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12/143,573 20 June 2008 (20.06.2008) US(71) Applicant (for all designated States except US): **3M INNOVATIVE PROPERTIES COMPANY** [US/US]; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US).(72) Inventors: **BANERJEE, Swagata R.**; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US). **SAINATI, Robert A.**; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US). **EGBERT, William C.**; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US). **MISEMER, David K.**; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US).(74) Agents: **BURTIS, John A.**, et al.; 3M Center Office of Intellectual Property Counsel, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US).

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(54) Title: RADIO FREQUENCY IDENTIFICATION (RFID) TAG INCLUDING A THREE-DIMENSIONAL LOOP ANTENNA

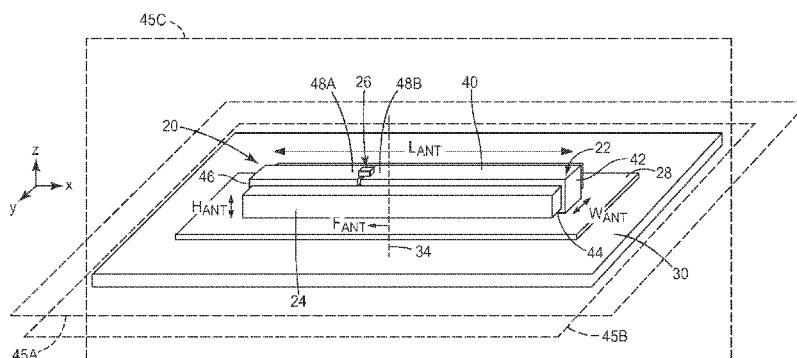


FIG. 2A

(57) Abstract: This disclosure describes a radio frequency identification (RFID) tag that includes a three-dimensional (3D) loop antenna. The 3D loop antenna includes a first conductive portion having a length and width that substantially exceed a thickness. The length and width of the first conductive portion substantially lie in a first plane. The 3D loop antenna includes a second conductive portion having a length and width that substantially exceed a thickness. The length and width of the second conductive portion substantially lie in a second plane that is substantially parallel to the first plane. An RFID circuit electrically connected to the loop antenna excites a current through the first and second conductive portions in a current loop that lies in a third plane that is not substantially parallel to the first and second planes. In some instances the third plane may be substantially perpendicular to the first and second planes.