

权 利 要 求 书

1. 一种传输物理层协议数据单元的方法，其特征在于，包括：
生成物理层协议数据单元 PPDU，所述 PPDU 包括短训练域，所述短训练域的频域序列的子载波个数大于 2048；
5 在目标信道上发送所述 PPDU，其中，所述目标信道的带宽大于 160MHz。
2. 一种传输物理层协议数据单元的方法，其特征在于，包括：
在目标信道上接收物理层协议数据单元 PPDU，所述 PPDU 包括短训练域，所述短训练域的频域序列的子载波个数大于 2048，其中，所述目标信道的带宽大于 160MHz；
10 解析所述 PPDU。
3. 根据权利要求 1 或 2 所述的方法，其特征在于，所述目标信道的带宽为 240MHz，所述短训练域的频域序列为以下任意一项：

$$\{\text{HES}_{-112:16:112}, -1, -\text{HES}_{-112:16:112}, 0, \text{HES}_{-112:16:112}, -1, -\text{HES}_{-112:16:112}, 0, -\text{HES}_{-112:16:112}, -1, \text{HES}_{-112:16:112}, 0, \text{HES}_{-112:16:112}, 1, -\text{HES}_{-112:16:112}, 0, -\text{HES}_{-112:16:112}, 1, -\text{HES}_{-112:16:112}, 0, -\text{HES}_{-112:16:112}, 1, -\text{HES}_{-112:16:112}\};$$

$$\{\text{HES}_{-112:16:112}, 1, -\text{HES}_{-112:16:112}, 0, \text{HES}_{-112:16:112}, -1, \text{HES}_{-112:16:112}, 0, \text{HES}_{-112:16:112}, 1, \text{HES}_{-112:16:112}, 0, -\text{HES}_{-112:16:112}, 1, \text{HES}_{-112:16:112}, 0, -\text{HES}_{-112:16:112}, 1, \text{HES}_{-112:16:112}\};$$

$$\{\text{HES}_{-112:16:112}, -1, \text{HES}_{-112:16:112}, 0, \text{HES}_{-112:16:112}, -1, \text{HES}_{-112:16:112}, 0, \text{HES}_{-112:16:112}, -1, -\text{HES}_{-112:16:112}, 0, -\text{HES}_{-112:16:112}, 1, \text{HES}_{-112:16:112}, 0, \text{HES}_{-112:16:112}, 1, -\text{HES}_{-112:16:112}, 0, \text{HES}_{-112:16:112}, 1, -\text{HES}_{-112:16:112}\};$$

$$\{\text{HES}_{-112:16:112}, 1, -\text{HES}_{-112:16:112}, 0, \text{HES}_{-112:16:112}, -1, \text{HES}_{-112:16:112}, 0, \text{HES}_{-112:16:112}, 1, \text{HES}_{-112:16:112}, 0, -\text{HES}_{-112:16:112}, 1, \text{HES}_{-112:16:112}, 0, -\text{HES}_{-112:16:112}, 1, \text{HES}_{-112:16:112}\};$$

其中， $\text{HES}_{-112:16:112} = \{M\} \cdot (1 + j) / \sqrt{2}$ ， $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, 1, -1, 1\}$ 。
4. 根据权利要求 1 或 2 所述的方法，其特征在于，所述目标信道的带宽为 240MHz，所述短训练域的频域序列为以下任意一项：

$$\{\text{HES}_{-496:16:496}, 0, -\text{HES}_{-496:16:496}, 0, -\text{HES}_{-496:16:496}\};$$

$$\{\text{HES}_{-496:16:496}, 0, \text{HES}_{-496:16:496}, 0, -\text{HES}_{-496:16:496}\};$$

其中， $\text{HES}_{-496:16:496} = \{M, 1, -M, 0, -M, 1, -M\} \cdot (1 + j) / \sqrt{2}$ ， $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, 1, -1, 1\}$ 。
5. 根据权利要求 1 或 2 所述的方法，其特征在于，所述目标信道的带宽为 240MHz，所述短训练域的频域序列为以下任意一项：

$$\{\text{HES}_{-1008:16:1008}, 0, \text{HES}_{-496:16:496}\};$$

{HES-1008:16:1008, 0, -HES-496:16:496};

其中, $\text{HES-1008:16:1008} = \{M, 1, -M, 0, -M, 1, -M, 0, -M, -1, M, 0, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $\text{HES-496:16:496} = \{M, 1, -M, 0, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, -1, 1\}$ 。

- 5 6. 根据权利要求1或2所述的方法, 其特征在于, 所述目标信道的带宽为240MHz, 所述短训练域的频域序列为以下任意一项:

{HES-1008:16:1008, 0, -HES-112:16:112, -1, HES-112:16:112, 0, -HES-112:16:112, 1, HES-112:16:112};

{HES-1008:16:1008, 0, HES-112:16:112, -1, HES-112:16:112, 0, HES-112:16:112, -1, -HES-112:16:112};

