure, a status of a Secondary Cell Group (SCG), and a Signal Radio Bearer (SRB) configuration, wherein the first indicator is configured to indicate whether the wireless communication device is allowed to report the first MCG failure; and

determining the MCG reconfiguration according to the MCG failure report.

12. The method of claim 11, wherein the first failure type comprises an MCG Radio Link Failure (RLF).

13. The method of claim 11, wherein the MCG failure report is transmitted through one of the following: an SRB3 or an SCG leg of a split SRB1.

14. A wireless communication device, comprising:

a processor, configured to detect a first Master Cell Group (MCG) failure; and

a transceiver, electrically coupled to the processor and configured to:

receive, from a first wireless communication node, a configuration message that includes a first indicator; and

report the first MCG failure to the first wireless communication node, via a second wireless communication node, according to the first indicator, a first failure type of the first MCG failure, a status of a Secondary Cell Group (SCG), and a Signal Radio Bearer (SRB) configuration, wherein the first indicator is configured to indicate whether the wireless communication device is allowed to report the first MCG failure.

15. The wireless communication device of claim 14, wherein the first failure type comprises an MCG Radio Link Failure (RLF).

16. The wireless communication device of claim 14, wherein the first MCG failure is reported through one of the following: an SRB3 or an SCG leg of a split SRB1.

17. The wireless communication device of claim 14, wherein the transceiver is further configured to, for reporting the first MCG failure to the first wireless communication node, transmit an MCG failure report to the second wireless communication node, and wherein the

MCG failure report comprises at least one of the following: the first failure type, measurement results of at least one serving cell, or measurement results of at least one neighboring cell.

18. The wireless communication device of claim 14, wherein the processor is further configured to:

- terminate a first timer;

- start a second timer; or

- reset an MCG MAC.

19. The wireless communication device of claim 18, wherein the first timer is configured for RL monitoring and beam failure detection, and wherein the second timer is configured for MCG failure report.

20. The wireless communication device of claim 18, wherein the processor is further configured to cause the transceiver to perform an RRC re-establishment in response to at least one of the following conditions is met:

- when a SCG is not available;

- when an on-going procedure, comprising a primary secondary cell (PSCell) change procedure, is performed; or

- when a second timer is expired.

21. A wireless communication node, comprising:

- a transceiver, configured to:

send, to a wireless communication device, a configuration message that includes a first indicator; and

receive a Master Cell Group (MCG) failure report of a first MCG failure from the wireless communication device, via a second wireless communication node, according to the first indicator, a first failure type of the first MCG failure, a status of a Secondary Cell Group (SCG), and a Signal Radio Bearer (SRB) configuration, wherein the first indicator is configured to indicate whether the wireless communication device is allowed to report the first MCG failure; and

a processor, electrically coupled to the transceiver and configured to determine an MCG reconfiguration according to the MCG failure report.

22. The wireless communication node of claim 21, wherein the first failure type comprises an MCG Radio Link Failure (RLF).

23. The wireless communication node of claim 21, wherein the MCG failure report is transmitted through one of the following: an SRB3 or an SCG leg of a split SRB1.