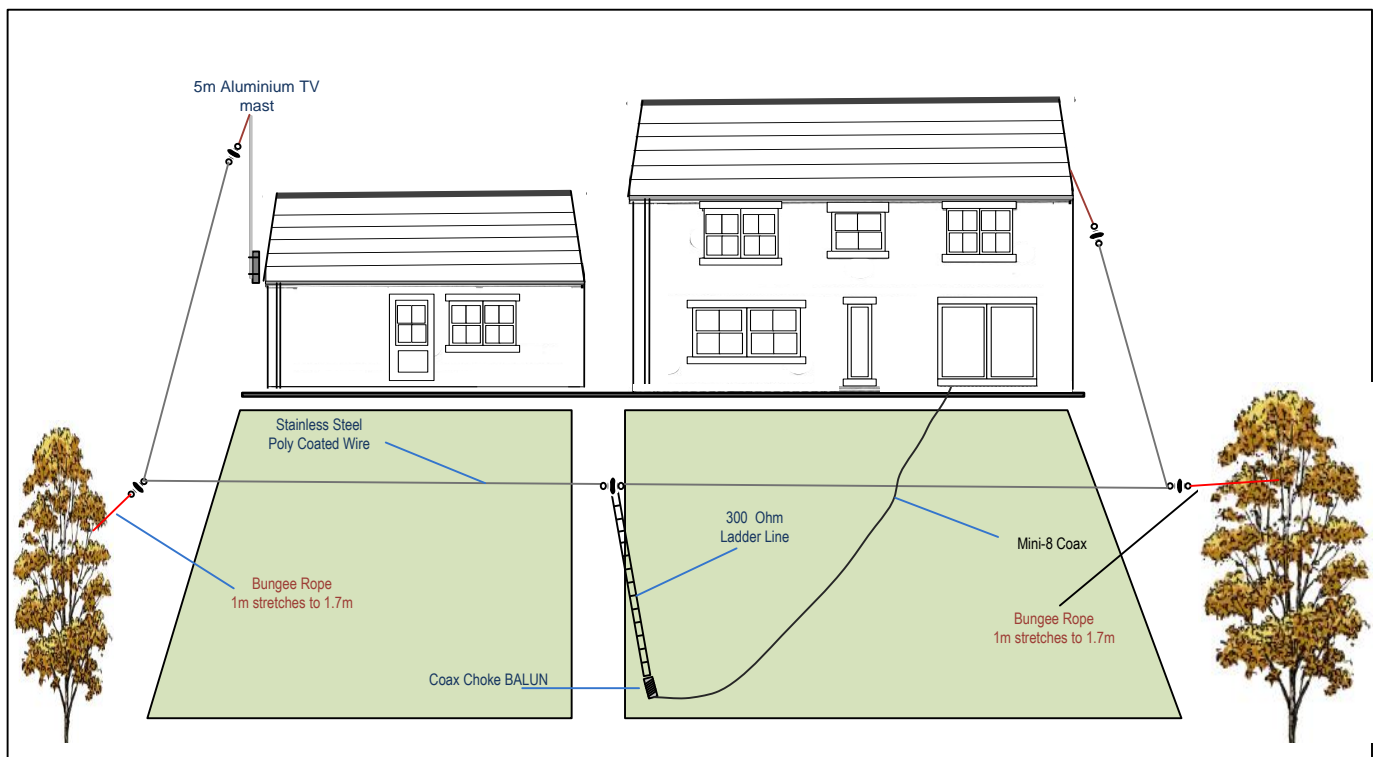
