

ABSTRACT

An AMC antenna apparatus includes a ground plane and a flexible antenna element layer above the ground plane. The ground plane includes a conductive base surface, a plurality of flexible conductors, and a frequency selective surface (FSS) layer above the base surface, where the FSS layer includes a plurality of conductive patches separated from one another. Each of the flexible conductors electrically connects one of the conductive patches to the base surface. A latch mechanism is arranged between the base layer and the FSS layer. An inflatable bladder system between the base layer and the FSS layer is configured to receive a gas input during deployment of the antenna apparatus and inflate to produce force sufficient to cause the latch mechanism to transition from an unlatched state to a latched state in which the conductive base surface is fixedly separated from the FSS layer at a predetermined distance.

FIG. 1