

CLAIMS

1. A communication method comprising:
obtaining a first reference signal configuration parameter;
transmitting a set of signal outputs, the set of signal outputs including a first reference signal at a time p , wherein the first reference signal is defined based on the first reference signal configuration parameter, wherein the first reference signal is a first real reference signal or a first imaginary reference signal;
wherein the set of signal outputs comprise a second reference signal transmitted at a time $p+1$, and a third reference signal transmitted at a time $p-1$.
2. The method of claim 1, wherein the second reference signal is a second real reference signal at time $p+1$ and the third reference signal is a third real reference signal at time $p-1$, wherein the second reference signal replaces real traffic at time $p+1$ and the third reference signal replaces real traffic at time $p-1$; or
the second reference signal is a second imaginary reference signal at time $p+1$ and the third reference signal is a third imaginary reference signal at time $p-1$, wherein the second reference signal replaces imaginary traffic at time $p+1$ and the third reference signal replaces imaginary traffic at time $p-1$.
3. The method of any one of claims 1 to 2, wherein the second reference signal and the third reference signal are defined to pre-cancel interference from traffic to the first reference signal.
4. The method of any one of claims 1 to 3, wherein a pulse power of the first reference signal is larger than a pulse power of the second reference signal and a pulse power of the third reference signal.
5. The method of any one of claims 1 to 4, wherein the set of signal outputs comprise a first real traffic signal transmitted at a time $p-2$ and a second real traffic signal transmitted at a time $p+2$; or
wherein the set of signal outputs comprise a first imaginary traffic signal transmitted at the time $p-2$ and a second imaginary traffic signal transmitted at the time $p+2$.

6. The method of claim 5, wherein the pulse power of the first reference signal is larger than or equal to any one of the following:
 - the pulse power of the first real traffic signal;
 - the pulse power of the second real traffic signal;
 - the pulse power of the first imaginary traffic signal; and
 - the pulse power of the second imaginary traffic signal.
7. The method of any one of claim 5 to claim 6, wherein any one of the pulse power of the second reference signal and the pulse power of the third reference signal is smaller than any one of the following:
 - the pulse power of the first real traffic signal;
 - the pulse power of the second real traffic signal;
 - the pulse power of the first imaginary traffic signal; and
 - the pulse power of the second imaginary traffic signal.
8. The method of any one of claims 1 to 7, wherein the first reference signal is a phase tracking reference signal usable for estimating the phase distortion of a communication channel.
9. The method of any one of claims 1 to 7, wherein the first reference signal is usable to estimate phase and amplitude-related measurements of a communication channel.
10. The method of any one of claims 1 to 9, wherein obtaining the first reference signal configuration parameter comprises receiving the first reference signal configuration parameter.
11. The method of claim 10, further comprising:
 - transmitting a transmitter interference pre-cancellation capability signal prior to receiving the first reference signal configuration parameter.
12. The method of any one of claims 1 to 9, wherein obtaining the first reference signal configuration parameter comprises determining the first reference signal configuration

parameter based on one or more operational characteristics for a communication channel and/or a communication device.

13. The method of claim 12, wherein the one or more operational characteristics comprises a transmitter interference pre-cancellation capability and/or an interference cancellation requirement and/or a reference signal measurement type.
14. The method of claim 13, wherein the one or more operational characteristics comprise the transmitter interference pre-cancellation capability, and the method further comprises receiving a transmitter interference pre-cancellation capability signal indicating the transmitter interference pre-cancellation capability prior to determining the first reference signal configuration parameter.
15. A communication method comprising:
 - obtaining a first reference signal configuration parameter;
 - transmitting a set of signal outputs, the set of signal outputs including a first reference signal at a time p , wherein the first reference signal is defined based on the first reference signal configuration parameter, wherein the first reference signal is a first real reference signal replacing imaginary traffic at time p or a first imaginary reference signal replacing real traffic at time p .
16. The method of claim 15, wherein the first reference signal is the first imaginary reference signal, and the set of signal outputs comprise a first real traffic signal transmitted at a time $p-2$ and a second real traffic signal transmitted at a time $p+2$; or wherein the first reference signal is the first real reference signal, and the set of signal outputs comprise a first imaginary traffic signal transmitted at the time $p-2$ and a second imaginary traffic signal transmitted at the time $p+2$.
17. The method of claim 16, wherein the pulse power of the first reference signal is larger than or equal to any one of the following:
 - the pulse power of the first real traffic signal;
 - the pulse power of the second real traffic signal;
 - the pulse power of the first imaginary traffic signal; and
 - the pulse power of the second imaginary traffic signal.

18. The method of any one of claims 15 to 17, wherein the set of signal outputs omits any signal pulses at a time $p-1$ and a time $p+1$.
19. The method of any one of claims 15 to 18, wherein the first reference signal is a phase tracking reference signal usable for estimating the phase distortion of a communication channel.
20. An apparatus comprising:
at least one processor; and
a non-transitory computer readable storage medium storing processor executable instructions for execution by the processor, the processor executable instructions including instructions to cause the apparatus to:
 obtain a first reference signal configuration parameter; and
 transmit a set of signal outputs using the transceiver, the set of signal outputs including a first reference signal at a time p , wherein the first reference signal is defined based on the first reference signal configuration parameter, wherein the first reference signal is a first real reference signal or a first imaginary reference signal;
 wherein the set of signal outputs comprise a second reference signal transmitted at a time $p+1$, and a third reference signal transmitted at a time $p-1$.