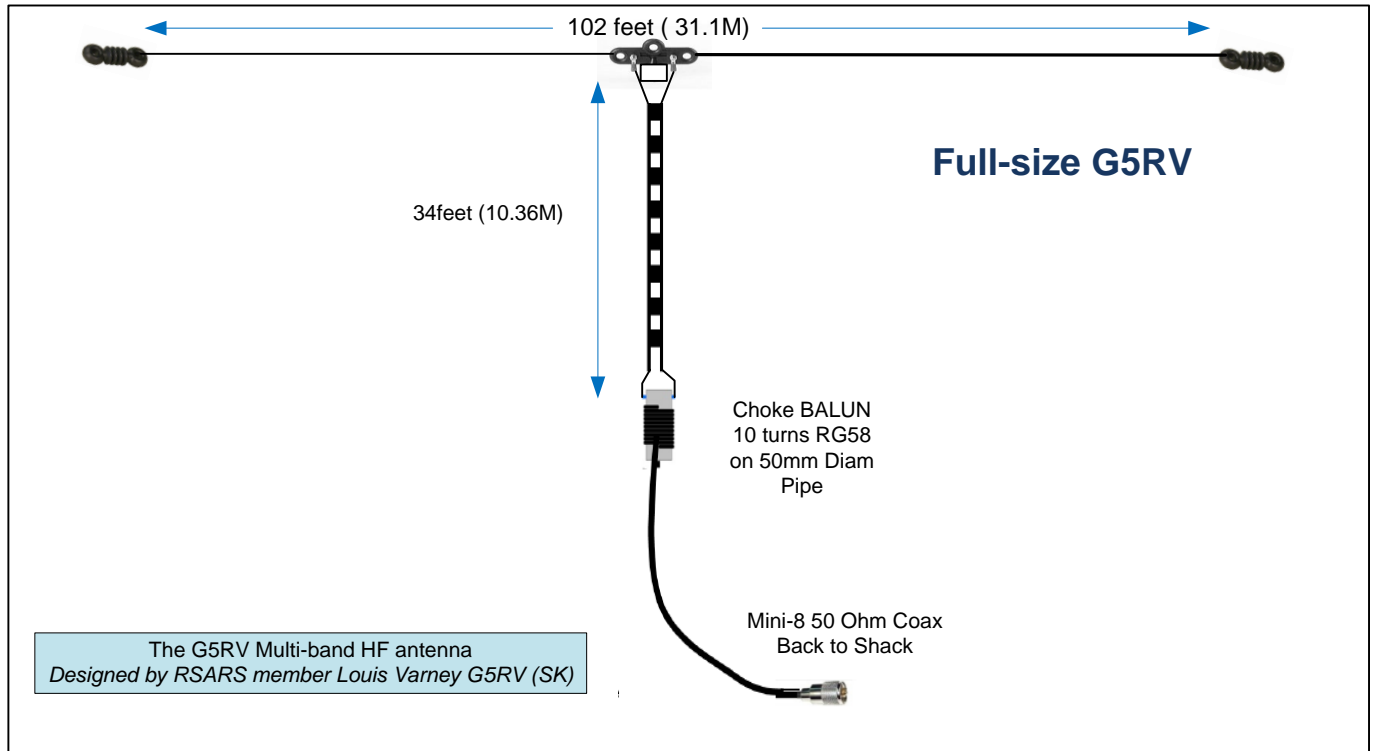