{HES-1008:16:1008, 0, HES-112:16:112, -1, -HES-112:16:112, 0, -HES-112:16:112, 1, -HES-112:16:112};

- 10 其中, $\text{HES-1008:16:1008} = \{M, 1, -M, 0, -M, 1, -M, 0, -M, -1, M, 0, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $\text{HES-112:16:112} = \{M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, -1, 1\}$ 。

7. 根据权利要求1或2所述的方法, 其特征在于, 所述目标信道的带宽为240MHz, 所述短训练域的频域序列为以下任意一项:

- 15 {HES-1008:16:1008, 0, -HES-240:16:240, 0, -HES-240:16:240};

{HES-1008:16:1008, 0, -HES-240:16:240, 0, HES-240:16:240};

{HES-1008:16:1008, 0, HES-240:16:240, 0, -HES-240:16:240};

其中, $\text{HES-1008:16:1008} = \{M, 1, -M, 0, -M, 1, -M, 0, -M, -1, M, 0, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $\text{HES-240:16:240} = \{M, 0, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, -1, 1\}$ 。

- 20 8. 根据权利要求1或2所述的方法, 其特征在于, 所述目标信道的带宽为240MHz, 所述短训练域的频域序列为以下任意一项:

{HES-120:8:120, 1, HES-120:8:120, 0, -HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, 1, HES-120:8:120, 0, -HES-120:8:120, 1, -HES-120:8:120};

{HES-120:8:120, 1, HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, -HES-120:8:120, 1, HES-120:8:120, 0, -HES-120:8:120, 1, HES-120:8:120, 0, HES-120:8:120, -1, HES-120:8:120};

- 30 {HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, -HES-120:8:120, 1, HES-120:8:120, 0, -HES-120:8:120, -1, HES-120:8:120};

{HES-120:8:120, 1, HES-120:8:120, 0, -HES-120:8:120, 1, -HES-120:8:120, 0, -HES-120:8:120, -1, HES-120:8:120, 0, -HES-120:8:120, -1, HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120};

- 35 {HES-120:8:120, 1, -HES-120:8:120, 0, -HES-120:8:120, 1, HES-120:8:120, 0, -HES-120:8:120, -1, HES-120:8:120, 0, -HES-120:8:120, -1, HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, -HES-120:8:120, -1, HES-120:8:120};

其中, $\text{HES-120:8:120} = \{M, 0, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, -1, 1\}$ 。

9. 根据权利要求 1 或 2 所述的方法,其特征在于,所述目标信道的带宽为 240MHz,所述短训练域的频域序列为以下任意一项:

- {HES-504:8:504, 0, HES-504:8:504, 0, -HES-504:8:504};
 5 {HES-504:8:504, 0, -HES-504:8:504, 0, -HES-504:8:504};
 其中, $\text{HES-504:8:504} = \{M, -1, M, -1, -M, -1, M, 0, -M, 1, M, 1, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, 1, -1, 1\}$ 。

10. 根据权利要求 1 或 2 所述的方法,其特征在于,所述目标信道的带宽为 240MHz,所述短训练域的频域序列为以下任意一项:

- {HES-1016:8:1016, 0, HES-504:8:504};
 {HES-1016:8:1016, 0, -HES-504:8:504};
 其中, $\text{HES-1016:8:1016} = \{M, -1, M, -M, -1, M, 0, -M, 1, M, 1, -M, 1, -M, 0, -M, 1, -M, 1, M, 1, -M, 0, -M, 1, M, 1, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$,
 15 $\text{HES-504:8:504} = \{M, -1, M, -1, -M, -1, M, 0, -M, 1, M, 1, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, 1, -1, 1\}$ 。

11. 根据权利要求 1 或 2 所述的方法,其特征在于,所述目标信道的带宽为 240MHz,所述短训练域的频域序列为以下任意一项:

- {HES-1016:8:1016, 0, HES-120:8:120, -1, -HES-120:8:120, 0, HES-120:8:120, 1, HES-120:8:120};
 20 {HES-1016:8:1016, 0, -HES-120:8:120, 1, -HES-120:8:120, 0, -HES-120:8:120, 1, -HES-120:8:120};
 {HES-1016:8:1016, 0, HES-120:8:120, 1, -HES-120:8:120, 0, -HES-120:8:120, 1, HES-120:8:120};
 {HES-1016:8:1016, 0, -HES-120:8:120, -1, HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120};
 {HES-1016:8:1016, 0, -HES-120:8:120, -1, -HES-120:8:120, 0, HES-120:8:120, 1, HES-120:8:120};
 {HES-1016:8:1016, 0, -HES-120:8:120, 1, HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120};
 25 {HES-1016:8:1016, 0, HES-120:8:120, 1, -HES-120:8:120, 0, -HES-120:8:120, 1, HES-120:8:120};
 {HES-1016:8:1016, 0, -HES-120:8:120, -1, HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120};
 其中, $\text{HES-1016:8:1016} = \{M, -1, M, -M, -1, M, 0, -M, 1, M, 1, -M, 1, -M, 0, -M, 1, -M, 1, M, 1, -M, 0, -M, 1, M, 1, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$,
 30 $\text{HES-120:8:120} = \{M, 0, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, 1, -1, 1\}$ 。

