
The Facts and Fiction of VHF/UHF Aerials

Amateur radio has distinct similarities with the pursuit of a better hi-fi system. Give or take a fraction of dB, all audio amplifiers are the same. The way to better audio lies in the choice of loudspeaker system and signal source. When it comes to RF, there is little to choose between the various Japanese black boxes except the price. The most important thing that you can have is a decent aerial system.

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When buying an amateur radio station off the shelf, as much as half the total purchase price should go towards provision of the aerial system: a 10 watt two metre multimode costs, say, £350. A basic aerial system will add another £50. You want to put out a better signal so you invest a further £300+ on one of those magnificent Dressler linear amplifiers. The power goes up to 200W, the price goes up to £700+ and received reports should show another 2½ S points on everybody elses' S meters. Your meter, however, will still be giving the same reports as it always did.

Going back to square one you buy your 10W transceiver, spend £150 on a rotator (cheap ones are false economy) vertically stack four 8-element Yagis (£100) and divide the remainder of the investment between the purchase of Westlake's H100 feeder (much lower loss than UR67) and some strong aerial lashings. The result of this approach would be to collect an extra two to three S points on received reports

while having improvements of the same order on your reception... all with a basic 10W set. If you then add one of Lexton's amplifiers, you will have a potent station indeed.

Aerials and feeder systems are important because there is no other aspect of a station which acts to improve both send and receive simultaneously (except perhaps moving house to a better location but that is expensive). Even the best in GaAsFET receive preamps will generally do less for your receive noise figure than just a very modest Yagi.

A general point

The performance of any aerial system is determined almost entirely by the amount of metal intercepting the incoming radio wave. The way in which a radio signal is converted to an RF voltage at the aerial socket is dependent on laws of physics, not advertising claims.

The corollary to this is that an aerial system having the same

number and arrangement of elements will perform as well as a similar aerial system from any other manufacturer. When you choose between aerial manufacturers for a specific aerial type, for instance 2m 10-element X/Y, you must look for durability, wind loading and price, not the specified aerial gain. There will be minor differences such as slight variations in bandwidth from manufacturer to manufacturer although the perceived differences will be minimal or non-existent. More on the topic later.

Going mobile

All the points made in the last couple of paragraphs apply even more thoroughly to simple aerial systems than complex ones. A 5/8 boot mount is a 5/8 boot mount regardless of who makes it, a 2 x 5/8 base station co-linear has electrically the same characteristics as a similar arrangement of co-linears from any other manufacturer you care to name. Likewise with quarter-