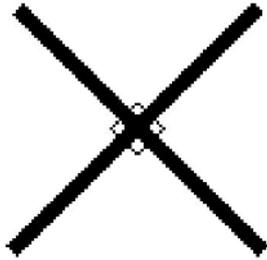
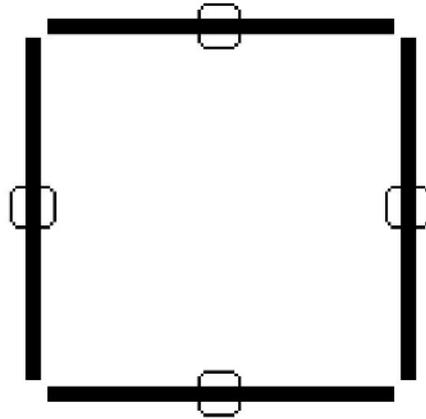


Crossed Dipoles Versus the Four Dipole Panel



Crossbow Element



4 Dipole Element

Mixed Circular polarisation is produced by feeding two radiating elements at right angles to one another and in phase quadrature.

In the early days the simplest approach for all manufacturers was to use panels made up from their already existing linearly polarised dipoles. Alan Dick Broadcast was no exception and our first CP antenna supplied into North America did exactly that, using four halfwave dipoles per panel.

When the Independent Radio Network was built in the UK there was a need for a large number of mixed polarisation panels for Band II. Alan Dick Broadcast was already established as the major UK supplier and recognised the need and the opportunity to develop a purpose built panel. The result was the Alan Dick Broadcast Crossbow panel.

The Crossbow offers the same advantages of being a versatile building block for omni directional and directional HRP's using essentially square configurations. Another Alan Dick Broadcast development (the Spearhead Panel) provides the same capabilities for triangular configurations.

Beam shaping to ensure equal power is radiated in the vertical and horizontal components of the "mixed" signal. This is achieved by adjusting the spacing between the vertical dipoles of a four dipole panel. In the Crossbow the shaping has been achieved by the special design of the screening frame assembly. This has achieved a simpler and highly cost effective design with no technical compromise.

For a given antenna aperture the same gain will be provided by the cross antenna as a four dipole array. However, the overall design of the Crossbow array is made much simpler and hence potentially more reliable, since only half the number of distribution cables and power dividers are required. Fewer components in the crossbow distribution system also leads to easier installation and more room in the structure. Hence less chance of damage to cables etc when people climb through the antenna to change lights and maintain other antennas and associated equipment.

The fact that virtually the entire UK FM network uses Alan Dick Broadcast Crossed dipole panels (Spearhead and Crossbows) and that they are also established as the favoured array from Master Antenna systems in the USA is hard evidence of their performance, reliability and economic benefit. We offer this product with the same confidence of quality that supports all Alan Dick Broadcast antennas and associated equipment.