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(54) **ELECTRIC CIRCUIT PROVIDING MIXING AND GAINING FUNCTIONS FOR A RF RECEIVER FRONT-END AND RF RECEIVER FRONT-END**

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(57) **ABSTRACT**

An electric circuit providing mixing and gaining functions for a RF receiver front-end, including an I path and a Q path. Each of the I path and Q path includes: a switch, an input capacitor between the switch and an input of an operational amplifier, and a feedback capacitor between the input and the output of the operational amplifier. The electric circuit includes: a local oscillator arranged to generate a carrier signal having a carrier frequency, a command module arranged to sequentially close each switch during a mixer's averaging window, so that an incoming signal having a frequency close to the carrier frequency results in a non-zero down-converted signal across the input capacitor. This down-converted signal is amplified by the operational amplifier so that an amplified down-converted signal appears at the output of the operational amplifier. A RF front-end is inductor-less, includes a linearity optimized LNA, and/or has reconfigurable topology.