

In this paper, two major multiple-input-multiple-output (MIMO) transmission techniques such as spatial modulation (SM) and spatial multiplexing (SMX) are considered. In particular, the focus is on an interference scenario, where an SM MIMO system interferes with a conventional SMX MIMO system. The interference caused by SM has a peculiar behavior. In SMX MIMO networks, the interference subspace is fixed in a given coherence time interval. It can be estimated accurately, and interference suppression techniques can be applied accordingly. However, the interference caused by an SM system has no fixed interference subspace, and it changes in every single channel use. Therefore, SM interference could pose some unique challenges to SMX MIMO systems in some scenarios. In this paper, the effect of SM interference on SMX MIMO systems and methods to overcome/reduce the adverse effects caused by SM interference are studied. Furthermore, the effect of SMX interference on SM MIMO systems is also studied.