

CLAIMS

1. A measurement method, comprising:
 - receiving, by a terminal device, measurement configuration information sent by a network device, the measurement configuration information comprising a plurality of measurement object classifications to be measured, wherein one of the plurality of measurement object classifications is cell and another one of the plurality of measurement object classifications is beam;
 - measuring, by the terminal device, a plurality of measurement objects belonging to the measurement object classifications of cell and beam according to the measurement configuration information; and
 - sending, by the terminal device, a measurement report to the network device, the measurement report comprising measurement results of measurement objects, each of which satisfies a reporting condition, of the plurality of measurement objects.
2. The method of claim 1, wherein the measurement configuration information further comprises a plurality of measurement conditions each corresponding to a measurement object classification, and measuring, by the terminal device, the plurality of measurement objects each belonging to a measurement object classification according to the measurement configuration information comprises:
 - determining, by the terminal device, that each of the plurality of measurement objects satisfies the measurement condition corresponding to the measurement object classification to which the measurement object belongs; and
 - measuring, by the terminal device, the plurality of measurement objects.
3. The method of claim 1 or 2, wherein the measurement configuration information further comprises a plurality of reporting conditions each corresponding to a measurement object classification, and the method further comprises:
 - before sending, by the terminal device, the measurement report to the network device, generating, by the terminal device, the measurement report according to measurement results of the plurality of measurement objects and the plurality of reporting conditions each corresponding to a measurement object classification.
4. The method of claim 3, wherein generating, by the terminal device, the measurement report according to the measurement results of the plurality of measurement objects and the plurality of reporting conditions each corresponding to a measurement object classification comprises:
 - determining, by the terminal device, a present measurement object classification to be written into the measurement report according to the measurement results of the plurality of measurement objects and a sequence of the plurality of measurement object classifications;
 - determining whether the measurement result of the measurement object belonging to the present measurement object classification meets the reporting condition corresponding to the present measurement object classification;
 - responsive to that the measurement result of the measurement object of the present measurement object classification meets the reporting condition corresponding to the present measurement object classification, writing, by the terminal device, the measurement result of the measurement object of the present measurement object classification into the measurement report, determining the next measurement object classification according to the sequence and determining whether the measurement result of the measurement object belonging to the next measurement object classification meets the reporting condition corresponding to the next measurement object class; and
 - responsive to that the measurement result of the measurement object of the present measurement object classification does not meet the reporting condition corresponding to the present measurement object classification, stopping filling, by the terminal device, the measurement report.
5. The method of claim 4, wherein the reporting condition corresponding to the present

measurement object classification comprises at least one of:

the measurement result of the measurement object of the present measurement object classification is higher than a first preset threshold, or the measurement result of the measurement object of the present measurement object classification is kept higher than the first preset threshold for a first preset duration;

the measurement result of the measurement object of the present measurement object classification is lower than a second preset threshold, or the measurement result of the measurement object of the present measurement object classification is kept lower than the second preset threshold for a second preset duration;

the measurement result of the measurement result of the present measurement object classification is within a preset range, or the measurement result of the measurement object of the present measurement object classification is kept within the preset range for a third preset duration;

n measurement objects, that have highest measurement results, of a plurality of measurement objects of the present measurement object classification each is taken as the measurement object of the present measurement object classification, or n measurement objects, that have highest measurement results for a fourth preset duration, of a plurality of measurement objects of the present measurement object classification each is taken as the measurement object of the present measurement object classification, n being a positive integer;

m measurement objects, that have lowest measurement results, of a plurality of measurement objects of the present measurement object classification each is taken as the measurement object of the present measurement object classification, or m measurement objects, that have lowest measurement results for a fifth preset duration, of a plurality of measurement objects of the present measurement object classification each is taken as the measurement object of the present measurement object classification; or

a sending moment of the measurement report meets a preset reporting period.

