CLAIMS

1. An amplifier circuit that

amplifies a carrier wave that a transmitting and receiving part has received, the amplifier circuit comprising:

a superimposition wave generation part that generates a superimposition wave to be superimposed onto the carrier wave;

an amplifying part that adds the carrier wave and the superimposition wave to obtain an amplified carrier wave, and outputs the amplified carrier wave; and

an amplitude detection part that detects, based on a change in an amplitude value of the carrier wave, that the carrier wave is a predetermined carrier wave that carries a predetermined communication signal,

wherein the amplifier circuit outputs the amplified carrier wave when having detected the predetermined carrier wave.~~,~~

wherein the amplifier circuit further comprising

a switch part that controls connection between the amplifying part and an output terminal of the amplifier circuit, wherein

the amplitude detection part controls the switch part to supply the output of the amplifying part to the output terminal of the amplifier circuit when having detected the predetermined carrier wave.

2. The amplifier circuit as claimed in claim 1, wherein

the superimposition wave generation part generates the superimposition wave that is in phase with the carrier wave and has a predetermined frequency.

~~3. The amplifier circuit as claimed in claim 1 or 2, further comprising~~

~~a switch part that controls connection between the amplifying part and an output terminal of the amplifier circuit, wherein~~

~~the amplitude detection part controls the switch part to supply the output of the amplifying part to the output terminal of the amplifier circuit when having detected the predetermined carrier wave.~~

34. The amplifier circuit as claimed in claim ~~3~~1 or 2, further comprising

a switch control part that controls the switch part so as to provide an off period of time for not supplying the output of the amplifying part to the output terminal of the amplifier circuit, wherein

the superimposition wave generation part generates the superimposition wave that is in phase with the carrier that has been received during the off period of time of the switch part.

45. An amplifier circuit that

amplifies a carrier wave that a transmitting and receiving part has received, the amplifier circuit comprising:

a superimposition wave generation part that generates a superimposition wave to be superimposed onto the carrier wave;

an amplifying part that adds the carrier wave and the superimposition wave to obtain an amplified carrier wave, and outputs the amplified carrier wave; and

an amplitude detection part that detects, based on a change in an amplitude value of the carrier wave, that the carrier wave is a predetermined carrier wave that carries a predetermined communication signal,

wherein the amplifier circuit outputs the amplified carrier wave when having detected the predetermined carrier wave,

wherein ~~T~~the amplifier circuit ~~as claimed in claim 1,~~ further comprising

a changeover part that switches between connection of a wireless communication part that transmits a response signal using the transmitting and receiving part via the amplifier circuit with the amplifying part and connection of a harmonic removal part that removes a harmonic component from the superimposition wave with the amplifying part, wherein

the changeover part

supplies an output of the harmonic removal part to the amplifying part when the amplitude detection part has detected the predetermined carrier wave, and

supplies an output of the wireless communication part to the amplifying part when having detected the output of the wireless communication part.

5~~6~~. An antenna module comprising:

a transmitting and receiving part that wirelessly transmits and receives signals; and

an amplifier circuit that amplifies a carrier wave that the transmitting and receiving part has received, wherein

the amplifier circuit comprises:

a superimposition wave generation part that generates a superimposition wave to be superimposed onto the carrier wave,

an amplifying part that adds the carrier wave and the superimposition wave to obtain an amplified carrier wave, and outputs the amplified carrier wave, and

an amplitude detection part that detects, based on a change in an amplitude value of the carrier wave, that the carrier wave is a predetermined carrier wave that carries a predetermined communication signal,

wherein the amplifier circuit outputs the amplified carrier wave when having detected the predetermined carrier wave~~.~~

wherein the amplifier circuit further comprising

a switch part that controls connection between the amplifying part and an output terminal of the amplifier circuit, wherein

the amplitude detection part controls the switch part to supply the output of the amplifying part to the output terminal of the amplifier circuit when having detected the predetermined carrier wave.

6. An antenna module comprising:

a transmitting and receiving part that wirelessly transmits and receives signals; and

an amplifier circuit that amplifies a carrier wave that the transmitting and receiving part has received, wherein

the amplifier circuit comprises:

a superimposition wave generation part that generates a superimposition wave to be superimposed onto the carrier wave,

an amplifying part that adds the carrier wave and the superimposition wave to obtain an amplified carrier wave, and outputs the amplified carrier wave, and

an amplitude detection part that detects, based on a change in an amplitude value of the carrier wave, that the carrier wave is a predetermined carrier wave that carries a predetermined communication signal,

wherein the amplifier circuit outputs the amplified carrier wave when having detected the predetermined carrier wave,

wherein the amplifier circuit further comprising

a changeover part that switches between connection of a wireless communication part that transmits a response signal using the transmitting and receiving part via the amplifier circuit with the amplifying part and connection of a harmonic removal part that removes a harmonic component from the superimposition wave with the amplifying part, wherein

the changeover part

supplies an output of the harmonic removal part to the amplifying part when the amplitude detection part has detected the predetermined carrier wave, and

supplies an output of the wireless communication part to the amplifying part when having detected the output of the wireless communication part.

7. A wireless communication apparatus comprising:

a transmitting and receiving part that wirelessly transmits and receives signals;

an amplifier circuit that amplifies a carrier wave that the transmitting and receiving part has received; and

a wireless communication part that carries out communication using the signals, wherein the amplifier circuit comprises:

a superimposition wave generation part that generates a superimposition wave to be superimposed onto the carrier wave,

an amplifying part that adds the carrier wave and the superimposition wave to obtain an amplified carrier wave, and outputs the amplified carrier wave to the wireless communication part, and

an amplitude detection part that detects, based on a change in an amplitude value of the carrier wave, that the carrier wave is a predetermined carrier wave that carries a predetermined communication signal, wherein

the amplifier circuit outputs the amplified carrier wave to the wireless communication part when having detected the predetermined carrier wave,

wherein the amplifier circuit further comprising

a switch part that controls connection between the amplifying part and an output terminal of the amplifier circuit, wherein

the amplitude detection part controls the switch part to supply the output of the amplifying part to the output terminal of the amplifier circuit when having detected the predetermined carrier wave.