

Phased Arrays: 103 Models

The collection of phased-array models covers the HF spectrum from 80 through 10 meters, with a few models at VHF and UHF frequencies. Models are in both the .EZ (EZNEC) format and in the .NEC format for use with NEC-Win Plus/Pro and generic NEC-2/-4 cores. The EZNEC-format models use a wide variety of dimensional units, but all .NEC files are metric. The filenames are roughly descriptive of the kind of antenna, the frequency band, and any features that discriminate between models of the same general kind and frequency. As well, models with a known designer identify the person in the filename.

Phased arrays (for the purposes of this collection) include any antenna that provides a feed to more than one element. Many are vertical arrays--especially in the MF and lower HF range, and some models are for the AM broadcast range. Upper HF designs are mostly horizontal, although some of these antennas may be used vertically to good effect. Among the antenna types included are collinear, broadside, and endfire wire arrays, 2-element horizontal phased arrays (ZL Specials, HB9CVs, and variations), stacked beams, dipole arrays, and turnstiles. Some models use the TL facility of NEC-2 to provide one or more phasing lines, while others use separate feedpoints. Although there are samples, most LPDAs, log-cell Yagis, and VHF/UHF arrays appear in their own collections.

As with all models, you may scale a model from one frequency to another, and then make all adjustments needed for a list of proposed materials. Some models are dependent upon providing each feedpoint with a current (not a voltage) at a certain magnitude and phase angle. The current source in NEC requires the use of a remote source and a voltage source that is phase-shifted within a network. In some programs, this remote source is invisible to the user. However, the generic .NEC files will show the remote wire and network. If you import the file to another program, you may need to rewrite the source information to obtain a correct source impedance report for the element in question.

Although many of the designs may be directly built from the models in this collection, the models themselves are for study purposes. Perfecting the design to a level that permits construction of a Yagi that is both electrically and mechanically sound is your responsibility.

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