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(54) **MIXED ANALOG FRONT-END FOR WIRELESS CHARGING**

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**ABSTRACT**

Systems, methods and apparatus for wireless charging are disclosed. An apparatus includes or operates as a wireless charging device that has a battery charging power source coupled to a charging circuit, a plurality of charging cells provided on a surface of the wireless charging device and a controller or processing circuit, which may include one or more processors. The apparatus has a high-pass filter configured to extract high-frequency components from a measurement signal representative of voltage at a transmitting coil during a charging operation, a first attenuator configured to attenuate the measurement signal and provide an attenuated measurement signal, a mixer configured to add a signal representative of the high-frequency components to the attenuated measurement signal to obtain a scaled measurement signal, and a demodulator configured to decode one or more messages associated with the charging operation from the scaled measurement signal.

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