6. The method of claim 4 or 5, wherein the reporting condition corresponding to the next measurement object classification comprises at least one of:

the terminal device is able to obtain a measurement result of a measurement object of a next measurement object classification by measurement;

the measurement result of the measurement object of the next measurement object classification is higher than the first preset threshold, or the measurement result of the measurement object of the next measurement object classification is kept higher than the first preset threshold for the first preset duration;

the measurement result of the measurement object of the next measurement object classification is lower than the second preset threshold, or the measurement result of the measurement object of the next measurement object classification is kept lower than the second preset threshold for the second preset duration;

the measurement result of the measurement result of the next measurement object classification is within the preset range, or the measurement result of the measurement object of the next measurement object classification is kept within the preset range for the third preset duration;

n measurement objects, that have highest measurement results, of a plurality of measurement objects of the next measurement object classification each is taken as the measurement object of the next measurement object classification, or n measurement objects, that have highest measurement results for a fourth preset duration, of a plurality of measurement objects of the next measurement object classification each is taken as the measurement object of the next measurement object classification; or

m measurement objects, that have lowest measurement results, of a plurality of measurement objects of the next measurement object classification each is taken as the measurement object of the next measurement object classification, or m measurement objects, that have lowest measurement results for a fifth preset duration, of a plurality of measurement objects of the next measurement object classification each is taken as the measurement object of the next measurement object classification.

7. The method of any one of claims 1-6, wherein the plurality of measurement object classifications further comprise at least one of:

a network device or a frequency point.

8. The method of any one of claims 1-7, wherein measurement comprises at least one of:
received signal power measurement, received signal quality measurement, received signal strength measurement or signal interference level measurement.
9. The method of any one of claims 1-8, wherein receiving, by the terminal device, the measurement configuration information sent by the network device comprises:
receiving, by the terminal device, the measurement configuration information sent by the network device through a Radio Resource Control (RRC) layer, a Medium Access Control (MAC) layer or a physical layer.
10. A measurement method, comprising:
sending, by a network device, measurement configuration information to a terminal device, the measurement configuration information comprising a plurality of measurement object classifications to be measured, wherein one of the plurality of measurement object classifications is cell and another one of the plurality of measurement object classifications is beam, to enable the terminal device to measure a plurality of measurement objects belonging to the measurement object classifications of cell and beam according to the measurement configuration information; and
receiving, by the network device, a measurement report sent by the terminal device, the measurement report comprising measurement results of measurement objects, each of which satisfies a reporting condition, of the plurality of measurement objects.
11. The method of claim 10, wherein the measurement configuration information further comprises a plurality of measurement conditions each corresponding to a measurement object classification, and each of the plurality of measurement objects satisfies the measurement condition corresponding to the measurement object classification to which the measurement object belongs.
12. The method of claim 10 or 11, wherein the measurement configuration information further comprises a plurality of reporting conditions each corresponding to a measurement object classification to enable the terminal device to, before sending the measurement report to the network device, generate the measurement report according to measurement results of the plurality of measurement objects and the plurality of reporting conditions each corresponding to a measurement object classification.
13. The method of claim 12, wherein the plurality of measurement object classifications meet a preset sequence, and the sequence is configured for the terminal device to determine a present measurement object classification to be written into the measurement report according to the measurement results of the plurality of measurement objects and the sequence of the plurality of measurement object classifications and determine whether the measurement result of the measurement object belonging to the present measurement object classification meets the reporting condition corresponding to the present measurement object classification;
responsive to that the measurement result of the measurement object of the present measurement object classification meets the reporting condition corresponding to the present measurement object classification, the measurement report comprises the measurement result of the measurement object of the present measurement object classification, and the sequence is further configured for the terminal device to determine whether the measurement result of the measurement object of the next measurement object classification meets the reporting condition corresponding to the next measurement object class; and
responsive to that the measurement result of the measurement object of the present measurement object classification does not meet the reporting condition corresponding to the present measurement object classification, the measurement report does not comprise the measurement result of the measurement object of the present measurement object classification, and the sequence is further configured for the terminal device to stop filling the measurement report.
14. The method of claim 13, wherein the reporting condition corresponding to the present

measurement object classification comprises at least one of:

- the measurement result of the measurement object of the present measurement object classification is higher than a first preset threshold, or the measurement result of the measurement object of the present measurement object classification is kept higher than the first preset threshold for a first preset duration;

- the measurement result of the measurement object of the present measurement object classification is lower than a second preset threshold, or the measurement result of the measurement object of the present measurement object classification is kept lower than the second preset threshold for a second preset duration;

- the measurement result of the measurement result of the present measurement object classification is within a preset range, or the measurement result of the measurement object of the present measurement object classification is kept within the preset range for a third preset duration;

- n measurement objects, that have highest measurement results, of a plurality of measurement objects of the present measurement object classification each is taken as the measurement object of the present measurement object classification, or n measurement objects, that have highest measurement results for a fourth preset duration, of a plurality of measurement objects of the present measurement object classification each is taken as the measurement object of the present measurement object classification, n being a positive integer;

- m measurement objects, that have lowest measurement results, of a plurality of measurement objects of the present measurement object classification each is taken as the measurement object of the present measurement object classification, or m measurement objects, that have lowest measurement results for a fifth preset duration, of a plurality of measurement objects of the present measurement object classification each is taken as the measurement object of the present measurement object classification; or

- a sending moment of the measurement report meets a preset reporting period.

