

Band 2 6el Broadband Yagi

By G8MNY

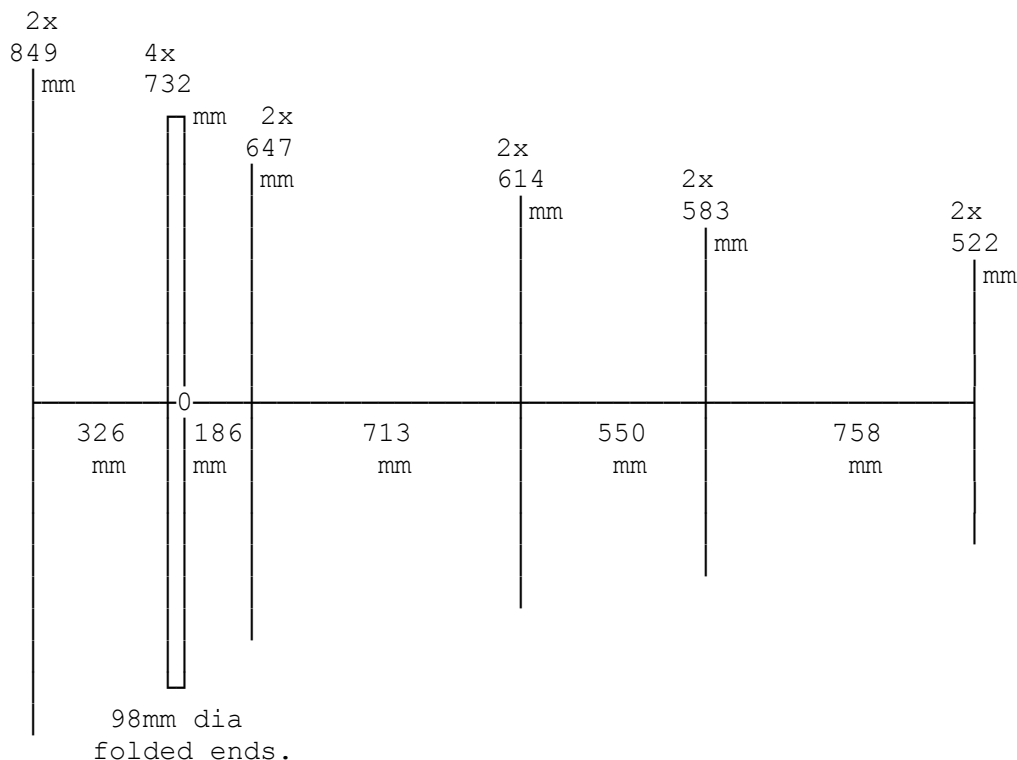
(Corrected Feb 13)

(8 Bit ASCII graphics use code page 437 or 850, Terminal Font)

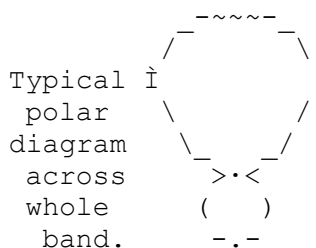
On looking at an old large well made home-made 6el broadcast Yagi beam (scrap) as a starting point, I decided to re-model it using the MMANA-GAL program (CD in 2010 RSGB yearbook & online). It showed it to be rubbish as it was!

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

Using the MMANA-GAL optimisation options 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 dia & 2.54m long!



