CLAIMS

1. A signal transmission method, comprising:

modulating, by a network device, first information and second information onto a first signal, wherein a first modulation scheme for the first information is different from a second modulation scheme for the second information, the first modulation scheme is phase shift keying modulation or quadrature amplitude modulation, and the second modulation scheme is amplitude shift keying modulation; and

sending, by the network device, the first signal on a first time-frequency resource.

2. The method according to claim 1, wherein the method further comprises:

receiving, by the network device, first indication information from a first terminal device, wherein the first indication information indicates to modulate different information onto a same signal by using different modulation schemes; and

determining, by the network device based on the first indication information, to modulate the first information and the second information onto the first signal.

3. The method according to claim 1, wherein the method further comprises:

receiving, by the network device, at least one of a signal to interference plus noise ratio or a reference signal received power from a first terminal device; and

if the signal to interference plus noise ratio is greater than or equal to a first threshold, and/or the reference signal received power is greater than or equal to a second threshold, determining, by the network device, to modulate the first information and the second information onto the first signal.

4. The method according to any one of claims 1 to 3, wherein the method further comprises:

sending, by the network device, second indication information to the first terminal device, wherein the second indication information indicates the network device to modulate different information onto a same signal by using different modulation schemes, and/or indicates a location of the first time-frequency resource.

5. The method according to any one of claims 1 to 4, wherein a bandwidth corresponding to the first time-frequency resource is less than or equal to a maximum bandwidth of a second terminal device, and the maximum bandwidth of the second terminal device is less than a maximum bandwidth of the first terminal device.

6. The method according to claim 5, wherein the method further comprises:

receiving, by the network device, capability information from the second terminal device, wherein the capability information indicates the maximum bandwidth of the second terminal device.

7. The method according to any one of claims 1 to 6, wherein the first information is modulated into frequency domain of the first signal by using the first modulation scheme, and the second information is modulated into amplitude domain or power domain of the first signal by using the second modulation scheme.

8. The method according to any one of claims 1 to 7, wherein a modulation depth of the second modulation scheme is ∇p, a value range of ∇p is an open interval (0, P), and P is an average power of all resource elements on the first time-frequency resource on which the first signal is modulated by using the first modulation scheme.

9. The method according to claim 8, wherein when the second information is modulated by using the second modulation scheme, modulation depths on all resource elements corresponding to each bit carrying the second information are not exactly the same, or modulation depths on all samples corresponding to each bit carrying the second information are not exactly the same.

10. The method according to any one of claims 1 to 9, wherein the bits modulated onto the first signal and corresponding to the second information are coded bits obtained through line encoding.

11. The method according to claim 10, wherein the line encoding is at least one of Manchester encoding and differential Manchester encoding, and a quantity of symbols comprised in the first time-frequency resource is an even number.

12. A signal transmission method, comprising:

receiving, by a first terminal device, a first signal from a network device on a first time-frequency resource, wherein first information and second information are modulated onto the first signal, a first modulation scheme for the first information is different from a second modulation scheme for the second information, the first modulation scheme is phase shift keying modulation or quadrature amplitude modulation, and the second modulation scheme is amplitude shift keying modulation; and

obtaining, by the first terminal device, the first information from the first signal.

13. The method according to claim 12, wherein the method further comprises:

determining, by the first terminal device, at least one of a signal to interference plus noise ratio and a reference signal received power based on a reference signal from the network device; and

if the signal to interference plus noise ratio is greater than or equal to a first threshold, and/or the reference signal received power is greater than or equal to a second threshold, sending, by the first terminal device, first indication information to the network device, wherein the first indication information indicates to modulate different information onto a same signal by using different modulation schemes.

14. The method according to claim 12, wherein the method further comprises:

determining, by the first terminal device, at least one of a signal to interference plus noise ratio and a reference signal received power based on a reference signal from the network device; and

sending, by the first terminal device, at least one of the signal to interference plus noise ratio and the reference signal received power to the network device.

15. The method according to any one of claims 12 to 14, wherein the method further comprises:

receiving, by the first terminal device, second indication information from the network device, wherein the second indication information indicates the network device to modulate different information onto a same signal by using different modulation schemes, and/or indicates a location of the first time-frequency resource.

16. A communication apparatus, comprising a processor, wherein the processor is coupled to a memory; and

the processor is configured to execute a computer program or instructions stored in the memory, so that the communication apparatus implements the method according to any one of claims 1 to 11, and 12 to 15.

17. A computer-readable storage medium, storing a computer program or instructions, wherein when the computer program or the instructions are run on a computer, the method according to any one of claims 1 to 15 is performed.

18. A computer program product, comprising instructions, wherein when the instructions are run on a computer, the method according to any one of claims 1 to 15 is performed.