15. The method of claim 13 or 14, wherein the reporting condition corresponding to the next measurement object classification comprises at least one of:

- the terminal device is able to obtain a measurement result of a measurement object of a next measurement object classification by measurement;

- the measurement result of the measurement object of the next measurement object classification is higher than the first preset threshold, or the measurement result of the measurement object of the next measurement object classification is kept higher than the first preset threshold for the first preset duration;

- the measurement result of the measurement object of the next measurement object classification is lower than the second preset threshold, or the measurement result of the measurement object of the next measurement object classification is kept lower than the second preset threshold for the second preset duration;

- the measurement result of the measurement result of the next measurement object classification is within the preset range, or the measurement result of the measurement object of the next measurement object classification is kept within the preset range for the third preset duration;

- n measurement objects, that have highest measurement results, of a plurality of measurement objects of the next measurement object classification each is taken as the measurement object of the next measurement object classification, or n measurement objects, that have highest measurement results for a fourth preset duration, of a plurality of measurement objects of the next measurement object classification each is taken as the measurement object of the next measurement object classification; or

- m measurement objects, that have lowest measurement results, of a plurality of measurement objects of the next measurement object classification each is taken as the measurement object of the next measurement object classification, or m measurement objects, that have lowest measurement results for a fifth preset duration, of a plurality of measurement objects of the next measurement object classification each is taken as the measurement object of the next measurement object classification.

16. The method of any one of claims 10-15, wherein the plurality of measurement object classifications further comprise at least one of:

a network device or a frequency point.

17. The method of any one of claims 10-16, wherein measurement comprises at least one of:
received power measurement, received signal quality measurement, received signal strength measurement or signal interference level measurement.

18. The method of any one of claims 10-17, wherein sending, by the network device, the measurement configuration information to the terminal device comprises:

sending, by the network device, the measurement configuration information sent to the terminal device through a Radio Resource Control (RRC) layer, a Medium Access Control (MAC) layer or a physical layer.

19. A terminal device, comprising:

a receiving unit, configured to receive measurement configuration information sent by a network device, the measurement configuration information comprising a plurality of measurement object classifications to be measured, wherein one of the plurality of measurement object classifications is cell and another one of the plurality of measurement object classifications is beam;

a measurement unit, configured to measure a plurality of measurement objects belonging to the measurement object classifications of cell and beam according to the measurement configuration information; and

a sending unit, configured to send a measurement report to the network device, the measurement report comprising measurement results of measurement objects, each of which satisfies a reporting condition, of the plurality of measurement objects.

20. The terminal device of claim 19, wherein the measurement configuration information further comprises a plurality of measurement conditions each corresponding to a measurement object classification, and the measurement unit is specifically configured to:

determine that each of the plurality of measurement objects satisfies the measurement condition corresponding to the measurement object classification to which the measurement object belongs and

measure the plurality of measurement objects.

21. The terminal device of claim 19 or 20, wherein the measurement configuration information further comprises a plurality of reporting conditions each corresponding to a measurement object classification, and the measurement unit is further configured to:

before the sending unit sends the measurement report to the network device, generate the measurement report according to measurement results of the plurality of measurement objects and the plurality of reporting conditions each corresponding to a measurement object classification.

22. The terminal device of claim 21, wherein the measurement unit is specifically configured to:

determine a present measurement object classification to be written into the measurement report according to the measurement results of the plurality of measurement objects and a sequence of the plurality of measurement object classifications;

determine whether the measurement result of the measurement object belonging to the present measurement object classification meets the reporting condition corresponding to the present measurement object classification;

responsive to that the measurement result of the measurement object of the present measurement object classification meets the reporting condition corresponding to the present measurement object classification, write the measurement result of the measurement object of the present measurement object classification into the measurement report, determine the next measurement object classification according to the sequence and determine whether the measurement result of the measurement object belonging to the next measurement object classification meets the reporting condition corresponding to the next measurement object class; and

responsive to that the measurement result of the measurement object of the present measurement object classification does not meet the reporting condition corresponding to the present measurement object classification, stop filling the measurement report.

