

WHAT IS CLAIMED IS:

1. A beam management method, performed by a first device, the method comprising:
receiving reference signal configuration information, wherein the reference signal configuration information is used for configuring a plurality of reference signals and a beam corresponding to each reference signal, the reference signal configuration information is used for configuring repetition mode, time domain location, frequency domain location and reference signal identifiers (ID), and the reference signal configuration information is used for configuring cell ID or transmission reception point (TRP) ID corresponding to the reference signal; and
measuring one or more arrival paths corresponding to each of the reference signals based on the reference signal configuration information, and sending a measurement report, wherein the measurement report comprises first arrival path information corresponding to each of the reference signals;
wherein the first arrival path information comprises time-of-flight information of the reference signal on each corresponding arrival path, and the time-of-flight information comprises a relative time-of-flight value; and
the first arrival path information indicates whether an arrival path of the reference signal is a first arrival path.
2. The method of claim 1, wherein the time-of-flight information comprises sorting information obtained by sorting a plurality of arrival paths according to time-of-flight.
3. The method of claim 1, wherein the time-of-flight information comprises time-of-flight values that comprise a specified value and/or relative values relative to the specified value.
4. The method of claim 1, wherein the time-of-flight information comprises an absolute time-of-flight value that corresponds to a reference signal with a shortest time-of-flight.
5. The method of any one of claims 1 to 4, wherein the time-of-flight comprises a one-way time-of-flight or a two-way time-of-flight.
6. The method of claim 1, wherein the measurement report further comprises one or more reference signal identifiers.
7. The method of claim 6, wherein a reference signal identifier of the one or more reference signal identifiers is determined based on a signal strength value and/or a time-of-flight.
8. The method of claim 7, wherein the one or more reference signal identifiers correspond to

one or more reference signals with a strongest signal strength value among measured signal strength values, and/or the one or more reference signal identifiers correspond to one or more reference signals with a shortest time-of-flight among measured time-of-flight; and/or the one or more reference signal identifiers correspond to one or more reference signals with a maximum weighted sum of measured signal strength value and measured time-of-flight.

9. A beam management method, performed by a second device, the method comprising:

sending reference signal configuration information, wherein the reference signal configuration information is used for configuring a plurality of reference signals and a beam corresponding to each reference signal, the reference signal configuration information is used for configuring repetition mode, time domain location, frequency domain location and reference signal identifiers (ID), and the reference signal configuration information is used for configuring cell ID or transmission reception point (TRP) ID corresponding to the reference signal; and

receiving a measurement report obtained and sent by measuring one or more arrival paths corresponding to each of the reference signals by a first device based on the reference signal configuration information, wherein the measurement report comprises first arrival path information corresponding to each of the reference signals;

wherein the first arrival path information comprises time-of-flight information of the reference signal on each corresponding arrival path, the time-of-flight information comprises a relative time-of-flight value, and the first arrival path information indicates whether an arrival path of the reference signal is a first arrival path.

10. The method of claim 9, wherein the time-of-flight information comprises sorting information obtained by sorting a plurality of arrival paths according to time-of-flight.

11. The method of claim 10, wherein the time-of-flight information comprises time-of-flight values that comprise a specified value, and/or relative values relative to the specified value.

12. The method of claim 10, wherein the time-of-flight information comprises an absolute time-of-flight value that corresponds to the reference signal with a shortest time-of-flight.

13. The method of any one of claims 9 to 12, wherein the time-of-flight comprises a one-way time-of-flight or a two-way time-of-flight.

14. The method of claim 9, wherein the measurement report further comprises one or more reference signal identifiers.

15. The method of claim 14, wherein a reference signal identifier of the one or more reference

signal identifiers is determined based on a signal strength value and/or a time-of-flight.

16. The method of claim 15, wherein the one or more reference signal identifiers correspond to one or more reference signals with a strongest signal strength value among measured signal strength values, and/or the one or more reference signal identifiers correspond to one or more reference signals with a shortest time-of-flight among measured time-of-flight; and/or the one or more reference signal identifiers correspond to one or more reference signals with a maximum weighted sum of measured signal strength value and measured time-of-flight.

17. A beam management apparatus, applied to a first device, the apparatus comprising:

a receiving unit, configured to receive reference signal configuration information, wherein the reference signal configuration information is used for configuring a plurality of reference signals and a beam corresponding to each reference signal, the reference signal configuration information is used for configuring repetition mode, time domain location, frequency domain location and reference signal identifiers (ID), and the reference signal configuration information is used for configuring cell ID or transmission reception point (TRP) ID corresponding to the reference signal;

a measuring unit, configured to measure one or more arrival paths corresponding to each of the reference signals based on the reference signal configuration information; and

a sending unit, configured to send a measurement report, wherein the measurement report comprises first arrival path information corresponding to each of the reference signals;

wherein the first arrival path information comprises time-of-flight information of the reference signal on each corresponding arrival path, and the time-of-flight information comprises a relative time-of-flight value; and

the first arrival path information indicates whether an arrival path of the reference signal is a first arrival path.

18. The apparatus of claim 17, wherein the time-of-flight information comprises sorting information obtained by sorting a plurality of arrival paths according to time-of-flight.

19. The apparatus of claim 17, wherein the measurement report comprises one or more reference signal identifiers.

20. The apparatus of claim 19, wherein a reference signal identifier of the one or more reference identifiers is determined based on a signal strength value and/or a time-of-flight.

21. A beam management apparatus, applied to a second device, the apparatus comprising:

a sending unit, configured to send reference signal configuration information, wherein the

reference signal configuration information is used for configuring a plurality of reference signals and a beam corresponding to each reference signal, the reference signal configuration information is used for configuring repetition mode, time domain location, frequency domain location and reference signal identifiers (ID), and the reference signal configuration information is used for configuring cell ID or transmission reception point (TRP) ID corresponding to the reference signal; and

a receiving unit configured to receive a measurement report obtained and sent by measuring one or more arrival paths corresponding to each of the reference signals by a first device based on the reference signal configuration information, wherein the measurement report comprises first arrival path information corresponding to each of the reference signals;

wherein the first arrival path information comprises time-of-flight information of the reference signal on each corresponding arrival path, the time-of-flight information comprises a relative time-of-flight value, and the first arrival path information indicates whether an arrival path of the reference signal is a first arrival path.

22. A beam management device, comprising:

a processor; and

a memory for storing instructions executable by the processor;

wherein the processor is configured to execute the beam management method of any one of claims 1 to 8.

23. A beam management device, comprising:

a processor; and

a memory for storing instructions executable by the processor;

wherein the processor is configured to execute the beam management method of any one of claims 9 to 16.

24. A non-transitory computer-readable storage medium, wherein when instructions stored in the storage medium are executed by a processor of a first device, the first device is caused to execute the beam management method of any one of claims 1 to 8.

25. A non-transitory computer-readable storage medium, wherein when instructions stored in the storage medium are executed by a processor of a first device, the first device is caused to execute the beam management method of any one of claims 9 to 16.