12. 根据权利要求 1 或 2 所述的方法,其特征在于,所述目标信道的带宽为 240MHz,所述短训练域的频域序列为以下任意一项:

- {HES-1016:8:1016, 0, -HES-248:8:248, 0, HES-248:8:248};
 {HES-1016:8:1016, 0, -HES-248:8:248, 0, -HES-248:8:248};
 35 {HES-1016:8:1016, 0, HES-248:8:248, 0, HES-248:8:248};
 其中, $\text{HES-1016:8:1016} = \{M, -1, M, -M, -1, M, 0, -M, 1, M, 1, -M, 1, -M, 0, -M, 1, -M, 1, M, 1, -M, 0, -M, 1, M, 1, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$,
 $\text{HES-248:8:248} = \{M, -1, -M, 0, M, -1, M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, 1, -1, 1\}$ 。

13. 根据权利要求1或2所述的方法,其特征在于,所述目标信道的带宽为320MHz,所述短训练域的频域序列为以下任意一项:

- 5 {HES-496:16:496, 0, HES-496:16:496, 0, HES-496:16:496, 0, -HES-496:16:496};
 {HES-496:16:496, 0, HES-496:16:496, 0, -HES-496:16:496, 0, -HES-496:16:496};
 其中, $\text{HES}_{-496:16:496} = \{M, 1, -M, 0, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, 1, -1, 1\}$ 。

14. 根据权利要求1或2所述的方法,其特征在于,所述目标信道的带宽为320MHz,所述短训练域的频域序列为以下任意一项:

- 10 {HES-1008:16:1008, 0, HES-1008:16:1008};
 {HES-1008:16:1008, 0, -HES-1008:16:1008};
 其中, $\text{HES}_{-1008:16:1008} = \{M, 1, -M, 0, -M, 1, -M, 0, -M, -1, M, 0, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, 1, -1, 1\}$ 。

15 15. 根据权利要求1或2所述的方法,其特征在于,所述目标信道的带宽为320MHz,所述短训练域的频域序列为以下任意一项:

- {HES-1008:16:1008, 0, -HES-112:16:112, 1, -HES-112:16:112, 0, HES-112:16:112, -1, -HES-112:16:112, 0, HES-112:16:112, -1, HES-112:16:112, 0, HES-112:16:112, -1, -HES-112:16:112};
 20 {HES-1008:16:1008, 0, -HES-112:16:112, -1, HES-112:16:112, 0, HES-112:16:112, -1, -HES-112:16:112, 0, HES-112:16:112, -1, -HES-112:16:112, 0, -HES-112:16:112, 1, -HES-112:16:112};
 {HES-1008:16:1008, 0, -HES-112:16:112, 1, HES-112:16:112, 0, -HES-112:16:112, -1, HES-112:16:112, 0, HES-112:16:112, -1, HES-112:16:112, 0, HES-112:16:112, -1, -HES-112:16:112};
 其中, $\text{HES}_{-1008:16:1008} = \{M, 1, -M, 0, -M, 1, -M, 0, -M, -1, M, 0, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $\text{HES}_{-112:16:112} = \{M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, 1, -1, 1\}$ 。

16. 根据权利要求1或2所述的方法,其特征在于,所述目标信道的带宽为320MHz,所述短训练域的频域序列为以下任意一项:

- 30 {HES-1008:16:1008, 0, -HES-240:16:240, 0, HES-240:16:240, 0, -HES-240:16:240, 0, HES-240:16:240};
 {HES-1008:16:1008, 0, -HES-240:16:240, 0, HES-240:16:240, 0, HES-240:16:240, 0, -HES-240:16:240};
 其中, $\text{HES}_{-1008:16:1008} = \{M, 1, -M, 0, -M, 1, -M, 0, -M, -1, M, 0, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $\text{HES}_{-240:16:240} = \{M, 0, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, 1, -1, 1\}$ 。

17. 根据权利要求1或2所述的方法,其特征在于,所述目标信道的带宽为320MHz,所述短训练域的频域序列为以下任意一项:

- 35 {HES-504:8:504, 0, HES-504:8:504, 0, -HES-504:8:504, 0, -HES-504:8:504};
 {HES-504:8:504, 0, HES-504:8:504, 0, HES-504:8:504, 0, -HES-504:8:504};
 其中, $\text{HES}_{-504:8:504} = \{M, -1, M, -1, -M, -1, M, 0, -M, 1, M, 1, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -$

