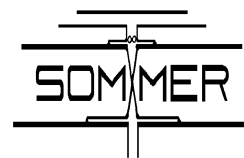




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DJ2UT-Multiband Beam

Series XP50 — 4,4 m/15-Foot Boom



The XP504 beam is an intermediate sized beam designed to replace conventional 3- and 4-element antennas. Although the boom length is a modest 4.4 metres, superb performance is obtained through the TOTAL elimination of L/C traps. Former trapped-antenna owners immediately notice increased signal reports, broader gain and SWR bandwidths, and f/b ratios that are good across the entire band – not just over one small sector. The performance graphs below illustrate the XP504.

The XP504 covers 10, 15, 20 and 40 meters. A simple, inexpensive conversion kit allows you to add 12, 17 and 30 meters at a later date.

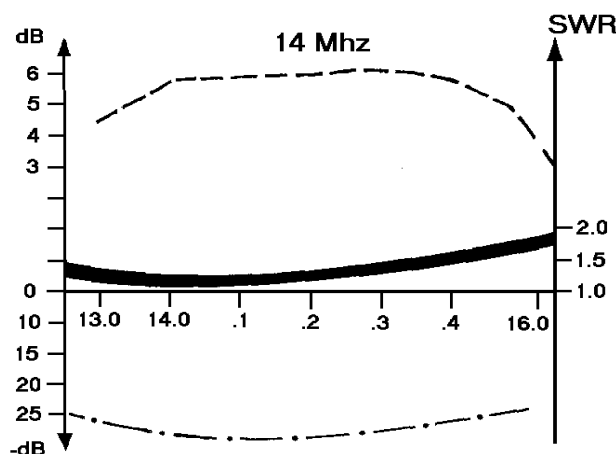
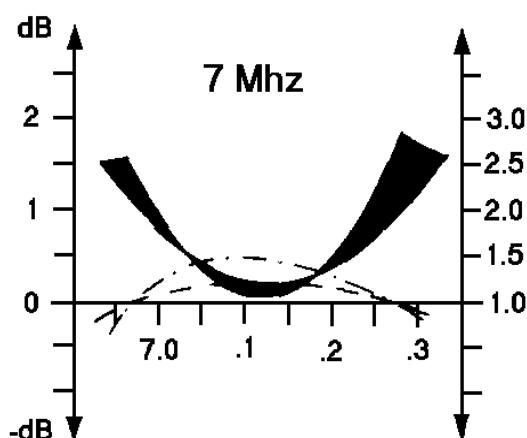
To maintain high performance, the DJ2UT antenna is fed with a model UT-2000 balun. This is an air-core device made from high-voltage, Teflon dielectric coaxial cable. With no ferrite core to saturate, this balun will handle 2 kW output without heating and the beam is rated above maximum legal power – regardless of mode or band.

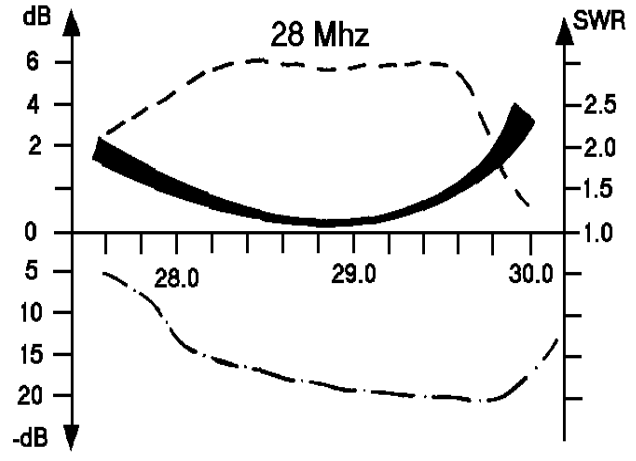
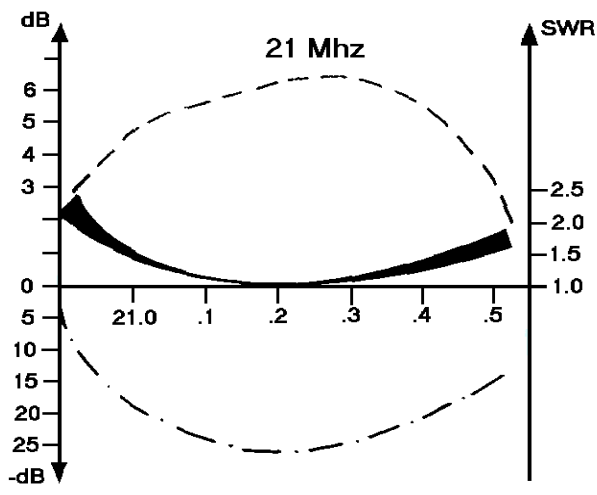
The XP504 antenna is built to very high standards of strength. Aircraft-quality aluminum tubing is used throughout, and all hardware is made of stainless steel. High-quality materials, combined with precision German craftsmanship that ensures that this Sommer antenna will provide many years of maintenance-free performance.