23. The terminal device of claim 22, wherein the reporting condition corresponding to the present measurement object classification comprises at least one of:

the measurement result of the measurement object of the present measurement object classification is higher than a first preset threshold, or the measurement result of the measurement object of the present measurement object classification is kept higher than the first preset threshold for a first preset duration;

the measurement result of the measurement object of the present measurement object classification is lower than a second preset threshold, or the measurement result of the measurement object of the present measurement object classification is kept lower than the second preset threshold for a second preset duration;

the measurement result of the measurement result of the present measurement object classification is within a preset range, or the measurement result of the measurement object of the present measurement object classification is kept within the preset range for a third preset duration;

n measurement objects, that have highest measurement results, of a plurality of measurement objects of the present measurement object classification each is taken as the measurement object of the present measurement object classification, or n measurement objects, that have highest measurement results for a fourth preset duration, of a plurality of measurement objects of the present measurement object classification each is taken as the measurement object of the present measurement object classification, n being a positive integer;

m measurement objects, that have lowest measurement results, of a plurality of measurement objects of the present measurement object classification each is taken as the measurement object of the present measurement object classification, or m measurement objects, that have lowest measurement results for a fifth preset duration, of a plurality of measurement objects of the present measurement object classification each is taken as the measurement object of the present measurement object classification; or

a sending moment of the measurement report meets a preset reporting period.

24. The terminal device of claim 22 or 23, wherein the reporting condition corresponding to the next measurement object classification comprises at least one of:

the terminal device is able to obtain a measurement result of a measurement object of a next measurement object classification by measurement;

the measurement result of the measurement object of the next measurement object classification is higher than the first preset threshold, or the measurement result of the measurement object of the next measurement object classification is kept higher than the first preset threshold for the first preset duration;

the measurement result of the measurement object of the next measurement object classification is lower than the second preset threshold, or the measurement result of the measurement object of the next measurement object classification is kept lower than the second preset threshold for the second preset duration;

the measurement result of the measurement result of the next measurement object classification is within the preset range, or the measurement result of the measurement object of the next measurement object classification is kept within the preset range for the third preset duration;

n measurement objects, that have highest measurement results, of a plurality of measurement objects of the next measurement object classification each is taken as the measurement object of the next measurement object classification, or n measurement objects, that have highest measurement results for a fourth preset duration, of a plurality of measurement objects of the next measurement object classification each is taken as the measurement object of the next measurement object classification; or

m measurement objects, that have lowest measurement results, of a plurality of measurement objects of the next measurement object classification each is taken as the measurement object of the next measurement object classification, or m measurement objects, that have lowest measurement results for a fifth preset duration, of a plurality of measurement objects of the next measurement object classification each is taken as the measurement object of the next measurement object classification.

25. The terminal device of any one of claims 19-24, wherein the plurality of measurement object classifications further comprise at least one of:

a network device or a frequency point.

26. The terminal device of any one of claims 19-25, wherein measurement comprises at least one of:

received signal power measurement, received signal quality measurement, received signal strength measurement or signal interference level measurement.

27. The terminal device of any one of claims 19-26, wherein the receiving unit is specifically configured to:

receive the measurement configuration information sent by the network device through a Radio Resource Control (RRC) layer, a Medium Access Control (MAC) layer or a physical layer.

28. A network device, comprising:

a sending unit, configured to send measurement configuration information to a terminal device, the measurement configuration information comprising a plurality of measurement object classifications to be measured, wherein one of the plurality of measurement object classifications is cell and another one of the plurality of measurement object classifications is beam, to enable the terminal device to measure a plurality of measurement objects belonging to the measurement object classifications of cell and beam according to the measurement configuration information; and

a receiving unit, configured to receive a measurement report sent by the terminal device, the measurement report comprising measurement results of measurement objects, each of which satisfies a reporting condition, of the plurality of measurement objects.

29. The network device of claim 28, wherein the measurement configuration information further comprises a plurality of measurement conditions each corresponding to a measurement object classification, and each of the plurality of measurement objects satisfies the measurement condition corresponding to the measurement object classification to which the measurement object belongs.

30. The network device of claim 28 or 29, wherein the measurement configuration information further comprises a plurality of reporting conditions each corresponding to a measurement object classification to enable the terminal device to, before sending the measurement report to the network device, generate the measurement report according to measurement results of the plurality of measurement objects and the plurality of reporting conditions each corresponding to a measurement object classification.