1,1,1,1,-1,1,1,1,-1,1,1,-1,1}。

18. 根据权利要求 1 或 2 所述的方法,其特征在于,所述目标信道的带宽为 320MHz,所述短训练域的频域序列为以下任意一项:

- 5 {HES-1016:8:1016, 0, HES-1016:8:1016};
 {HES-1016:8:1016, 0, -HES-1016:8:1016};
 其中, $\text{HES-1016:8:1016} = \{M, -1, M, -M, -1, M, 0, -M, 1, M, 1, -M, 1, -M, 0, -M, 1, -M, 1, M, 1, -M, 0, -M, 1, M, 1, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, 1, -1, 1, 1, -1, 1\}$ 。

- 10 19. 根据权利要求 1 或 2 所述的方法,其特征在于,所述目标信道的带宽为 320MHz,所述短训练域的频域序列为以下任意一项:

- {HES-1016:8:1016, 0, HES-120:8:120, 1, HES-120:8:120, 0, -HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120};
 {HES-1016:8:1016, 0, -HES-120:8:120, 1, HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, -HES-120:8:120, -1, -HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120};
 15 {HES-1016:8:1016, 0, -HES-120:8:120, 1, HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, -HES-120:8:120, 1, -HES-120:8:120};
 {HES-1016:8:1016, 0, HES-120:8:120, 1, -HES-120:8:120, 0, -HES-120:8:120, 1, HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120};
 20 {HES-1016:8:1016, 0, -HES-120:8:120, 1, HES-120:8:120, 0, HES-120:8:120, -1, -HES-120:8:120, 0, -HES-120:8:120, -1, -HES-120:8:120, 0, HES-120:8:120, -1, -HES-120:8:120};
 {HES-1016:8:1016, 0, HES-120:8:120, 1, -HES-120:8:120, 0, -HES-120:8:120, 1, HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120};
 {HES-1016:8:1016, 0, -HES-120:8:120, -1, HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, -1, HES-120:8:120, 0, -HES-120:8:120, -1, -HES-120:8:120};
 25 其中, $\text{HES-1016:8:1016} = \{M, -1, M, -M, -1, M, 0, -M, 1, M, 1, -M, 1, -M, 0, -M, 1, -M, 1, M, 1, -M, 0, -M, 1, M, 1, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $\text{HES-120:8:120} = \{M, 0, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, 1, -1, 1, 1, -1, 1\}$ 。

- 30 20. 根据权利要求 1 或 2 所述的方法,其特征在于,所述目标信道的带宽为 320MHz,所述短训练域的频域序列为以下任意一项:

- {HES-1016:8:1016, 0, HES-504:8:504, 0, HES-504:8:504};
 {HES-1016:8:1016, 0, -HES-504:8:504, 0, HES-504:8:504};
 {HES-1016:8:1016, 0, -HES-504:8:504, 0, -HES-504:8:504};
 35 其中, $\text{HES-1016:8:1016} = \{M, -1, M, -M, -1, M, 0, -M, 1, M, 1, -M, 1, -M, 0, -M, 1, -M, 1, M, 1, -M, 0, -M, 1, M, 1, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $\text{HES-504:8:504} = \{M, -1, M, -1, -M, -1, M, 0, -M, 1, M, 1, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, 1, -1, 1\}$ 。

21. 根据权利要求 1 或 2 所述的方法,其特征在于,所述目标信道的带宽为 320MHz,所述短训练域的频域序列为以下任意一项:

{HES-1016:8:1016, 0, HES-248:8:248, 0, HES-248:8:248, 0, -HES-248:8:248, 0, -HES-248:8:248};

{HES-1016:8:1016, 0, HES-248:8:248, 0, HES-248:8:248, 0, HES-248:8:248, 0, HES-248:8:248};

5 其中, $\text{HES-1016:8:1016} = \{M, -1, M, -M, -1, M, 0, -M, 1, M, 1, -M, 1, -M, 0, -M, 1, -M, 1, M, 1, -M, 0, -M, 1, M, 1, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $\text{HES-248:8:248} = \{M, -1, -M, 0, M, -1, M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, 1, -1, 1, 1\}$ 。

22. 一种传输物理层协议数据单元的装置,其特征在于,包括:

10 处理单元,用于生成物理层协议数据单元 PPDU,所述 PPDU 包括短训练域,所述短训练域的频域序列的子载波个数大于 2048;

在目标信道上发送所述 PPDU,其中,所述目标信道的带宽大于 160MHz。

通信单元,用于在目标信道上发送所述 PPDU,其中,所述目标信道的带宽大于 160MHz。

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23. 一种传输物理层协议数据单元的装置,其特征在于,包括:

收发单元,用于在目标信道上接收物理层协议数据单元 PPDU,所述 PPDU 包括短训练域,所述短训练域的频域序列的子载波个数大于 2048,其中,所述目标信道的带宽大于 160MHz;

