Claims

1. A front-end transceiver, comprising:
a receiver path, comprising:

a first receiver frequency converter configured to convert a received signal with a receiver frequency into a first receiver intermediate signal with a first receiver intermediate frequency;

a receiver direct conversion stage coupled to the first receiver frequency converter so as to receive the first receiver intermediate signal;
and

an oscillator signal generator respectively coupled to the first receiver frequency converter and to the receiver direct conversion stage so as to provide a first oscillator signal with a first oscillator frequency to the first receiver frequency converter and a first stabilizing signal with a first stabilizing frequency to the receiver direct conversion stage;

wherein the first receiver frequency converter is configured so that the first receiver intermediate frequency of the first receiver intermediate signal comprises a value which is determined based on a deviation between the receiver frequency of the received signal and the first oscillator frequency of the first oscillator signal;

wherein the oscillator signal generator is configured to provide the first oscillator signal with the first oscillator frequency of 24 GHz or 36 GHz; and wherein the receiver frequency of the received signal is 60 GHz.

2. The front-end transceiver of claim 1, wherein the oscillator signal generator is configured so that the first stabilizing frequency of the first stabilizing signal is substantially the same as the first receiver intermediate frequency of the first receiver intermediate signal.

3. The front-end transceiver of claim 1, wherein the receiver path further comprises a second receiver frequency converter, the second receiver frequency converter is coupled between the first receiver frequency converter and the receiver direct conversion stage so as to receive the first receiver intermediate signal with the first receiver intermediate frequency and to convert the first receiver intermediate signal with the first receiver

intermediate frequency into a second receiver intermediate signal with a second receiver intermediate frequency to be provided to the receiver direct conversion stage.

4. The front-end transceiver of claim 3, wherein the oscillator signal generator is further coupled to the second receiver frequency converter so as to provide the first oscillator signal with the first oscillator frequency to the second receiver frequency converter.

5. The front-end transceiver of claim 4, wherein the second receiver frequency converter is configured so that the second receiver intermediate frequency of the second receiver intermediate signal comprises a value of which is determined based on a deviation between the first receiver intermediate frequency of the first receiver intermediate signal and the first oscillator frequency of the first oscillator signal.

6. The front-end transceiver of claim 3, wherein the oscillator signal generator is configured so that the first stabilizing frequency of the first stabilizing signal is substantially the same as the second receiver intermediate frequency of the second receiver intermediate signal.

7. The front-end transceiver of claim 1, further comprising:
a transmitter path, comprising:

a transmitter direct conversion stage configured to provide a transmitter signal to be transmitted with a transmitter frequency.

8. The front-end transceiver of claim 7, wherein the transmitter path further comprises:
a first transmitter frequency converter coupled to the transmitter direct conversion stage so as to receive the transmitter signal to be transmitted with the transmitter frequency and to convert the transmitter signal to be transmitted with the transmitter frequency into a first transmitter intermediate signal with a first transmitter intermediate frequency.

9. The front-end transceiver of claim 8, wherein the oscillator signal generator is coupled to the first transmitter frequency converter so as to provide a second oscillator signal with a second oscillating frequency to the first transmitter frequency converter.

10. The front-end transceiver of claim 9, wherein the first transmitter frequency converter is configured so that the first transmitter intermediate frequency of the first transmitter

intermediate signal comprises a value of which is determined based on an addition of the transmitter frequency of the transmitter signal to be transmitted and the second oscillator frequency of the second oscillator signal.

11. The front-end transceiver of claim 7, wherein the oscillator signal generator is coupled to the transmitter direct conversion stage so as to provide a second stabilizing signal with a second stabilizing frequency to the transmitter direct conversion stage.

12. The front-end transceiver of claim 7, wherein the transmitter path further comprises:

a first transmitter frequency converter coupled to the transmitter direct conversion stage so as to receive the transmitter signal to be transmitted with the transmitter frequency and to convert the transmitter signal to be transmitted with the transmitter frequency into a first transmitter intermediate signal with a first transmitter intermediate frequency; and

a second transmitter frequency converter coupled to the first transmitter frequency converter so as to receive the first transmitter intermediate signal with the first transmitter intermediate frequency and to convert the first transmitter intermediate signal with the first transmitter intermediate frequency into a second transmitter intermediate signal with a second transmitter intermediate frequency.

