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Mixed Scattering Matrix: Properties and Applications

Outline

1. Admittance, Wave Scattering, and Mixed Scattering Matrices of the Multi-Port Network

1.1. General definition of the mixed scattering matrix
1.2. Relationship between generalized wave amplitudes and electric variables
1.3. Conversion between admittance, wave scattering, and mixed scattering matrices
1.4. Reciprocity and power conservation
1.5. Reference plane transformation

2. Mixed Scattering Matrix of a SAW Transducer

2.1. Three-Port representation of a SAW transducer
2.2. Physical meaning of the mixed scattering matrix
2.3. Mixed scattering matrix elements
2.4. Conversion to the wave scattering matrix
2.5. Properties of the reciprocal and lossless SAW transducer
2.6. Conversion between mixed scattering and transmission matrices