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(54) **AMPLITUDE AND PHASE CONTROL DEVICE, AMPLITUDE AND PHASE CONTROL METHOD, AMPLIFICATION DEVICE, AND RADIO TRANSMITTER**

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(57) **ABSTRACT**

An amplitude and phase control device includes a signal dividing unit to divide a transmission signal into first and second signals and output the first and second signals to a Doherty amplifier, an error calculating unit to acquire, from the Doherty amplifier, a synthesized signal of first and second signals amplified by the Doherty amplifier, multiply the synthesized signal by a reciprocal of a gain of the Doherty amplifier, and calculate an error between a synthesized signal after being multiplied by the reciprocal and the transmission signal, and a controlling unit to control an amplitude of each of the first signal and the second signal output from the signal dividing unit depending on the error calculated by the error calculating unit, and control a phase difference between the first signal output from the signal dividing unit and the second signal output from the signal dividing unit depending on the error.