13. The front-end transceiver of claim 8, wherein the transmitter path further comprises a transmitter antenna coupled to the first transmitter frequency converter and configured to receive the first transmitter intermediate frequency from the first transmitter frequency converter.

14. The front-end transceiver of claim 1, wherein the oscillator signal generator comprises an oscillator configured to generate an initial oscillator signal with an initial oscillator frequency.

15. The front-end transceiver of claim 14, wherein the oscillator signal generator further comprises a first compensating circuit coupled to the oscillator so as to receive the initial oscillator signal with the initial oscillator frequency and to convert the initial oscillator signal with the initial oscillator frequency to the first stabilizing signal with the first stabilizing frequency.

16. The front-end transceiver of claim 14, wherein the oscillator signal generator further comprises a second compensating circuit coupled to the oscillator so as to receive the initial oscillator signal with an initial oscillator frequency and to convert the initial oscillator signal with the initial oscillator frequency to the first oscillator signal with the first oscillator frequency.

17. The front-end transceiver of claim 1, wherein the receiver path further comprises a receiver antenna coupled to the first receiver frequency converter and configured to provide the received signal to the first receiver frequency converter.

18. A front-end transceiver, comprising:
a transmitter path, comprising:

a transmitter direct conversion stage configured to provide a transmitter signal to be transmitted with a transmitter frequency;

a first transmitter frequency converter coupled to the transmitter direct conversion stage so as to receive the transmitter signal to be transmitted with the transmitter frequency and to convert the transmitter signal to be transmitted with the transmitter frequency into a first transmitter intermediate signal with a first transmitter intermediate frequency; and

an oscillator signal generator respectively coupled to the first transmitter frequency converter and to the transmitter direct conversion stage so as to provide a second oscillator signal with a second oscillator frequency to the first transmitter frequency converter and a second stabilizing signal with a second stabilizing frequency to the transmitter direct conversion stage;

wherein the first transmitter frequency converter is configured so that the first transmitter intermediate frequency of the first transmitter intermediate signal comprises a value which is determined based on an addition of the transmitter frequency of the transmitter signal to be transmitted and the second oscillator frequency of the second oscillator signal;

wherein the oscillator signal generator is configured to provide the second oscillator signal with the second oscillator frequency of 24 GHz or 36 GHz; and wherein the first transmitter intermediate frequency of the first transmitter intermediate signal is 60 GHz.

19. A front-end transceiver, comprising:
a transmitter path, comprising:

a transmitter direct conversion stage configured to provide a transmitter signal to be transmitted with a transmitter frequency;

a first transmitter frequency converter coupled to the transmitter direct conversion stage so as to receive the transmitter signal to be transmitted with the transmitter frequency and to convert the transmitter signal to be transmitted with the transmitter frequency into a first transmitter intermediate signal with a first transmitter intermediate frequency;

a second transmitter frequency converter coupled to the first transmitter frequency converter so as to receive the first transmitter intermediate signal with the first transmitter intermediate frequency and to convert the first transmitter intermediate signal with the first transmitter intermediate frequency into a second transmitter intermediate signal with a second transmitter intermediate frequency; and

an oscillator signal generator respectively coupled to the first transmitter frequency converter, the second transmitter frequency converter and to the transmitter direct conversion stage so as to provide a second oscillator signal with a second oscillator frequency to the first transmitter frequency converter and the second transmitter frequency converter and a second stabilizing signal with a second stabilizing frequency to the transmitter direct conversion stage;

wherein the second transmitter frequency converter is configured so that the second transmitter intermediate frequency of the second transmitter intermediate signal comprises a value which is determined based on an addition of the first transmitter intermediate frequency of the first transmitter intermediate signal and the second oscillator frequency of the second oscillator signal;

wherein the oscillator signal generator is configured to provide the second oscillator signal with the second oscillator frequency of 24 GHz or 36 GHz; and wherein the second transmitter intermediate frequency of the second transmitter intermediate signal is 60 GHz.