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(54) SYSTEMS AND METHODS FOR SEALING AND PROVIDING WIRELESS POWER TO WEARABLE OR IMPLANTABLE DEVICES

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(57) **ABSTRACT**

One example device includes a first housing portion defining a first coupling surface; a second housing portion defining a second coupling surface, the first housing portion coupled to the second housing portion to form a housing, the first housing portion and the second housing portion defining an opening, the opening intersecting the first coupling surface and the second coupling surface; a first gasket positioned between the first coupling surface and the second coupling surface, the first gasket providing a first seal between the first housing portion and the second housing portion, a printed circuit board ("PCB") disposed within the housing and coupled to at least one of the first or second housing portions; an electrical connector electrically coupled to the printed circuit board and positioned within the opening; and a second gasket positioned between the electrical connector and the housing, the second gasket providing a second seal between the electrical connector and the housing, wherein the first gasket is positioned to abut the second gasket and wherein compression of the first gasket between the first and second housing portions provides a third seal between the first gasket and the second gasket. Another example device includes a wireless field driver comprising a first antenna coil and an electrical current source electrically coupled to the first antenna coil; an electromagnetic field ("EMF") sensor comprising a second antenna coil, wherein the EMF sensor is configured to generate a sensor signal indicative of a signal strength from the first antenna coil; a non-transitory computer-readable medium; and a processor in communication with the non-transitory computer-readable medium, the processor configured to execute processor-executable instructions stored in the non-transitory computer-readable medium to: cause the electrical current source to output a current to the first antenna coil to generate a first EMF; estimate the signal strength of the first EMF based on the sensor signal; and adjust the current to the first antenna coil based on an estimated signal strength of the first EMF to maintain a power characteristic and generate a second EMF at the first antenna coil.