G5RV U-Shape Installation – G8ODE

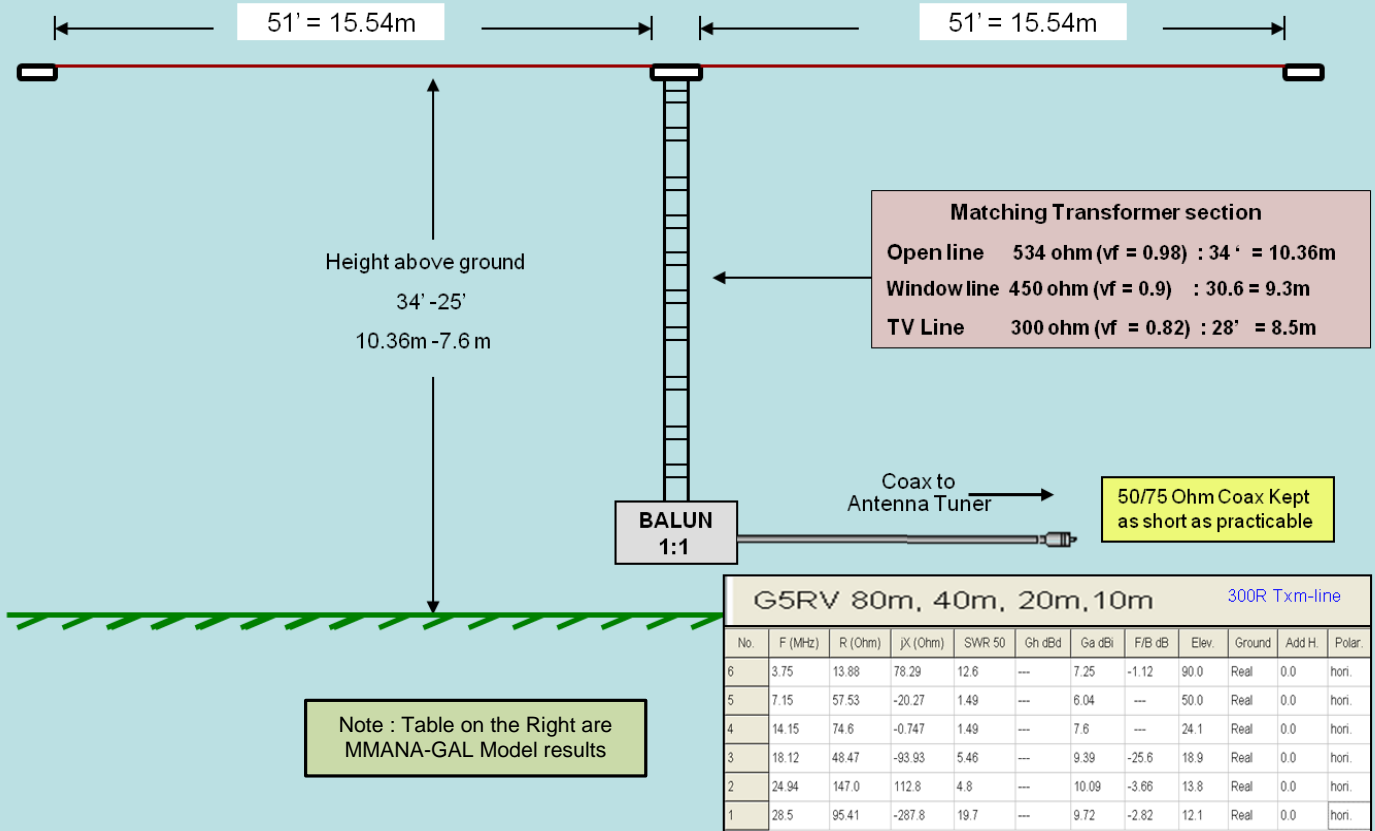


The Garden is fairly small, being 57ft wide, the LHS is 30Feet deep and the RHS is 35ft deep i.e. too short for an in-line full-sized G5RV. Hence it is erected as an open square. The average height is about 9 metres, but the part that slopes to the house gutter is 6.5 metres high. This arrangement affects the radiation pattern as one would expect, and I modelled the antenna using MMAN-GAL program (see pages 3&4). My kind neighbours allowed me to attach bungees to their trees branches using a “grappling” hooks with my 10m fishing pole, but the antenna wire is within my garden boundary. The choke balun improved the SWR that was presented to the ATU in the shack, see page 5 for measurements taken using an Autek VA1 Antenna Analyser

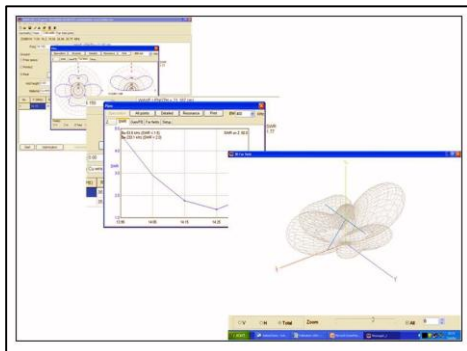
G5RV U-Shape Installation – G8ODE



Classic G5RV - Louis Varney



Drawn by G8ODE RSARS 1691



MMANA GAL - (MMANA)

The Multilingual Method of Moments ANTenna Analyzer)

By **JE3HHT** - Makoto Mori

DL1PBD - Alex Schewelew & **DL2KQ** - Igor Gontcharenko

This is available free to be down loaded from the following web link.:-

<http://mmhamsoft.amateur-radio.ca/>

NOTES:-

The radiation patterns on the following pages were produced using this free program, but it is important to note a number of its limitations, two of which are that :-

