ANTENNA COMPARISONS

Large Mono-Band Antennas v. The Log-Periodic Dipole Array

We all drool over the very large arrays on multiple towers that some hams have installed. This comparison of mono-band Yagis & Quads v. the wideband Log-Periodic Dipole Array will attempt to show what kind of differences really exist between various antennas. We did not include interlaced and multiband Yagis & Quads or antennas with traps.

In the following discussion, the **net gain** figures are the product of the actual gain of the array factored by its percent of efficiency. For instance, any 20M antenna having a gain of 5.0 dBd and a radiation resistance of 15 ohms will have an efficiency of about 83.3%, thus lowering the real world gain to 4.206 dBd. In all of the following examples, the comparison, + or – dB, is referenced to the TENNADYNE T10 LPDA, on only 20M.

NET +/- dB Gain v. T10	**MONO-BAND ANTENNA**
+3.83	6 Element Cubical Quad, 53 ft boom, by W2PV.
+2.96	6 Element Yagi, 60 ft boom - ARRL Antenna Book
+2.58	5 Element Yagi, 48 ft boom - ARRL Antenna Book
+1.96	6 Element Yagi, 54 ft boom, by W2PV
+1.90	3 Element Cubical Quad, 18 ft boom, by W2PV.
+1.46	KLM 620: A 6 Element Yagi, 58 ft boom. Low radiation resistance = low efficiency. ARRL ANT BK
+1.26	PV4 Yagi: A 4 Element Yagi, 40 ft boom, by W2PV.
+ .96	KLM 520: A 5 Element Yagi, 42 foot boom **&** Hy-Gain 205CA: A 5 El Yagi, 32 ft boom. ARRL ANT BK
+ .86	Cushcraft 20-4CD: A 4 Element Yagi, 32 ft boom. ARRL Antenna Book
+ .66	2 Element Cubical Quad, 11 ft boom, reflector, by W2PV.
+ .36	Hy-Gain 204BA as modified by N6BV. ARRL Antenna Book
--------	TENNADYNE T10, covering 20-17-15-12 & 10M.
- .34	2 Element Cubical Quad, 11 ft boom, director, by W2PV.
- .44	Cushcraft 20-3CD: A 3 Element Yagi, 20 ft boom. ARRL Antenna Book

Yes there are several mono-band antennas out there that have a little more gain than the TENNADYNE T10, you'll need five of them to equal the T10 in frequency coverage. Would your ears notice the difference? Stacking and phasing a pair of T10s, or any identical antennas, on the same tower, one at 110 ft and the other at 70 ft, realizes a stacking gain of 2.6 dB.