Dimensions

Longest element	11.2 m
Boom length	4.4 m
Turning radius	6.5 m
Max mast diameter	52 mm
Wind loading	72 sq dm
Net weight	25 kg
Wind survival	Greater than 128 km/h

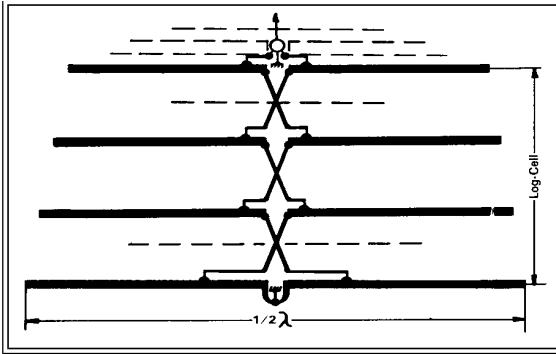
Gain and SWR





Working principle

	<p>20 m</p> <p>On this band the DJ2UT system is a full sized beam utilizing 1/2-wave elements without traps. The primary difference is that all elements are driven via a phasing line – in a fashion similar to the log periodic. This technique provides "monoband" gain or better without the narrow bandwidth commonly associated with such antennas. As on all bands, the compromise between forward gain and f/b ratio has been optimized for amateur use through actual on-the-air testing – and not random selection.</p>
	<p>15 m</p> <p>Because the 20-m elements are approximately 5/8-wave long on this band, the resulting high feed point impedance must be compensated for. Instead of resorting to "power-hungry" L/C traps DJ2UT utilizes the capacitance found in the phasing line, in combination with another unique approach. Clustered about the feed point are 3 in close proximity to each other. This combination of parasitic and driven elements simply and effectively brings the system impedance down to the desired 50 Ohms. In addition, a special means of feeding the elements reduces the unwanted side-lobe radiation common to 5/8-wave systems.</p>
	<p>10 m</p> <p>Since the primary elements of this design are 1/2-wavelength on 20 m, they are approximately a full wavelength on 10 m. In the DJ2UT system, they are fed via the phasing line as "split" 1/2-wavelength elements in a collinear fashion. This configuration also presents a high feed point impedance. As on 15 m, this high value is reduced to 50 Ohms by the influence of 3 or 4 elements in close proximity.</p>

