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(54) **CONTINUOUS SILICA FIBER REINFORCED COMPOSITES FOR HIGH-FREQUENCY PRINTED CIRCUIT BOARD AND METHODS OF MAKING**

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(57) **ABSTRACT**

A printed circuit board (PCB) composite material includes a polymer layer and a fiber layer encapsulated within the polymer layer. The fiber layer includes a first monolayer of continuous silica fibers longitudinally co-aligned in a first direction. Each continuous silica fiber in the first monolayer extends without discontinuity through the polymer layer such that opposed ends of each continuous silica fiber are adjacent to a perimeter of the polymer layer. The PCB composite material has a dielectric loss tangent of less than or equal to about 0.0015 at 15 GHz or higher frequency. A printed circuit board (PCB) includes the PCB composite material and at least one conductive layer disposed on a side of the PCB composite material.