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(54) **CATHETER AND METHOD FOR CATHETER ASSEMBLY**

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(57) **ABSTRACT**

Described herein is a catheter and method for catheter assembly. The flexible substrate includes a number of layers, where each layer has a number of printed wires. The printed substrate is environmentally protected. The printed substrate is rolled and inserted into the catheter. Connectors are attached to each end of the rolled substrate. The connectors are connected to sensors at a distal end of the catheter and with electrical cards or a cable connector at a proximate end of the catheter. At least one layer of the substrate is connected to a coil in a magnetic sensor. A layer in which the traces are shorted in the distal end is used to measure a magnetic interference. These measurements are used by a processor or hardware to cancel out the magnetic interference effect on the other layers. In an implementation, another printed substrate can be wrapped within the catheter shaft and used for non-magnetic type sensors.