

CLAIMS

What is claimed is:

1. An information transmission method, applied to a receive end, comprising:

obtaining a reference object group containing at least two reference objects, wherein the reference objects contained in the reference object group are quasi co-located; and

performing information transmission based on the reference object group;

~~2. The information transmission method according to claim 1,~~ wherein the step of obtaining a reference object group containing at least two reference objects comprises:

~~obtaining parameter information of the reference object group, and determining the reference object group based on the parameter information, wherein the parameter information comprises at least one of spatial information, pattern information, and index information of the reference object group; and~~

~~determining the reference object group based on the parameter information;~~

~~or~~

obtaining spatial information of the at least two reference objects, and determining the reference object group based on the spatial information, wherein the spatial information comprises spatial index information and/or a spatial grouping factor, and the reference objects are indicated by reference index information and/or time domain position information;

~~3. The information transmission method according to claim 2,~~ wherein the step of determining the reference object group based on the spatial information comprises:

determining that reference objects having the same spatial index information belong to a same reference object group;

or

determining that reference objects having the same modulo result with respect to the spatial grouping factor belong to a same reference object group.

~~42. The information transmission method according to claim 21,~~ wherein the reference object group comprises a Synchronization Signal Block (SSB) group, the reference objects comprise an SSB, the SSB is indicated by an SSB index, SSB indexes corresponding to a same spatial index belong to a same SSB group, wherein the spatial index=SSB index mod M, M is a value range of the spatial grouping factor, and a range of M is {1, 2, 4, 8}.

53. The information transmission method according to claim 1, wherein the step of performing information transmission based on the reference object group comprises:

determining an available random access resource based on a first correspondence between the reference object group and random access resources; and

performing a random access procedure on the available random access resource;

or

the step of performing information transmission based on the reference object group further comprises:

determining a target monitoring occasion based on information about a second correspondence between the reference object group and monitoring occasions; and monitoring downlink information within the target monitoring occasion;

or

the step of performing information transmission based on the reference object group further comprises:

performing rate matching or puncturing on target transmission information based on the reference object group and transmitting the rate-matched or punctured target transmission information, wherein the target transmission information is different from the reference objects contained in the reference object group.

64. The information transmission method according to claim 53, wherein the first correspondence comprises at least one of the following:

information about a quantity of random access resources corresponding to the reference object group;

information about preambles corresponding to the reference object group in the random access resources, wherein the information about preambles is used to indicate at least one of a preamble for contention-based random access, a preamble for contention-free random access, a preamble for a system information (SI) request, a preamble for beam failure recovery BFR, and a preamble for a specified group;

power parameters of the random access resources; and

a measurement threshold for the reference object group.

75. The information transmission method according to claim 53, wherein the second correspondence comprises:

information about a quantity of monitoring occasions corresponding to the reference object group.

86. The information transmission method according to claim 53, wherein the step of performing rate matching or puncturing on target transmission information based on the reference object group comprises:

when a resource for at least one reference object in the reference object group and a resource for the target transmission information at least partially overlap, performing rate matching or puncturing on the target transmission information based on one of the following preset modes:

wherein the preset modes comprise: transmitting a reference object in the reference object group on an overlapping resource; or transmitting the target transmission information on the overlapping resource.

97. A communications device, applied to a receive end, comprising:

a first obtaining module, configured to obtain a reference object group containing at least two reference objects, wherein the reference objects contained in the reference object group are quasi co-located; and

a first transmission module, configured to perform information transmission based on the reference object group;

~~10. The communications device according to claim 9, wherein the first obtaining module comprises:~~

~~a first obtaining submodule, configured to obtain parameter information of the reference object group, and a first determining submodule, configured to determine the reference object group based on the parameter information, wherein the parameter information comprises at least one of spatial information, pattern information, and index information of the reference object group;~~

~~or~~

a first obtaining submodule, configured to obtain spatial information of the at least two reference objects, and a first determining submodule, configured to determine the reference object group based on the spatial information, wherein the spatial information comprises spatial index information and/or a spatial grouping factor, and the reference objects are indicated by reference index information and/or time domain position information;

~~11. The communications device according to claim 10,~~ wherein the second determining submodule comprises:

a first determining unit, configured to determine that reference objects having the same spatial index information belong to a same reference object group;

or

a second determining unit, configured to determine that reference objects having the same modulo result with respect to the spatial grouping factor belong to a same reference object group.

