WHAT IS CLAIMED IS:

1. A method comprising:

determining a set of failed cells from serving cells associated with a first device based on a beam failure detection, wherein the beam failure detection is based on a failure of at least one failure detection resource set, wherein one or more of the serving cells are configured with two failure detection resource sets; and

generating a beam failure report indicating respective one or more failure detection resource sets associated with at least a portion of the set of failed cells.

2. The method of claim 1, wherein generating the beam failure report comprises:

determining a respective first failed failure detection resource set for each of the set of failed cells; and

generating the beam failure report based on the determined first failed failure detection resource sets.

3. The method of claim 1 or 2, wherein the determined first failed failure detection resource sets are associated with a set of control resource sets having indices lower than a threshold number.

4. The method of claim 1 or 2, wherein the determined first failed failure detection resource sets have identifiers lower than a threshold number.

5. The method of any one of claims 1 to 4, wherein generating the beam failure report comprises:

determining a respective first failed failure detection resource set for each of the set of failed cells;

in accordance with a determination that a subset of failed cells in the set of failed cells are detected with more than one failed failure detection resource sets, determining a

respective second failed failure detection resource set for at least a portion of the subset of failed cells,

the determined second failed failure detection resource sets being different from the determined first failed failure detection resource sets; and

generating the beam failure report based on the determined first and the second failed failure detection resource sets.

6. The method of any one of claims 1 to 5, wherein the beam failure report includes an indication whether a single failure detection resource set or more than one failure detection resource sets for one failed cell in the set of failed cells are failed.

7. The method of any one of claims 1 to 5, wherein the determined first failed failure detection resource sets are associated with a set of control resource sets having indices lower than a threshold number.

8. The method of any one of claims 1 to 5, wherein the determined first failed failure detection resource sets have identifiers lower than a threshold number.

9. The method of claim 5, further comprising:
determining the respective second failed failure detection resource set for at least a portion of the subset of failed cells based on indices of the subset of failed cells and a grant size for the beam failure report.

10. The method of claim 5, further comprising:
determining the respective second failed failure detection resource set for at least a portion of the subset of failed cells based on cell types of the subset of failed cells and a grant size for the beam failure report.

11. The method of any one of claims 1 to 10, wherein generating the beam failure report comprises:

in accordance with a determination that more than one beam failure detection resource sets are configured for respective one of failed cells, determining a respective first failure detection resource set for each of the set of failed cells and a respective second failure detection resource set for at least a portion of the set of failed cells; and

generating the beam failure report based on the determined first and second failure detection resource sets.

12. The method of claim 11, wherein the beam failure report includes respective indications whether the determined first and second failure detection resource set are failed.

13. The method of claim 11, wherein the beam failure report includes an indication of identifiers for the determined first failure detection resource sets.

14. The method of claim 11, wherein the beam failure report includes respective indications whether the determined second failure detection resource sets are failed.

15. The method of any one of claims 11 to 14, wherein determining the respective second failure detection resource set for the at least a portion of the set of failed cells comprises:

determining a portion of failed cells from the set of failed cells based on at least one of the following:

indices of the set of failed cells, or

cell types of the set of failed cells; and

determining the respective second failure detection resource set for each of the portion of failed cells.

16. The method of any one of claims 1 to 15, wherein generating the beam failure report comprises:

determining the portion of the set of failed cells based on cell types of the set of failed cells;

determining a respective first failed failure detection resource set for the portion of the set of failed cells; and

generating the beam failure report based on the determined first failed failure detection resource sets.

17. The method of any one of claims 1 to 16, wherein determining the portion of the set of failed cells comprises:

in accordance with a determination that more than one failure detection resource sets are associated with each of at least one failed cell and the more than one failure detection resource sets associated with each of at least one failed cell are failed, determining the at least one failed cell as the portion of the set of failed cells.

18. The method of any one of claims 1 to 17, wherein determining the portion of the set of failed cells:

in accordance with a determination that a single failure detection resource set is associated with each of at least one failed cell, determining the at least one failed cell as the portion of the set of failed cells.

19. The method of any one of claims 1 to 18, wherein determining the portion of the set of failed cells comprises:

determining the portion of the set of failed cells based on a type of the beam failure detection.

20. The method of claim 19, further comprising;

in accordance with a determination that more than one beam failure detection resource sets associated with a failed cell of the first device are failed and the failed cell is special cell of the first device, transmit the beam failure report in a message of a random access procedure.

21. The method of claim 20, wherein generating the beam failure report comprises:

determining a failed failure detection resource set from a plurality of failed failure detection resource sets associated with more than one beam failure detection resource sets based on control resource set indices associated with the plurality of failed failure detection resource sets; and

generating the beam failure report based on the determined failed failure detection resource set.

22. A first device comprising:

at least one processor; and

at least one memory including computer program codes;

the at least one memory and the computer program codes are configured to, with the at least one processor, cause the first device at least to perform the method of any of claims 1-21.

23. An apparatus comprising:

means for determining a set of failed cells associated with the first device based on a beam failure detection; and

means for generating a beam failure report indicating respective one or more failure detection resource sets associated with at least a portion of the set of failed cells.

24. A non-transitory computer readable medium comprising program instructions for causing an apparatus to perform at least the method of any of claims 1-21.