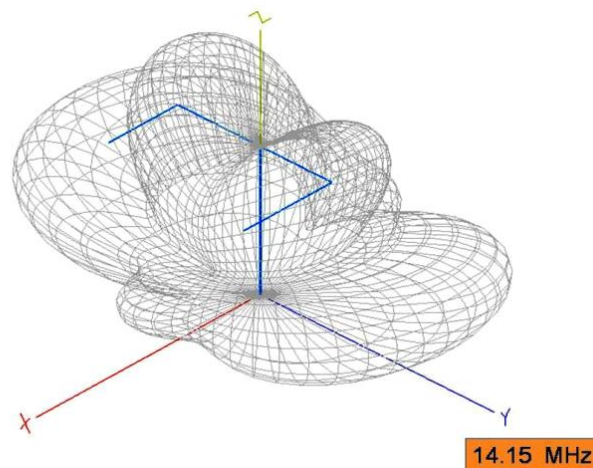
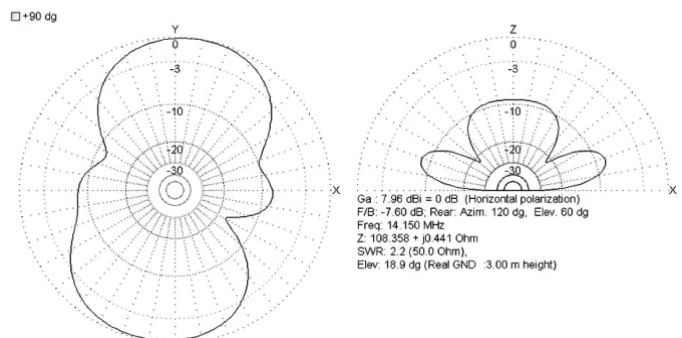
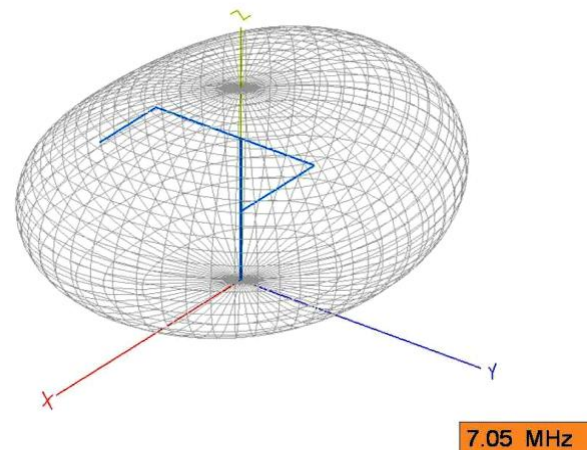
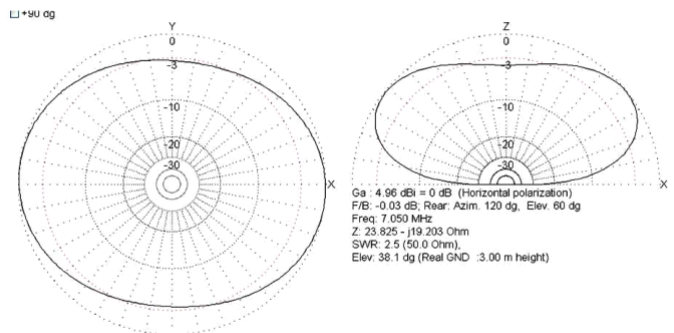
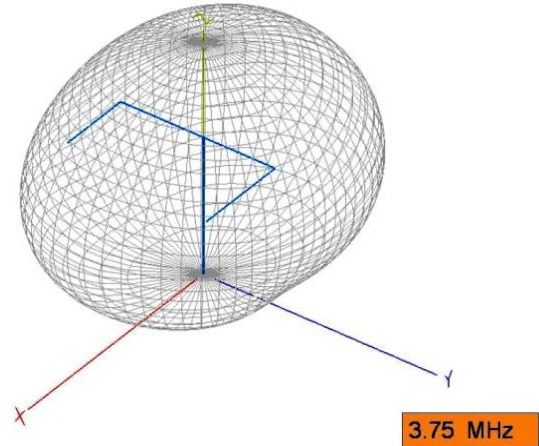
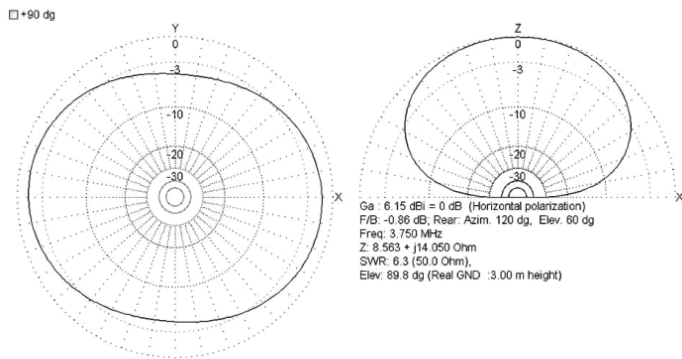
- It does not cope with very closely spaced conductors,
- It cannot model coaxial cable or dielectric other than air.

