Band 2 6el Broadband Yagi

By G8MNY (Updated Sep 12)

On looking at an large old well made home-made 6el broadcast Yagi beam (scrap) as a starting point, I decided to re-model it using the MMANA-GAL program (CD in 2010 RSGB yearbook & online). It showed it to be rubbish as it was!

The community radio station I put on, is too far to hear at my home really, so I needed a good aerial. I wanted it to do well over the whole 20MHz of Band 2, 87.5-108MHz, with good front to back ratio & have some useful gain.

Using the optimisation over frequencies near the edge of the band, I ended up with this quite acceptable compromise in 20mm ally tube for the elements, & boom was 40mm & 2.54m long!

AERIAL Z

The impedance of this folded dipole feed point is approx. 300 Ohms balanced over most of the band. This is not normal as a folded dipole increases the impedance by 4 & the reflector & director usually reduces it by 4, resulting the usual 75Ω. But this design is optimised for bandwidth, so we to do extra matching, to get 75Ωm. I used a small centre tapped VHF 2 hole ferrite bread as the balun, with 2x 2 turns on it all in the connection box.

IN GRAPHICS

Using an MFJ analyser, the match to 75Ω is pretty good over most of the band as predicted by the model. I hope when I put it up on a rotator it works as predicted too.

IN USE
This works well 75Ω SWR was quite flat as above. But now regret I did not designed it to be a spot frequency narrow band 1MHz wide aerial, as that would give 2-3dB more gain & > 22dB F/B ratio. The back of the beam QRM is the main problem I have!

See My Tech Bul "Band 2 6el Narrow Band Yagi" version!

Why don't U send out an interesting bul?

73 De John, G8MNY @ GB7CIP