

Broadband Balun as a Compact Tunable Phase Shifter for Low-Cost Beam Steering

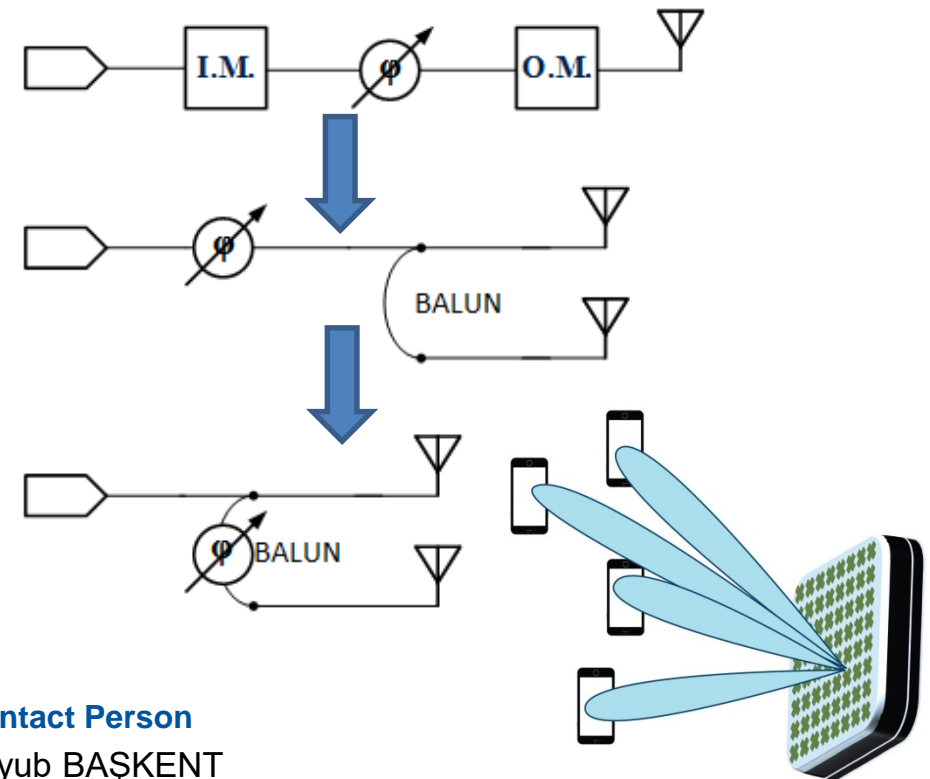
Background

Balun is a microwave device transforming an unbalanced feed to balanced one for microwave antennas and components. Broadband baluns become widespread since they fit the demand of broadband wireless communications. In addition, baluns attract much interest owing to their distinct advantages such as high-density integration with circuits, easy implementation, and low-cost fabrication. Phase shifter is a valuable component in the Tx and Rx paths of phased-array communication systems. Low-cost and compact phase shifters are critical for beamforming which usually need hundreds of phase shifters to provide accurate and wide-range phase shift tuning.

In this thesis, a broadband balun which can provide balanced feed for broadband antennas and, simultaneously, change the phase of the feed in a cost-efficient way, to be developed and analysed.

Tasks

- Literature Survey
- Circuit design (schematic, layout)
- Characterisation (EM simulation)
- Documentation (Thesis)



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