

Antenna review

The MWOJZE seven-band wide-spaced Hexbeam

INTRODUCTION. The Hexbeam is a lightweight low-profile two-element beam antenna that is built on a fibreglass structure and looks rather like an upturned umbrella (Photo 1). The original Hexbeam has been around for some time. It was first produced commercially by Mike Traffie from www.hexbeam.com and in 2008 Steve, G3TXQ redesigned the Hexbeam, making it more broad banded.

Ant, MWOJZE has been building and selling them for many years and has sold units to more than 65 countries. He has recently been working on a redesign that now includes 40m, albeit with a single dipole element, and offered it for test.

His latest creation therefore covers 40m with a single element and 20-6m as a two-band beam. Complete, it weighs just 16kg with a total width of about 8.2 metres and is rated at 2kW SSB and 1kW for CW and datamodes.

Ant has modelled the wide-spaced version of the Hexbeam at 12m above ground with an average of around 8dBd forward gain and a front-to-back ratio of between 17-34dB (excluding 40m, which is more dipole-like). The free space figures on HF are more like 3.02-3.87dBd forward gain and a front-to-back ratio of 15.7-27dB.

CONSTRUCTION. The antenna comes unassembled, although it does have all the elements pre-cut with eyes soldered on the ends – this speeds up assembly dramatically.

Ant says that assembly time is a few hours, but going on our experience I would allow for half a day at least – familiarity will speed things up, but the first time you build one of these you will be looking at the instruction sheet an awful lot. Ant states this



PHOTO 1: The finished Hexbeam looks a bit like an upturned umbrella.

is more of a permanent antenna, unlike the standard six-band version.

The antenna is based around a central hub. From this, fibreglass poles radiate outwards and then bend upwards, tensioned by cords that run around the structure.

Once this has been built you can then attach the wire elements.

The first stage is to assemble the hub and centre post and for this I suggest you use a clamp-top workbench or something similar to support it. The centre post and stub mast comes in two halves and this has to be bolted together with the supplied Allen bolts. You then fit the hexagonal hub before building the antenna outwards (see this month's cover photo).

We did have some problems here with the bolt holes not quite lining up, but this should be rectified by the time the antenna

goes into full production.

The exact method of mounting the hub will depend on how you are going to mount the antenna to a mast and it is worth reading the instructions carefully.

The hub supports the fibreglass spreaders, which slot into small aluminium cylinders. These are held in place by the tension created by the cords. If the antenna is to be permanently installed, it is worth tightening up the U-bolts.

You fit the six supplied 25mm OD x 1.5m spreaders with fitted cleats and D-loops and then into the end of these you fit six 19mm OD x 1.5m spreaders. A further six 12.7mm OD spreaders are then added and finally four 9.5 mm OD x 1m extension arms fit into spreaders 2, 3, 4, and 5 to support the 40m elements. **Photo 2** shows the antenna part-way through this process.

As you build the antenna you attach the pre-cut tensioning cords, which turns it into the 'upturned umbrella' shape – the elements do not act as part of the strengthening structure and should be relatively loose.

At this stage the basic antenna has been built. You now have to attach the pre-cut elements, made from bare seven-strand hard-drawn copper wire. These are all bagged up and ready to fit.

This then becomes more of a threading exercise as you connect one element end to the feed point post and then pass it through the numerous D-loops and supporting cords until you get back to the feed point.

This obviously has to be repeated for each

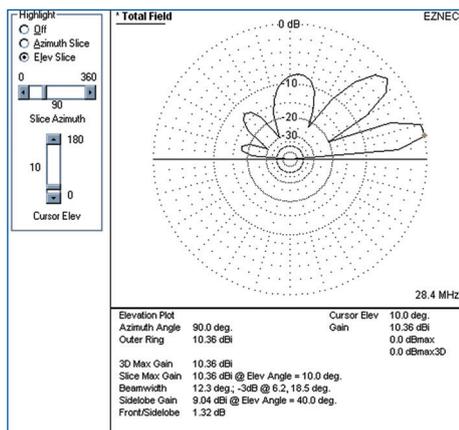


FIGURE 1: EZNEC elevation plot at 28.4MHz.

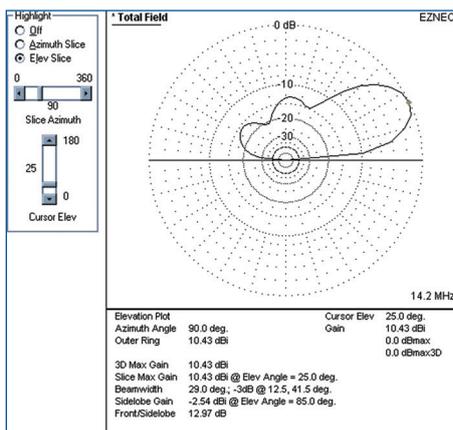


FIGURE 2: EZNEC elevation plot at 14.2MHz.