



Some Notes on Two-Element Horizontal Phased Arrays

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The directional 2-element phased array achieved notoriety in the 1950s with builder claims that one or another variation on the basic design outperformed 3- and even 4-element Yagis. Although we now know that the appearance of high performance owed much to Yagi deficiencies of the period, horizontal phased arrays have retained much of their mid-century aura of magic. Since magic and an understanding of antennas are mutually exclusive, perhaps we should begin again.

The notes in this series will begin with some basic modeling data that tends to set limits to the performance expectations that we may logically have of 2-element phased arrays. In the second part, we shall explore the degree to which the geometry of the parasitic array can capture the potential of phased element performance. Part 3 will examine one of the two classic methods of array phasing: the ZL-Special with its single phase line. In Part 4, we shall look at two different ways of phasing a pair of elements using element-matching techniques, one by R. Baumgartner, HB9CV, the other by Eric Gustafson, N7CL. Throughout, we shall try to integrate specific design strategies into an overall picture of the performance of which 2-element phased arrays are capable.

This series of items has appeared in *The National Contest Journal* in 2001-2002. All items appear here at the site after their appearance in *NCJ*

1. The Limits of Performance

2. The Limits of Geometric Phasing

3. The Limits of a Single Phase Line: The ZL-Special

4. Removing the Limits of a Single Phase Line by Element Matching



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