20 通信单元,用于解析所述 PPDU。

24. 根据权利要求 22 或 23 所述的装置,其特征在于,所述目标信道的带宽为 240MHz,所述短训练域的频域序列为以下任意一项:

25 {HES-112:16:112, -1, -HES-112:16:112, 0, HES-112:16:112, -1, -HES-112:16:112, 0, -HES-112:16:112, -1, HES-112:16:112, 0, HES-112:16:112, 1, -HES-112:16:112, 0, -HES-112:16:112, 1, -HES-112:16:112, 0, -HES-112:16:112, 1, -HES-112:16:112};

{HES-112:16:112, 1, -HES-112:16:112, 0, HES-112:16:112, -1, HES-112:16:112, 0, HES-112:16:112, 1, HES-112:16:112, 0, -HES-112:16:112, 1, HES-112:16:112, 0, -HES-112:16:112, -1, -HES-112:16:112, 0, -HES-112:16:112, 1, HES-112:16:112};

30 {HES-112:16:112, -1, HES-112:16:112, 0, HES-112:16:112, -1, HES-112:16:112, 0, HES-112:16:112, -1, -HES-112:16:112, 0, -HES-112:16:112, 1, HES-112:16:112, 0, HES-112:16:112, 1, -HES-112:16:112, 0, HES-112:16:112, 1, -HES-112:16:112};

{HES-112:16:112, 1, -HES-112:16:112, 0, HES-112:16:112, -1, HES-112:16:112, 0, HES-112:16:112, 1, HES-112:16:112, 0, -HES-112:16:112, 1, HES-112:16:112, 0, -HES-112:16:112, -1, -HES-112:16:112, 0, -HES-112:16:112, 1, HES-112:16:112};

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其中, $\text{HES-112:16:112} = \{M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, 1, -1, 1, 1\}$ 。

25. 根据权利要求 22 或 23 所述的装置,其特征在于,所述目标信道的带宽为 240MHz,

所述短训练域的频域序列为以下任意一项:

{HES-496:16:496, 0, -HES-496:16:496, 0, -HES-496:16:496};

{HES-496:16:496, 0, HES-496:16:496, 0, -HES-496:16:496};

其中, HES-496:16:496={M, 1, -M, 0, -M, 1, -M}·(1+j)/√2, M={-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, 1, 1, 1, 1}。

26. 根据权利要求 22 或 23 所述的装置, 其特征在于, 所述目标信道的带宽为 240MHz, 所述短训练域的频域序列为以下任意一项:

{HES-1008:16:1008, 0, HES-496:16:496};

{HES-1008:16:1008, 0, -HES-496:16:496};

其中, HES-1008:16:1008={M, 1, -M, 0, -M, 1, -M, 0, -M, -1, M, 0, -M, 1, -M}·(1+j)/√2, HES-496:16:496={M, 1, -M, 0, -M, 1, -M}·(1+j)/√2, M={-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, 1, -1, 1}。

27. 根据权利要求 22 或 23 所述的装置, 其特征在于, 所述目标信道的带宽为 240MHz, 所述短训练域的频域序列为以下任意一项:

{HES-1008:16:1008, 0, -HES-112:16:112, -1, HES-112:16:112, 0, -HES-112:16:112, 1, HES-112:16:112};

{HES-1008:16:1008, 0, HES-112:16:112, -1, HES-112:16:112, 0, HES-112:16:112, -1, -HES-112:16:112};

{HES-1008:16:1008, 0, HES-112:16:112, -1, -HES-112:16:112, 0, -HES-112:16:112, 1, -HES-112:16:112};

其中, HES-1008:16:1008={M, 1, -M, 0, -M, 1, -M, 0, -M, -1, M, 0, -M, 1, -M}·(1+j)/√2, HES-112:16:112={M}·(1+j)/√2, M={-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, 1, -1, 1}。

28. 根据权利要求 22 或 23 所述的装置, 其特征在于, 所述目标信道的带宽为 240MHz, 所述短训练域的频域序列为以下任意一项:

{HES-1008:16:1008, 0, -HES-240:16:240, 0, -HES-240:16:240};

{HES-1008:16:1008, 0, -HES-240:16:240, 0, HES-240:16:240};

{HES-1008:16:1008, 0, HES-240:16:240, 0, -HES-240:16:240};

其中, HES-1008:16:1008={M, 1, -M, 0, -M, 1, -M, 0, -M, -1, M, 0, -M, 1, -M}·(1+j)/√2, HES-240:16:240={M, 0, -M}·(1+j)/√2, M={-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, 1, -1, 1}。

29. 根据权利要求 22 或 23 所述的装置, 其特征在于, 所述目标信道的带宽为 240MHz, 所述短训练域的频域序列为以下任意一项:

{HES-120:8:120, 1, HES-120:8:120, 0, -HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, 1, HES-120:8:120, 0, -HES-120:8:120, 1, -HES-120:8:120};

