~~What is claimed is:~~CLAIMS

1. An information transmission method ~~for~~ performed by a network device~~a network device side~~, the information transmission method comprising:

receiving an uplink signal, the uplink signal comprising a target Demodulation Reference Signal (DMRS); and

determining uplink data for a terminal in accordance with the target DMRS,

wherein the terminal corresponds to at least two DMRS identities, and the target DMRS is one of DMRSs indicated by the at least two DMRS identities,

wherein the DMRS identity comprises DMRS scrambling information; and

wherein the DMRS scrambling information comprises at least two DMRS scrambling IDs corresponding to the DMRSs.

2. The information transmission method according to claim 1, wherein prior to receiving the uplink signal, the information transmission method further comprises configuring the at least two DMRS identities for the terminal.

3. The information transmission method according to claim 1, wherein the DMRS identity further comprises a DMRS configuration parameter~~ and/or DMRS scrambling information~~.

4. The information transmission method according to claim 3, wherein the DMRS configuration parameter comprises at least one of an index of a DMRS configuration, a DMRS port index, a DMRS time-domain position, a correspondence between DMRSs and preambles, a correspondence between DMRSs and Phase Tracking Reference Signals (PTRSs), a DMRS bandwidth and DMRS transmission power.

5. The information transmission method according to claim 4, wherein the DMRS bandwidth is predefined or configured by the network device, and the DMRS bandwidth is

greater than or equal to a bandwidth for a Multiple Access (MA) resource where the uplink data is located.

6. The information transmission method according to claim 4, wherein the DMRS transmission power is the same power as an uplink data channel of the terminal on a same Resource Element (RE), and/or the DMRS transmission power corresponding to each DMRS port is configured separately.

~~7. The information transmission method according to claim 3, wherein the DMRS scrambling information comprises at least two DMRS scrambling Identities (IDs) corresponding to the DMRSs.~~

~~8~~7. The information transmission method according to claim 3, wherein the target DMRS is multiplexed with the uplink data in a time-division manner, and the target DMRS corresponds to the DMRS configuration parameter and/or the DMRS scrambling information.

~~9~~8. The information transmission method according to claim 1, wherein prior to receiving the uplink signal, the information transmission method further comprises configuring a PTRS configuration parameter for the terminal.

~~10~~9. The information transmission method according to claim ~~9~~8, wherein one PTRS configuration parameter corresponds to one DMRS identity.

~~11~~10. The information transmission method according to claim ~~9~~8, wherein the PTRS configuration parameter comprises at least one of an index of a PTRS configuration, a PTRS port index, a PTRS time/frequency-domain position, a PTRS time/frequency-domain density, a correspondence between PTRSs and preambles, a correspondence between PTRSs and DMRSs, and PTRS transmission power.

~~12~~11. A network device, comprising:

a first reception module configured to receive an uplink signal, the uplink signal comprising a target DMRS; and

a processing module configured to determine uplink data for a terminal in accordance with the target DMRS, wherein the terminal corresponds to at least two DMRS identities, and the target DMRS is one of DMRSs indicated by the at least two DMRS identities,

wherein each or all of the at least two DMRS identities comprises DMRS scrambling information; and

wherein the DMRS scrambling information comprises at least two DMRS scrambling IDs corresponding to the DMRSs.

~~13~~12. A network device, comprising a processor, a memory, and a computer program stored in the memory and executed by the processor, wherein the processor is configured to execute the computer program so as to implement the information transmission method according to any one of claims 1 to ~~11~~10.

~~14~~13. An information transmission method performed by a terminal~~for a terminal side~~, the information transmission method comprising:

receiving at least two Demodulation Reference Signal (DMRS) identities; and

transmitting uplink data on a Multiple Access (MA) resource using a target DMRS, the target DMRS being one of DMRSs indicated by the at least two DMRS identities,

wherein the DMRS identity comprises DMRS scrambling information; and

wherein the DMRS scrambling information comprises at least two DMRS scrambling IDs corresponding to the DMRSs.

~~15~~14. The information transmission method according to claim ~~14~~13, wherein the DMRS identity further comprises a DMRS configuration parameter~~ and/or DMRS scrambling information~~.

~~16~~15. The information transmission method according to claim ~~15~~14, wherein the DMRS configuration parameter comprises at least one of an index of a DMRS configuration, a DMRS port index, a DMRS time-domain position, a correspondence between DMRSs and preambles, a

correspondence between DMRSs and Phase Tracking Reference Signals (PTRSs), a DMRS bandwidth and DMRS transmission power.