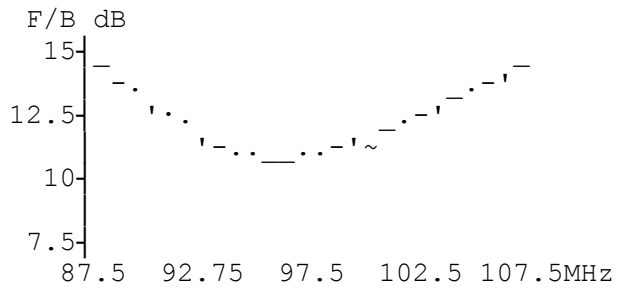
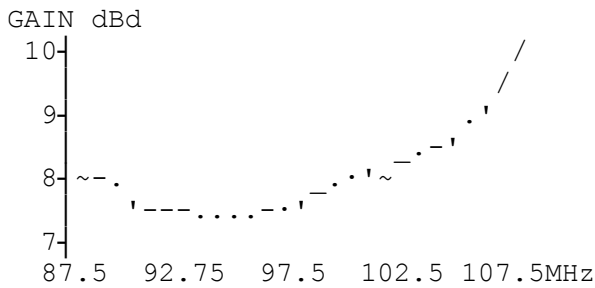
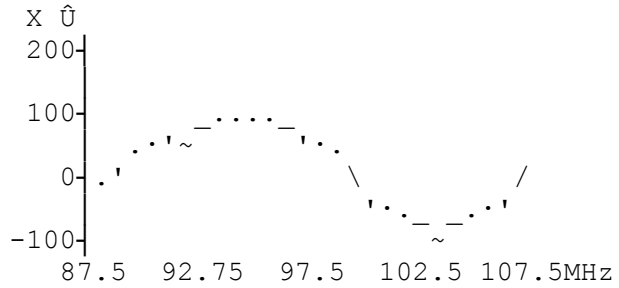
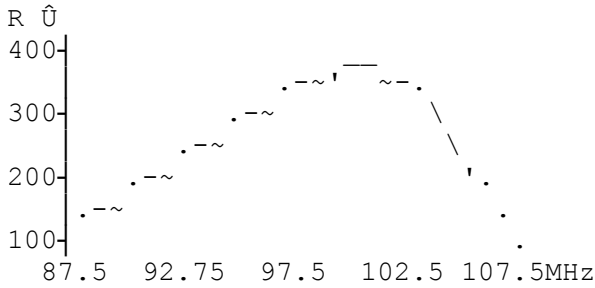
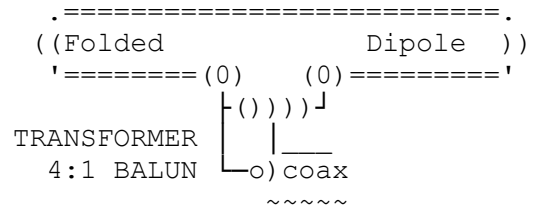
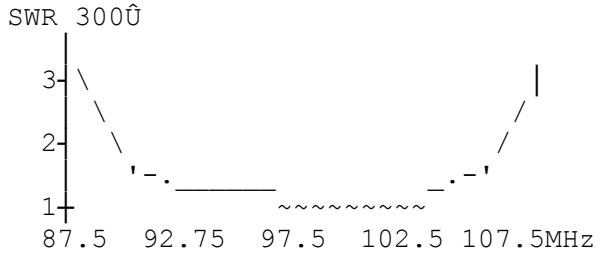
Freq	Gain	F/B	R	J
88	7.9	14.5	97	-4
90	7.7	12.8	146	41
92	7.6	11.7	198	71
94	7.7	11.1	252	86
96	7.8	11.0	308	82
98	8.0	11.0	355	52
100	8.3	11.3	375	-2
102	8.6	11.7	346	-64
104	9.0	12.4	263	-89
106	9.6	13.6	165	-49
108	10.1	15.6	87	47



AERIAL Z

The impedance of this folded dipole feed point is approx. 300Ω 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 do extra matching, to get 75Ω. I used a small centre tapped VHF 2 hole ferrite bead as the balun, with 2x 2 turns on thr middle core if it, all in the connection box.

IN GRAPHICS



Z MEASUREMENTS

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 Narrowband Yagi" version!

Why don't U send out an interesting bul?

73 De John, G8MNY @ GB7CIP  
 /EX