{HES-120:8:120, 1, HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, -HES-120:8:120, 1, HES-120:8:120, 0, HES-120:8:120, -1, HES-120:8:120};

{HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, 1,

-HES_{-120:8:120}, 0, -HES_{-120:8:120}, 1, HES_{-120:8:120}, 0, HES_{-120:8:120}, 1, -HES_{-120:8:120}, 0, -HES_{-120:8:120}, -1, HES_{-120:8:120}};

{HES_{-120:8:120}, 1, HES_{-120:8:120}, 0, -HES_{-120:8:120}, 1, -HES_{-120:8:120}, 0, -HES_{-120:8:120}, -1, HES_{-120:8:120}, 0, -HES_{-120:8:120}, -1, HES_{-120:8:120}, 0, HES_{-120:8:120}, 1, -HES_{-120:8:120}, 0, HES_{-120:8:120}, 1, -HES_{-120:8:120}};

{HES_{-120:8:120}, 1, -HES_{-120:8:120}, 0, -HES_{-120:8:120}, 1, HES_{-120:8:120}, 0, -HES_{-120:8:120}, -1, HES_{-120:8:120}, 0, -HES_{-120:8:120}, -1, HES_{-120:8:120}, 0, HES_{-120:8:120}, 1, -HES_{-120:8:120}, 0, -HES_{-120:8:120}, -1, HES_{-120:8:120}};

其中, $\text{HES}_{-120:8:120} = \{M, 0, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, -1, 1\}$ 。

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30. 根据权利要求 22 或 23 所述的装置, 其特征在于, 所述目标信道的带宽为 240MHz, 所述短训练域的频域序列为以下任意一项:

{HES_{-504:8:504}, 0, HES_{-504:8:504}, 0, -HES_{-504:8:504}};

{HES_{-504:8:504}, 0, -HES_{-504:8:504}, 0, -HES_{-504:8:504}};

其中, $\text{HES}_{-504:8:504} = \{M, -1, M, -1, -M, -1, M, 0, -M, 1, M, 1, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, -1, 1\}$ 。

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31. 根据权利要求 22 或 23 所述的装置, 其特征在于, 所述目标信道的带宽为 240MHz, 所述短训练域的频域序列为以下任意一项:

{HES_{-1016:8:1016}, 0, HES_{-504:8:504}};

{HES_{-1016:8:1016}, 0, -HES_{-504:8:504}};

其中, $\text{HES}_{-1016:8:1016} = \{M, -1, M, -M, -1, M, 0, -M, 1, M, 1, -M, 1, -M, 0, -M, 1, -M, 1, M, 1, -M, 0, -M, 1, M, 1, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $\text{HES}_{-504:8:504} = \{M, -1, M, -1, -M, -1, M, 0, -M, 1, M, 1, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, -1, 1\}$ 。

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32. 根据权利要求 22 或 23 所述的装置, 其特征在于, 所述目标信道的带宽为 240MHz, 所述短训练域的频域序列为以下任意一项:

{HES_{-1016:8:1016}, 0, HES_{-120:8:120}, -1, -HES_{-120:8:120}, 0, HES_{-120:8:120}, 1, HES_{-120:8:120}};

{HES_{-1016:8:1016}, 0, -HES_{-120:8:120}, 1, -HES_{-120:8:120}, 0, -HES_{-120:8:120}, 1, -HES_{-120:8:120}};

{HES_{-1016:8:1016}, 0, HES_{-120:8:120}, 1, -HES_{-120:8:120}, 0, -HES_{-120:8:120}, 1, HES_{-120:8:120}};

{HES_{-1016:8:1016}, 0, -HES_{-120:8:120}, -1, HES_{-120:8:120}, 0, HES_{-120:8:120}, 1, -HES_{-120:8:120}};

{HES_{-1016:8:1016}, 0, -HES_{-120:8:120}, -1, -HES_{-120:8:120}, 0, HES_{-120:8:120}, 1, HES_{-120:8:120}};

{HES_{-1016:8:1016}, 0, -HES_{-120:8:120}, 1, HES_{-120:8:120}, 0, HES_{-120:8:120}, 1, -HES_{-120:8:120}};

{HES_{-1016:8:1016}, 0, HES_{-120:8:120}, 1, -HES_{-120:8:120}, 0, -HES_{-120:8:120}, 1, HES_{-120:8:120}};

{HES_{-1016:8:1016}, 0, -HES_{-120:8:120}, -1, HES_{-120:8:120}, 0, HES_{-120:8:120}, 1, -HES_{-120:8:120}};

其中, $\text{HES}_{-1016:8:1016} = \{M, -1, M, -M, -1, M, 0, -M, 1, M, 1, -M, 1, -M, 0, -M, 1, -M, 1, M, 1, -M, 0, -M, 1, M, 1, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $\text{HES}_{-120:8:120} = \{M, 0, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, -1, 1\}$ 。