It can however model 300 ohm open wire ladder line, and this was used to produce the following G5RV diagrams. There is also a feature to add extra height to the antenna, and this was used to elevate the end of the ladder line by 1 metre in so that the models ground did not affect the results.

G5RV U-Shape Radiation Patterns – G8ODE



FAR FIELD- Total Radiation



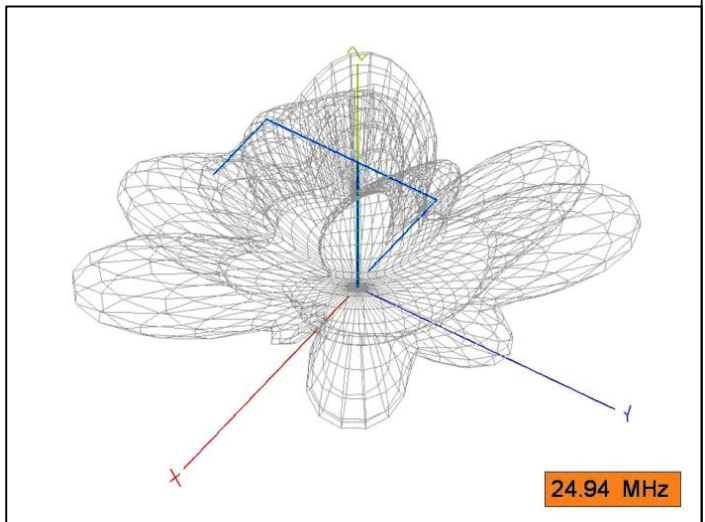
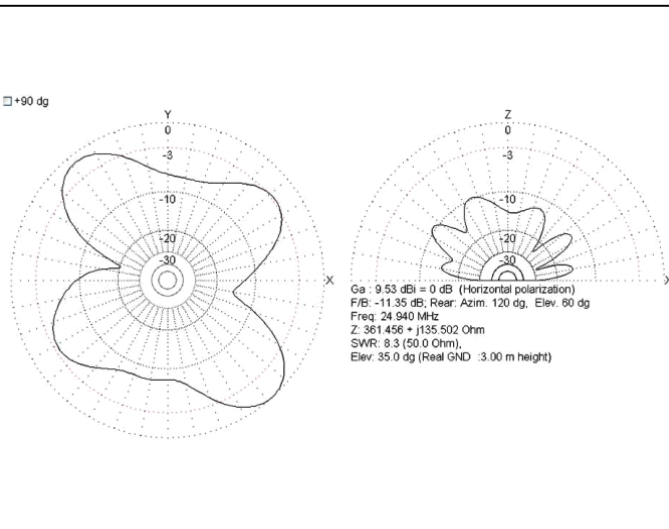
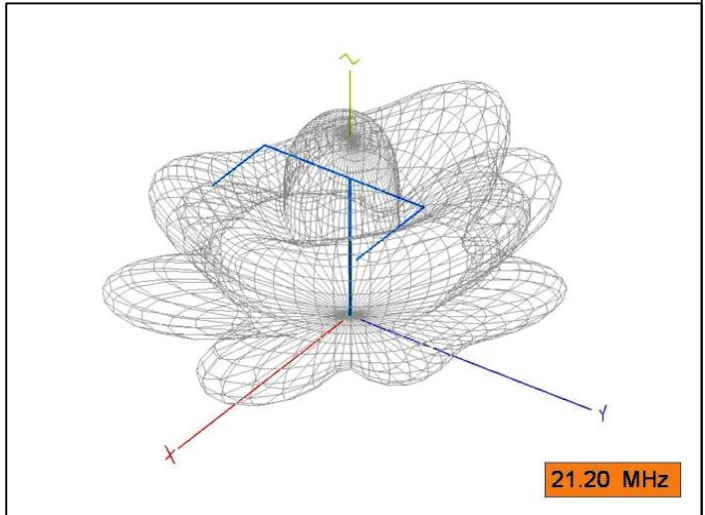
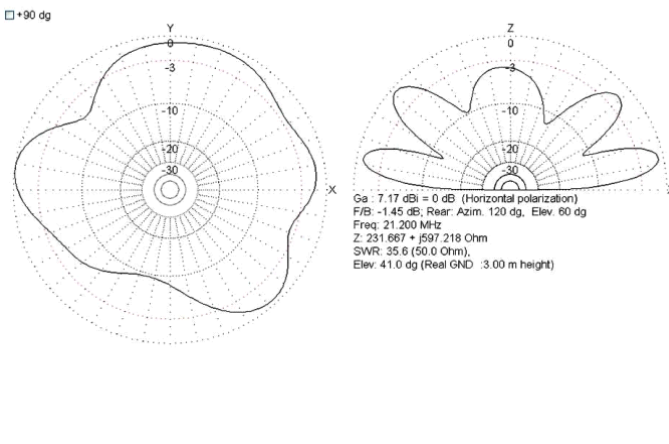
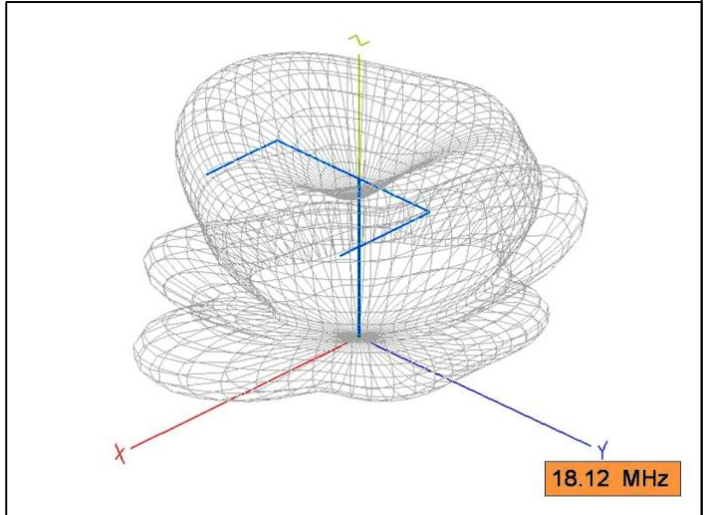
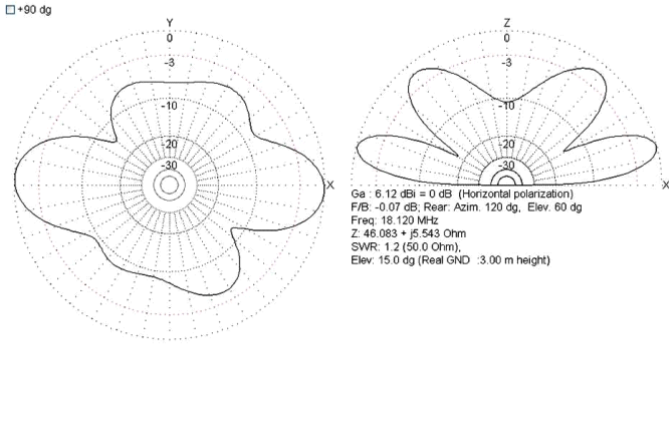
Notes:-