~~17~~16. The information transmission method according to claim ~~16~~15, wherein the DMRS bandwidth is predefined or configured by the network device, and the DMRS bandwidth is greater than or equal to a bandwidth for the MA resource.

~~18~~17. The information transmission method according to claim ~~16~~15, wherein the DMRS transmission power is the same power as an uplink data channel of the terminal on a same Resource Element (RE), and/or the DMRS transmission power corresponding to each DMRS port is configured separately.

~~19. The information transmission method according to claim 15, wherein the DMRS scrambling information comprises at least two DMRS scrambling IDs corresponding to the DMRSs.~~

~~20~~18. The information transmission method according to claim ~~15~~14, wherein the target DMRS is multiplexed with the uplink data in a time-division manner, and the target DMRS corresponds to the DMRS configuration parameter and/or the DMRS scrambling information.

~~21~~19. A terminal, comprising:

a second reception module configured to receive at least two Demodulation Reference Signal (DMRS) identities; and

a transmission module configured to transmit uplink data on a Multiple Access (MA) resource using a target DMRS, the target DMRS being one of DMRSs indicated by the at least two DMRS identities,

wherein the DMRS identity comprises DMRS scrambling information; and

wherein the DMRS scrambling information comprises at least two DMRS scrambling IDs corresponding to the DMRSs.

~~22~~20. A terminal, comprising a processor, a memory, and a computer program stored in the memory and executed by the processor, wherein the processor is configured to execute the computer program so as to implement the information transmission method according to any one of claims ~~14~~ 13 to ~~20~~18.

~~23. An information transmission method for a terminal side, comprising:~~

~~receiving at least two Phase Tracking Reference Signal (PTRS) configuration parameters; and~~

~~selecting one of candidate PTRSs corresponding to the at least two PTRS configuration parameters for transmission.~~

~~24. The information transmission method according to claim 23, wherein the PTRS configuration parameter comprises at least one of an index of a PTRS configuration, a PTRS port index, a PTRS time/frequency domain position, a PTRS time/frequency domain density, a correspondence between PTRSs and preambles, a correspondence between PTRSs and Demodulation Reference Signals (DMRSs), and PTRS transmission power.~~

~~25. The information transmission method according to claim 24, wherein when the PTRS configuration parameter comprises the correspondence between PTRSs and DMRSs, prior to receiving the at least two PTRS configuration parameters, the information transmission method further comprises:~~

~~acquiring a transmission resource for a DMRS; and~~

~~determining a target transmission resource for the PTRS in accordance with the transmission resource and the correspondence between the PTRSs and the DMRSs.~~

~~26. A terminal, comprising:~~

~~a reception module configured to receive at least two Phase Tracking Reference Signal (PTRS) configuration parameters; and~~

~~a selection module configured to select one of candidate PTRSs corresponding to the at least two PTRS configuration parameters for transmission.~~

~~27. A terminal, comprising a processor, a memory, and a computer program stored in the memory and executed by the processor, wherein the processor is configured to execute the computer program so as to implement the information transmission method according to any one of claims 23 to 25.~~

~~28. An information transmission method for a network device side, comprising configuring at least two Phase Tracking Reference Signal (PTRS) configuration parameters for a terminal.~~

~~29. The information transmission method according to claim 28, wherein the PTRS configuration parameter comprises at least one of an index of a PTRS configuration, a PTRS port index, a PTRS time/frequency domain position, a PTRS time/frequency domain density, a correspondence between PTRSs and preambles, a correspondence between PTRSs and Demodulation Reference Signals (DMRSs), and PTRS transmission power.~~

~~30. A network device, comprising a configuration module configured to configure at least two Phase Tracking Reference Signal (PTRS) configuration parameters for a terminal.~~

~~31. A network device, comprising a processor, a memory, and a computer program stored in the memory and executed by the processor, wherein the processor is configured to execute the computer program so as to implement the information transmission method according to claim 28 or 29.~~

~~32~~21. A computer-readable storage medium storing therein a computer program, wherein the computer program is executed by a processor so as to implement the steps in the information transmission method according to any one of claims 1 to ~~11~~10, and 13~~14~~ to 18~~20, 23 to 25, and 28 to 29~~.