CLAIMS

What is claimed is:

1. A communication channel management method, performed by a wireless access point (AP) device, and comprising:

constructing an original management frame that carries a target information element, wherein the target information element comprises an information element related to communication channel management, wherein the original management frame is a beacon frame;

determining whether a client established connection to the AP device;

when it is determined that no client establishes a connection to the AP device, setting a destination address of the original management frame to a broadcast address and broadcast the original management frame in the WiFi network;

when it is determined that one or more clients are connected to the AP device, performing the following steps for each client among the one or more connected clients:

setting a destination address of the original management frame to a MAC address of the client;

encrypting information in the target information element by using a key corresponding to the client, to obtain an encrypted management frame; and

sending the encrypted management frame in a WiFi network, so that a connected client in the WiFi network determines, based on the destination address, whether to process the received management frame, wherein the processing includes decrypting the target information element.

2. The method according to claim 1, wherein the encrypting information in the target information element by using a key corresponding to the client comprises:

obtaining a dedicated key generated in a handshake process when establishing a connection to the client; and

encrypting the information in the target information element by using the dedicated key.

3. The method according to claim 1, wherein the target information element is stored in a tag-length-value data format; and

the encrypting information in the target information element by using a key corresponding to the client comprises:

encrypting a value in the target information element by using the key corresponding to the

client.

4. The method according to claim 1, wherein the original management frame comprises a probe response frame.

5. The method according to claim 4, wherein the target information element comprises one of the following: a channel switch announcement element, a channel switch wrapper element, a wide bandwidth channel switch element, a mesh channel switch parameters element, a channel switch timing element, a max channel switch time element, and a future channel guidance element.

6. The method according to claim 5, wherein the target information element is a channel switch announcement element, the method further comprises:

in response to determining that channel switch is completed, sending, in the WiFi network, a beacon frame whose destination address is a broadcast address and that carries no channel switch announcement element.

7. A communication channel management method, performed by a client, and comprising:

receiving an encrypted management frame sent by a wireless access point (AP) device, wherein the encrypted management frame carries an encrypted target information element, and the target information element comprises an information element related to communication channel management, wherein the encrypted management frame is one of a plurality of encrypted management frames obtained by encrypting information in the target information element by using a key corresponding to the client, wherein, for each client among a plurality of connected clients, a destination address of an original management frame is set to a MAC address of the client, and wherein the encrypted management frame is generated by the AP device under a condition that the AP device determines that the client has established a connection with the AP device;

determining, based on a destination address of the encrypted management frame, whether to process the encrypted management frame;

in response to determining to process the encrypted management frame, decrypting the target information element by using a pre-stored key; and

managing a communication channel based on a decryption result.

8. The method according to claim 7, wherein the determining, based on a destination address of the encrypted management frame, whether to process the encrypted management frame comprises:

when the destination address of the encrypted management frame is a MAC address of the

client, determining to process the encrypted management frame.

9. The method according to claim 7, wherein the decrypting the target information element by using a pre-stored key comprises:

decrypting the target information element by using a dedicated key generated in a handshake process when establishing a connection to the wireless access point (AP) device.

10. The method according to claim 7, wherein the encrypted management frame is an encrypted beacon frame, and the target information element is a channel switch announcement element; and

the managing a communication channel based on a decryption result comprises:

performing channel switch based on the channel switch announcement element obtained through decryption.

11. A communication channel management apparatus, disposed in a wireless access point (AP) device, and comprising:

a construction unit, configured to construct an original management frame that carries a target information element, wherein the target information element comprises an information element related to communication channel management, wherein the original management frame is a beacon frame;

a determining unit, configured to determine, whether a client established connection to the AP device;

a broadcast unit, configured to set a destination address of the original management frame to a broadcast address and broadcast the original management frame in the WiFi network when it is determined that no client establishes a connection to the AP device

an execution unit, configured to: when it is determined that one or more clients are connected to the AP device, perform predetermined steps for each client among the one or more connected clients, wherein the execution unit comprises:

a setting module, configured to set a destination address of the original management frame to a MAC address of the client;

an encryption module, configured to encrypt information in the target information element by using a key corresponding to the client, to obtain an encrypted management frame; and

a sending module, configured to send the encrypted management frame in a WiFi network, so that a connected client in the WiFi network determines, based on the destination address, whether to process the received management frame.

12. A communication channel management apparatus, disposed in a client, and comprising:

a receiving unit, configured to receive an encrypted management frame sent by a wireless access point (AP) device, wherein the encrypted management frame carries an encrypted target information element, and the target information element comprises an information element related to communication channel management, wherein the encrypted management frame is one of a plurality of encrypted management frames obtained by encrypting information in the target information element by using a key corresponding to the client, wherein, for each client among a plurality of connected clients, a destination address of an original management frame is set to a MAC address of the client, and wherein the encrypted management frame is generated by the AP device under a condition that the AP device determines that the client has established a connection with the AP device;

a determining unit, configured to determine, based on a destination address of the encrypted management frame, whether to process the encrypted management frame;

a decryption unit, configured to: in response to determining to process the encrypted management frame, decrypt the target information element by using a pre-stored key; and

a management unit, configured to manage a communication channel based on a decryption result.

13. A computer-readable storage medium, storing a computer program, wherein when the computer program is executed by a processor, the method according to any one of claims 1 to 6 is implemented.

14. A wireless access point (AP) device, comprising a memory and a processor, wherein the memory stores executable code, and when the processor executes the executable code, the method according to any one of claims 1 to 6 is implemented.

15. A computer-readable storage medium, storing a computer program, wherein when the computer program is executed in a computer, the computer is enabled to perform the method according to any one of claims 7 to 10.

16. A terminal device, comprising a memory and a processor, wherein the memory stores executable code, and when the processor executes the executable code, the method according to any one of claims 7 to 10 is implemented.