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(54) **Title**: METHODS AND APPARATUS FOR CONTROLLING A PLASMA PROCESSING SYSTEM

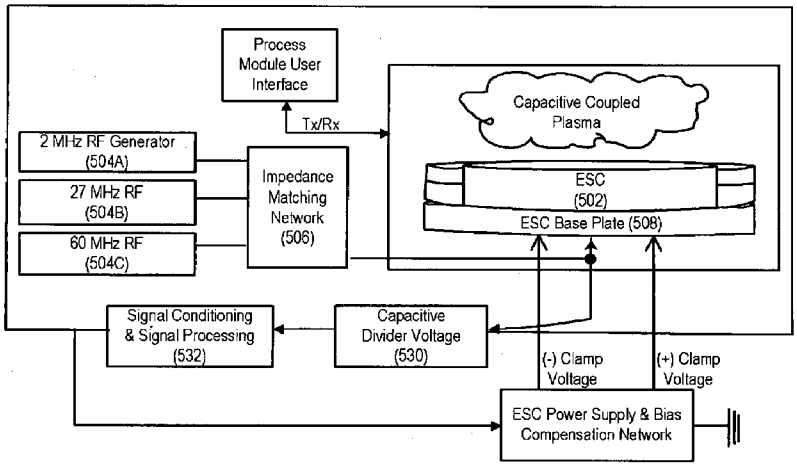


FIGURE 5a

(57) **Abstract**: A method and apparatus for compensating a bias voltage at the wafer by measuring RF voltage signals in RF driven plasma including at least an electrostatic chuck (ESC), a capacitive divider, a signal processing and signal conditioning network is disclosed. The bias compensation device includes a capacitive divider to detect the RF voltage at the ESC, a signal conditioning network for the purpose of filtering specific RF signals of interests, and a signal processing unit for computing the DC wafer potential from the filtered RF signals.

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