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33. 根据权利要求 22 或 23 所述的装置,其特征在于,所述目标信道的带宽为 240MHz,所述短训练域的频域序列为以下任意一项:

- 5 { HES-1016:8:1016, 0, -HES-248:8:248, 0, HES-248:8:248};
 { HES-1016:8:1016, 0, -HES-248:8:248, 0, -HES-248:8:248};
 { HES-1016:8:1016, 0, HES-248:8:248, 0, HES-248:8:248};

其中, $\text{HES-1016:8:1016} = \{M, -1, M, -M, -1, M, 0, -M, 1, M, 1, -M, 1, -M, 0, -M, 1, M, 1, -M, 0, -M, 1, M, 1, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $\text{HES-248:8:248} = \{M, -1, -M, 0, M, -1, M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, 1, 1\}$ 。

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34. 根据权利要求 22 或 23 所述的装置,其特征在于,所述目标信道的带宽为 320MHz,所述短训练域的频域序列为以下任意一项:

- {HES-496:16:496, 0, HES-496:16:496, 0, HES-496:16:496, 0, -HES-496:16:496};
 {HES-496:16:496, 0, HES-496:16:496, 0, -HES-496:16:496, 0, -HES-496:16:496};
 15 其中, $\text{HES-496:16:496} = \{M, 1, -M, 0, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1\}$ 。

35. 根据权利要求 22 或 23 所述的装置,其特征在于,所述目标信道的带宽为 320MHz,所述短训练域的频域序列为以下任意一项:

- 20 {HES-1008:16:1008, 0, HES-1008:16:1008};
 {HES-1008:16:1008, 0, -HES-1008:16:1008};
 其中, $\text{HES-1008:16:1008} = \{M, 1, -M, 0, -M, 1, -M, 0, -M, -1, M, 0, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1\}$ 。

25 36. 根据权利要求 22 或 23 所述的装置,其特征在于,所述目标信道的带宽为 320MHz,所述短训练域的频域序列为以下任意一项:

- {HES-1008:16:1008, 0, -HES-112:16:112, 1, -HES-112:16:112, 0, HES-112:16:112, -1, -HES-112:16:112, 0, HES-112:16:112, -1, HES-112:16:112, 0, HES-112:16:112, -1, -HES-112:16:112};
 {HES-1008:16:1008, 0, -HES-112:16:112, -1, HES-112:16:112, 0, HES-112:16:112, -1, -HES-112:16:112, 0, HES-112:16:112, -1, -HES-112:16:112, 0, -HES-112:16:112, 1, -HES-112:16:112};
 30 {HES-1008:16:1008, 0, -HES-112:16:112, 1, HES-112:16:112, 0, -HES-112:16:112, -1, HES-112:16:112, 0, HES-112:16:112, -1, HES-112:16:112, 0, HES-112:16:112, 0, HES-112:16:112, -1, -HES-112:16:112};
 其中, $\text{HES-1008:16:1008} = \{M, 1, -M, 0, -M, 1, -M, 0, -M, -1, M, 0, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $\text{HES-112:16:112} = \{M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1\}$ 。

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37. 根据权利要求 22 或 23 所述的装置,其特征在于,所述目标信道的带宽为 320MHz,所述短训练域的频域序列为以下任意一项:

- {HES-1008:16:1008, 0, -HES-240:16:240, 0, HES-240:16:240, 0, -HES-240:16:240, 0, HES-240:16:240};

{HES-1008:16:1008, 0, -HES-240:16:240, 0, HES-240:16:240, 0, HES-240:16:240, 0, -HES-240:16:240};

其中, $\text{HES-1008:16:1008} = \{M, 1, -M, 0, -M, 1, -M, 0, -M, -1, M, 0, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $\text{HES-240:16:240} = \{M, 0, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, -1, 1\}$ 。

- 5 38. 根据权利要求 22 或 23 所述的装置, 其特征在于, 所述目标信道的带宽为 320MHz, 所述短训练域的频域序列为以下任意一项:

{HES-504:8:504, 0, HES-504:8:504, 0, -HES-504:8:504, 0, -HES-504:8:504};

{HES-504:8:504, 0, HES-504:8:504, 0, HES-504:8:504, 0, -HES-504:8:504};

10 其中, $\text{HES-504:8:504} = \{M, -1, M, -1, -M, -1, M, 0, -M, 1, M, 1, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, -1, 1\}$ 。

39. 根据权利要求 22 或 23 所述的装置, 其特征在于, 所述目标信道的带宽为 320MHz, 所述短训练域的频域序列为以下任意一项:

{HES-1016:8:1016, 0, HES-1016:8:1016};

15 {HES-1016:8:1016, 0, -HES-1016:8:1016};

其中, $\text{HES-1016:8:1016} = \{M, -1, M, -M, -1, M, 0, -M, 1, M, 1, -M, 1, -M, 0, -M, 1, -M, 1, M, 1, -M, 0, -M, 1, M, 1, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, -1, 1, -1, 1\}$ 。