31. The network device of claim 30, wherein the plurality of measurement object classifications meet a preset sequence, and the sequence is configured for the terminal device to determine a present measurement object classification to be written into the measurement report according to the measurement results of the plurality of measurement objects and the sequence of the plurality of measurement object classifications and determine whether the measurement result of the measurement object belonging to the present measurement object classification meets the reporting condition corresponding to the present measurement object classification;

responsive to that the measurement result of the measurement object of the present measurement object classification meets the reporting condition corresponding to the present measurement object classification, the measurement report comprises the measurement result of the measurement object of the present measurement object classification, and the sequence is further configured for the terminal device to determine whether the measurement result of the measurement object of the next measurement object classification meets the reporting condition corresponding to the next measurement object class; and

responsive to that the measurement result of the measurement object of the present measurement object classification does not meet the reporting condition corresponding to the present measurement object classification, the measurement report does not comprise the measurement result of the measurement object of the present measurement object classification, and the sequence is further configured for the terminal device to stop filling the measurement report.

32. The network device of claim 31, wherein the reporting condition corresponding to the present measurement object classification comprises at least one of:

the measurement result of the measurement object of the present measurement object classification is higher than a first preset threshold, or the measurement result of the measurement object of the present measurement object classification is kept higher than the first preset threshold for a first preset duration;

the measurement result of the measurement object of the present measurement object classification is lower than a second preset threshold, or the measurement result of the measurement object of the present measurement object classification is kept lower than the second preset threshold for a second preset duration;

the measurement result of the measurement result of the present measurement object classification is within a preset range, or the measurement result of the measurement object of the present measurement object classification is kept within the preset range for a third preset duration;

n measurement objects, that have highest measurement results, of a plurality of measurement objects of the present measurement object classification each is taken as the measurement object of the present measurement object classification, or n measurement objects, that have highest measurement results for a fourth preset duration, of a plurality of measurement objects of the present measurement object classification each is taken as the measurement object of the present measurement object classification, n being a positive integer;

m measurement objects, that have lowest measurement results, of a plurality of measurement objects of the present measurement object classification each is taken as the measurement object of the present measurement object classification, or m measurement objects, that have lowest measurement results for a fifth preset duration, of a plurality of measurement objects of the present measurement object classification each is taken as the measurement object of the present measurement object classification; or

a sending moment of the measurement report meets a preset reporting period.

33. The network device of claim 31 or 32, wherein the reporting condition corresponding to the next measurement object classification comprises at least one of:

the terminal device is able to obtain a measurement result of a measurement object of a next measurement object classification by measurement;

the measurement result of the measurement object of the next measurement object classification is higher than the first preset threshold, or the measurement result of the measurement object of the next measurement object classification is kept higher than the first preset threshold for the first preset duration;

the measurement result of the measurement object of the next measurement object classification is lower than the second preset threshold, or the measurement result of the measurement object of the next measurement object classification is kept lower than the second preset threshold for the second preset duration;

the measurement result of the measurement result of the next measurement object classification is within the preset range, or the measurement result of the measurement object of the next measurement object classification is kept within the preset range for the third preset duration;

n measurement objects, that have highest measurement results, of a plurality of measurement objects of the next measurement object classification each is taken as the measurement object of the next measurement object classification, or n measurement objects, that have highest measurement results for a fourth preset duration, of a plurality of measurement objects of the next measurement object classification each is taken as the measurement object of the next measurement object classification; or

m measurement objects, that have lowest measurement results, of a plurality of measurement objects of the next measurement object classification each is taken as the measurement object of the next measurement object classification, or m measurement objects, that have lowest measurement results for a fifth preset duration, of a plurality of measurement objects of the next measurement object classification each is taken as the measurement object of the next measurement object classification.

34. The network device of any one of claims 28-33, wherein the plurality of measurement object classifications further comprise at least one of:
a network device or a frequency point.
35. The network device of any one of claims 28-34, wherein measurement comprises at least one of:
received power measurement, received signal quality measurement, received signal strength measurement or signal interference level measurement.
36. The network device of any one of claims 28-35, wherein the sending unit is specifically configured to:
send the measurement configuration information sent to the terminal device through a Radio Resource Control (RRC) layer, a Medium Access Control (MAC) layer or a physical layer.