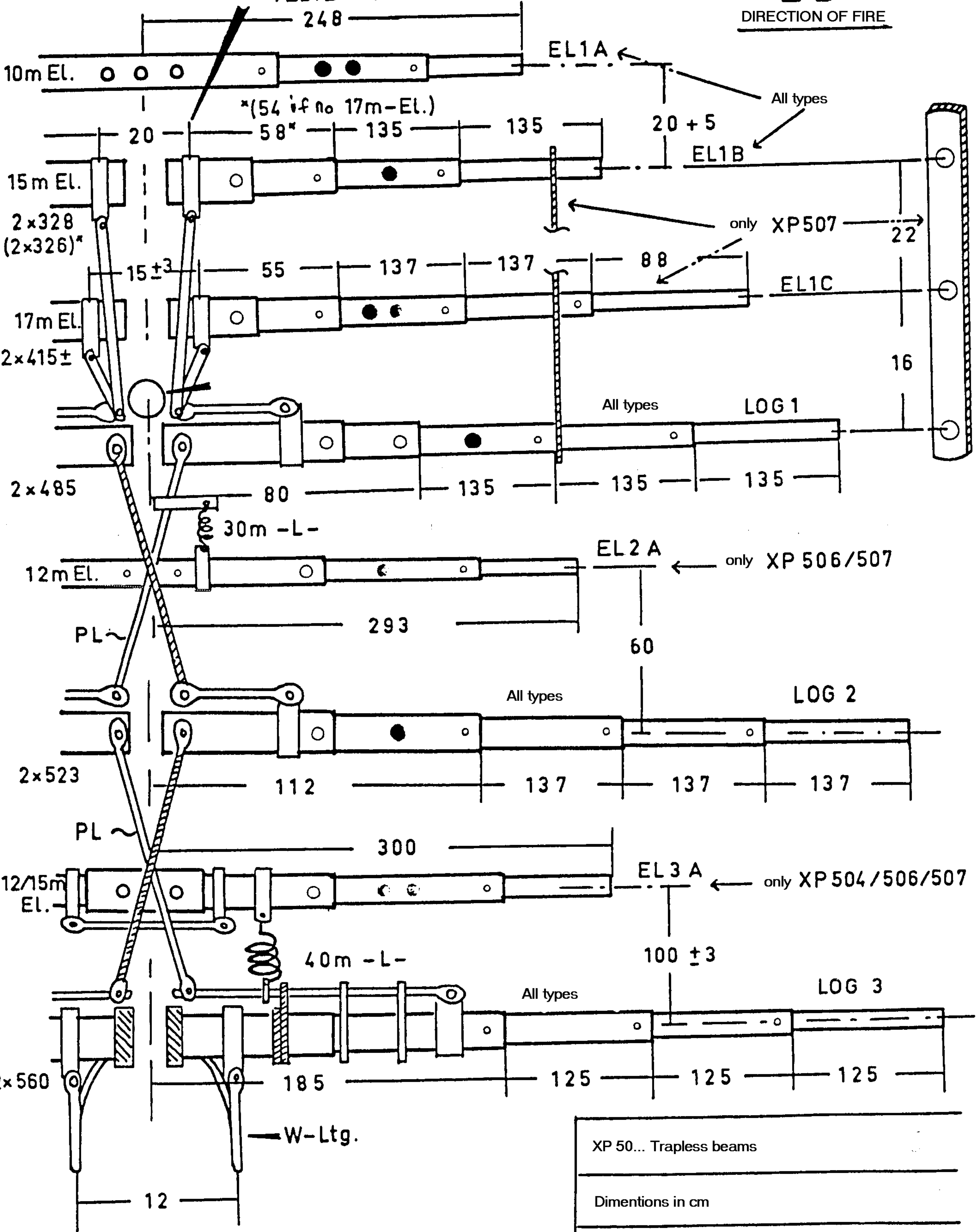


40 m

By ignoring all elements but the longest (found at the rear of the boom), we may consider the DJ2UT antenna a simple dipole with a transmission line attached. Since this element, or dipole, is only 11,6 m (approx.) long, it is too short to be resonant on 40 m and presents a capacitive reactance in this band. Compensation on 40-m is achieved with a coil and/or coaxial capacitor. Since this network is not in series with the antenna and only serve to cancel the "blind" reactive components, the problems of L/C trap loading are again avoided. On 40 m the antenna has the same bi-directional characteristics as a 1/2-wave dipole.

[Detailed drawing with dimensions \(Note! Just over 100Kb but lots of info\)](#)

: EL1B or EL1C



XP 50... Trapless beams
Dimensions in cm