~~128.~~ The communications device according to claim ~~107~~, wherein the reference object group comprises a Synchronization Signal Block (SSB) group, the reference objects comprise an SSB, the SSB is indicated by an SSB index, SSB indexes corresponding to a same spatial index belong to a same SSB group, wherein the spatial index= SSB index mod M, M is a value range of the spatial grouping factor, and a range of M is {1, 2, 4, 8}.

~~139.~~ The communications device according to claim ~~97~~, wherein the first transmission module comprises:

a third determining submodule, configured to determine an available random access resource based on a first correspondence between the reference object group and random access resources; and

a first transmission submodule, configured to perform a random access procedure on the available random access resource;

or

a fourth determining submodule, configured to determine a target monitoring occasion based on information about a second correspondence between the reference object group and monitoring occasions; and a monitoring submodule, configured to monitor downlink information within the target monitoring occasion;

or

a matching submodule, configured to perform rate matching or puncturing on target transmission information based on the reference object group, and a transmission submodule, configured to transmit the rate-matched or punctured target transmission information, wherein the target transmission information is different from the reference objects contained in the reference object group.

4410. The communications device according to claim 439, wherein the first correspondence comprises at least one of the following:

information about a quantity of random access resources corresponding to the reference object group;

information about preambles corresponding to the reference object group in the random access resources, wherein the information about preambles is used to indicate at least one of a preamble for contention-based random access, a preamble for contention-free random access, a preamble for a system information (SI) request, a preamble for beam failure recovery (BFR), and a preamble for a specified group;

power parameters of the random access resources; and

a measurement threshold for the reference object group.

4511. The communications device according to claim 439, wherein the second correspondence comprises:

information about a quantity of monitoring occasions corresponding to the reference object group.

4612. The communications device according to claim 439, wherein the matching submodule comprises:

a matching unit, configured to, when a resource for at least one reference object in the reference object group and a resource for the target transmission information at least partially overlap, perform rate matching or puncturing on the target transmission information based on one of the following preset modes:

wherein the preset modes comprise: transmitting a reference object in the reference object group on an overlapping resource; or transmitting the target transmission information on the overlapping resource.

4713. An information transmission method, applied to a transmit end, comprising:

transmitting, to a receive end, parameter information of a reference object group containing at least two reference objects, wherein the reference objects contained in the reference object group are quasi co-located, and the parameter information comprises at least one of spatial information, pattern information, and index information of the reference object group;

~~18. The information transmission method according to claim 17,~~ wherein before the step of transmitting, to a receive end, parameter information of a reference object group containing at least two reference objects, the method further comprises:

transmitting, to the receive end, spatial information of the at least two reference objects, wherein the spatial information comprises spatial index information and/or a spatial grouping factor, and the reference objects are indicated by reference index information and/or time domain position information.

~~19~~14. The information transmission method according to claim ~~17~~13, wherein before the step of transmitting, to a receive end, parameter information of a reference object group containing at least two reference objects, or after the step of transmitting, to a receive end, parameter information of a reference object group containing at least two reference objects, the method further comprises at least one of the following:

transmitting a first correspondence between the reference object group and random access resources to the receive end; and

transmitting a second correspondence between the reference object group and monitoring occasions to the receive end;

wherein the first correspondence comprises at least one of the following:

information about a quantity of random access resources corresponding to the reference object group;

information about preambles corresponding to the reference object group in the random access resources, wherein the information about preambles is used to indicate at least one of a preamble for contention-based random access, a preamble for contention-free random access, a preamble for a system information SI request, a preamble for beam failure recovery BFR, and a preamble for a specified group;

power parameters of the random access resources; and

a measurement threshold for the reference object group;

wherein the second correspondence comprises: information about a quantity of monitoring occasions corresponding to the reference object group.

~~20~~15. A communications device, applied to a transmit end, comprising:

a first transmitting module, configured to transmit, to a receive end, parameter information of a reference object group containing at least two reference objects, wherein the reference

objects contained in the reference object group are quasi co-located, and the parameter information comprises at least one of spatial information, pattern information, and index information of the reference object group;

wherein the communications device further comprises:

a second transmitting module, configured to transmit, to the receive end, spatial information of the at least two reference objects, wherein the spatial information comprises spatial index information and/or a spatial grouping factor, and the reference objects are indicated by reference index information and/or time domain position information.