- 20 40. 根据权利要求 22 或 23 所述的装置, 其特征在于, 所述目标信道的带宽为 320MHz, 所述短训练域的频域序列为以下任意一项:

{HES-1016:8:1016, 0, HES-120:8:120, 1, HES-120:8:120, 0, -HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120};

{HES-1016:8:1016, 0, -HES-120:8:120, 1, HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, -HES-120:8:120, -1, -HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120};

25 {HES-1016:8:1016, 0, -HES-120:8:120, 1, HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, -HES-120:8:120, 1, -HES-120:8:120};

{HES-1016:8:1016, 0, HES-120:8:120, 1, -HES-120:8:120, 0, -HES-120:8:120, 1, HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120};

30 {HES-1016:8:1016, 0, -HES-120:8:120, 1, HES-120:8:120, 0, HES-120:8:120, -1, -HES-120:8:120, 0, -HES-120:8:120, -1, -HES-120:8:120, 0, HES-120:8:120, -1, -HES-120:8:120};

{HES-1016:8:1016, 0, HES-120:8:120, 1, -HES-120:8:120, 0, -HES-120:8:120, 1, HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120};

{HES-1016:8:1016, 0, -HES-120:8:120, -1, HES-120:8:120, 0, HES-120:8:120, 1, -HES-120:8:120, 0, HES-120:8:120, -1, HES-120:8:120, 0, -HES-120:8:120, -1, -HES-120:8:120};

35 其中, $\text{HES-1016:8:1016} = \{M, -1, M, -M, -1, M, 0, -M, 1, M, 1, -M, 1, -M, 0, -M, 1, -M, 1, M, 1, -M, 0, -M, 1, M, 1, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $\text{HES-120:8:120} = \{M, 0, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, -1, 1, -1, 1, -1, 1, 1, 1, -1, 1, -1, 1\}$ 。

41. 根据权利要求 22 或 23 所述的装置,其特征在于,所述目标信道的带宽为 320MHz,所述短训练域的频域序列为以下任意一项:

{HES-1016:8:1016, 0, HES-504:8:504, 0, HES-504:8:504};

{HES-1016:8:1016, 0, -HES-504:8:504, 0, HES-504:8:504};

5 {HES-1016:8:1016, 0, -HES-504:8:504, 0, -HES-504:8:504};

其中, $\text{HES-1016:8:1016} = \{M, -1, M, -M, -1, M, 0, -M, 1, M, 1, -M, 1, -M, 0, -M, 1, -M, 1, M, 1, -M, 0, -M, 1, M, 1, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $\text{HES-504:8:504} = \{M, -1, M, -1, -M, -1, M, 0, -M, 1, M, 1, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, -1, 1\}$ 。

10 42. 根据权利要求 22 或 23 所述的装置,其特征在于,所述目标信道的带宽为 320MHz,所述短训练域的频域序列为以下任意一项:

{HES-1016:8:1016, 0, HES-248:8:248, 0, HES-248:8:248, 0, -HES-248:8:248, 0, -HES-248:8:248};

{HES-1016:8:1016, 0, HES-248:8:248, 0, HES-248:8:248, 0, HES-248:8:248, 0, HES-248:8:248};

15 其中, $\text{HES-1016:8:1016} = \{M, -1, M, -M, -1, M, 0, -M, 1, M, 1, -M, 1, -M, 0, -M, 1, -M, 1, M, 1, -M, 0, -M, 1, M, 1, -M, 1, -M\} \cdot (1+j)/\sqrt{2}$, $\text{HES-248:8:248} = \{M, -1, -M, 0, M, -1, M\} \cdot (1+j)/\sqrt{2}$, $M = \{-1, -1, -1, 1, 1, 1, -1, 1, 1, 1, -1, 1, -1, 1\}$ 。

43. 一种通信装置,其特征在于,包括:

存储器,用于存储计算机指令;

20 处理器,用于执行所述存储器中存储的计算机指令,使得所述通信装置执行如权利要求 1 至 21 中任一项所述的方法。

44. 一种芯片,其特征在于,包括处理器和输入输出接口,所述处理器用于执行指令,以控制所述输入输出接口发送和/或接收信号,使得如权利要求 1 至 21 中任一项所述的方法被执行。

45. 一种计算机可读存储介质,其特征在于,用于存储计算机程序,所述计算机程序包括用于实现如权利要求 1 至 21 中任一项所述的方法的指令。

30 46. 一种计算机程序产品,其特征在于,所述计算机程序产品包含指令,当所述指令被计算机或处理器执行时,使得权利要求 1 至 21 任一项所述的方法被执行。

47. 一种通信系统,其特征在于,包括权利要求 22、24-42 任一项中所述的传输物理层协议数据单元的装置以及权利要求 23-42 中任一项所述的传输物理层协议数据单元的装置。