1. The antenna was modelled using freeware MMANA-GAL v1.2.0.20
2. The antenna wire is 2mm diameter, with a 11.8 metres of 300 Ω open wire transmission line. Plastic coated line will be shorter
3. The ground was modelled as “Real” 6mS/m and Conductivity of 13 .. The overall height was 12.8m

G5RV U-Shape Radiation Patterns – G8ODE



FAR FIELD- Total Radiation



Notes:-

1. The antenna was modelled using freeware MMANA-GAL v1.2.0.20
2. The antenna wire is 2mm diameter, with a 11.8 metres of 300 Ω open wire transmission line. Plastic coated line will be shorter
3. The ground was modelled as “Real” 6mS/m and Conductivity of 13 .. The overall height was 12.8m

G5RV U-Shape Installation – G8ODE

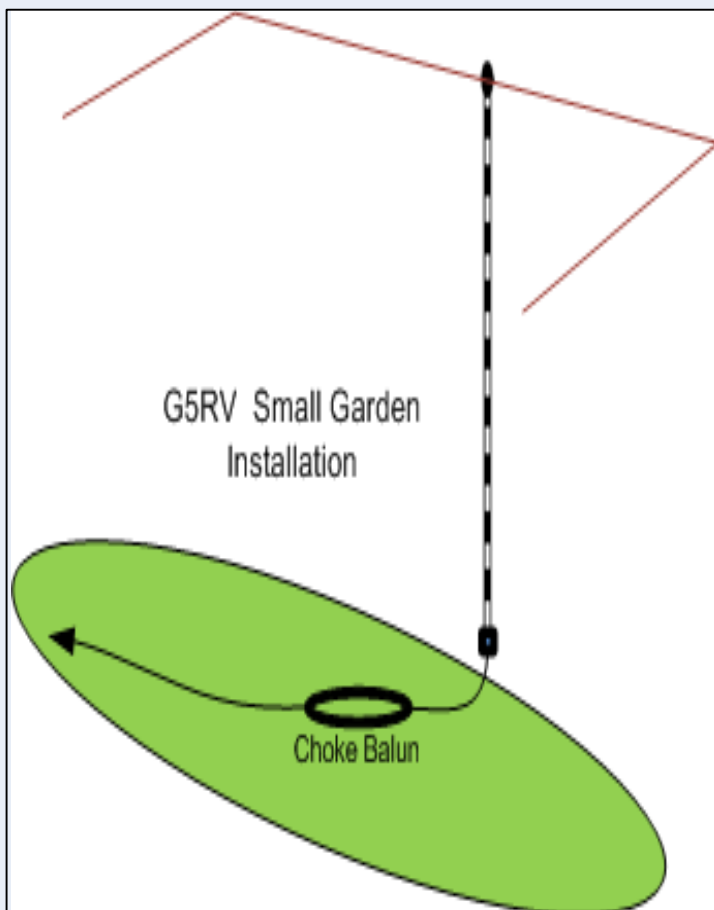


One of the simplest baluns to make is the “Choke Balun” sometimes call the “dirty balun” made from a length of coax. The measurements made using an AUTEK VA1 Antenna analyser indicate that the simple balun reduces the SWR seen by a tuner, thus making less work for the tuner.

Not the prettiest BALUN, but just as effective and very easy to construct.

Using about 5-6m (15-18ft) of coax make a several coils 200mm diam (8ins) and tie tightly together using tie-wraps

The Coiled Coax BALUN



Test to show the effects of adding a balun in the feeder using a new roughly cut G5RV - i.e. still requires optimising for 20m.

Test Frequency MHz	Autek VA1 measuring SWR ref 50Ω connected direct to 300Ω line	Autek VA1 measuring SWR ref 50Ω connected via 8 turn balun to 300Ω line
3.75	3.33 :1	2.24 :1
7.05	2.71 :1	2.78 :1
10.12	HIGH	12.3 :1
14.15	8.4 :1	3.93 :1
18.12	7.8 :1	2.49 :1
21.2	8.8 :1	5.2 :1

Note: Autek VA1 can only indicate “High” for SWR > 15 :1