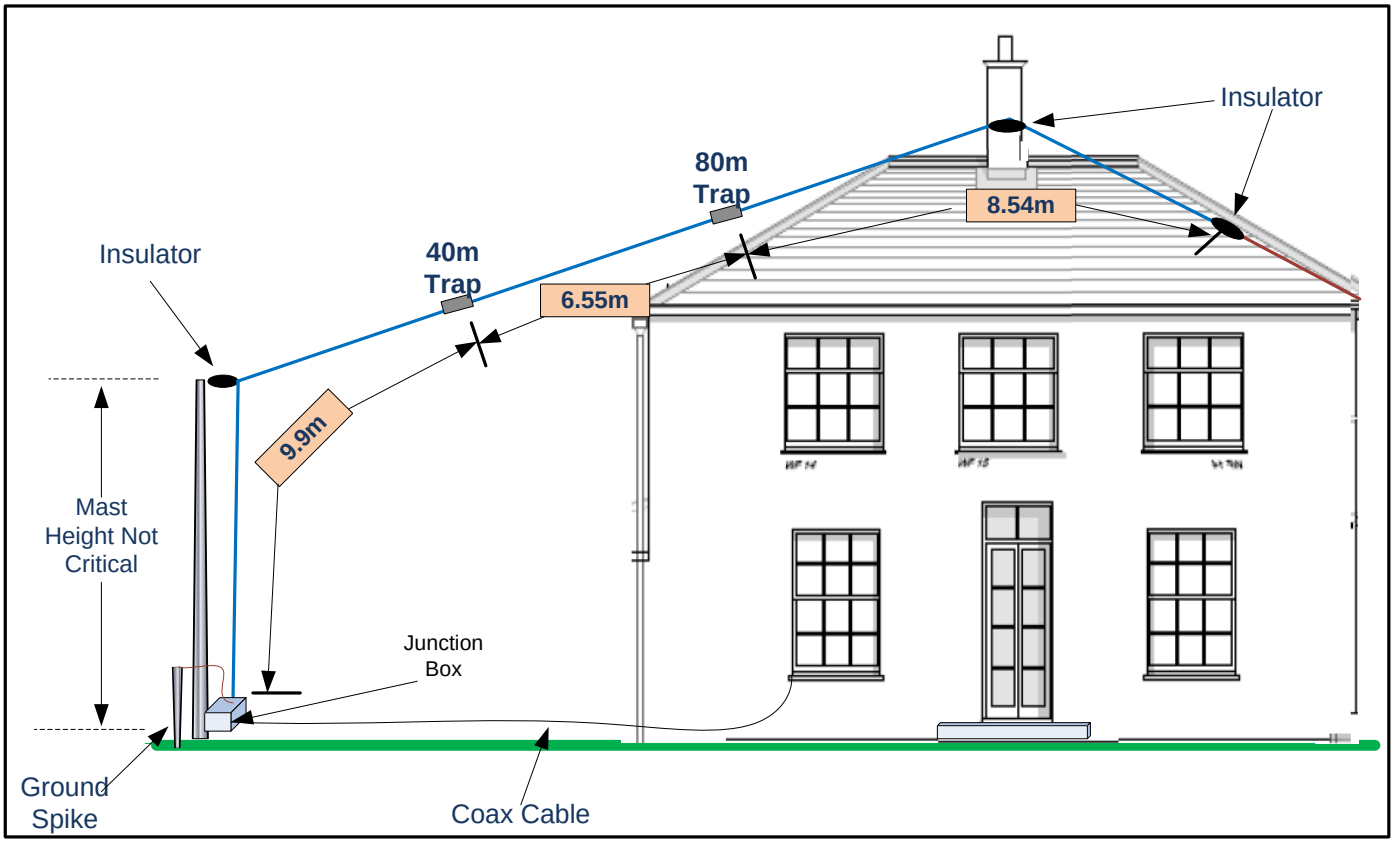
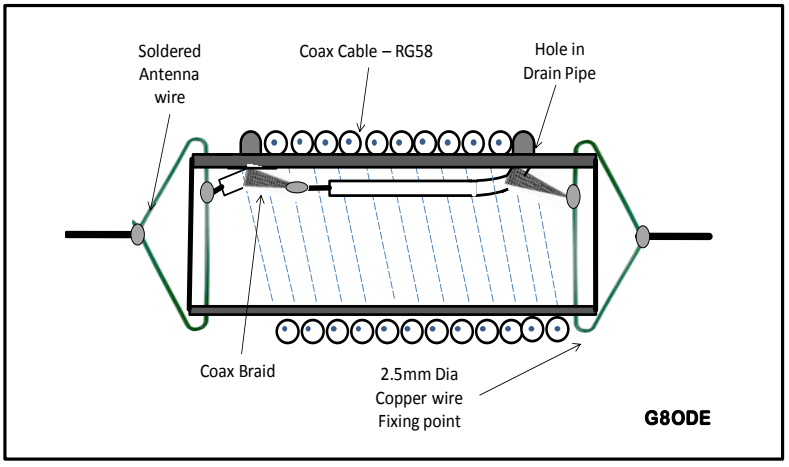
END FED INVERTED "L" ANTENNA FOR 160 – 80 – 40 METRES



NOTES:-

1. At the Junction Box , coax inner connects to the antenna wire (blue) and braid connects to the brown wire and ground spike.
2. Each section of the antenna is initially cut over size by 300mm, and trimmed to reduce the SWR on each band starting with 40m band section first , then the 80m section, and finally the 160m section
3. If the ground is not very conductive add supplementary radial insulated wires on the ground to act as a counterpoise. (8 x 4m)



TRAP DESIGN INFORMATION

80m Trap 23 turns RG58 on 40mm Diameter plastic pipe 150mm long

40m Trap 11 turns RG58 on 40mm Diameter plastic pipe 80mm long

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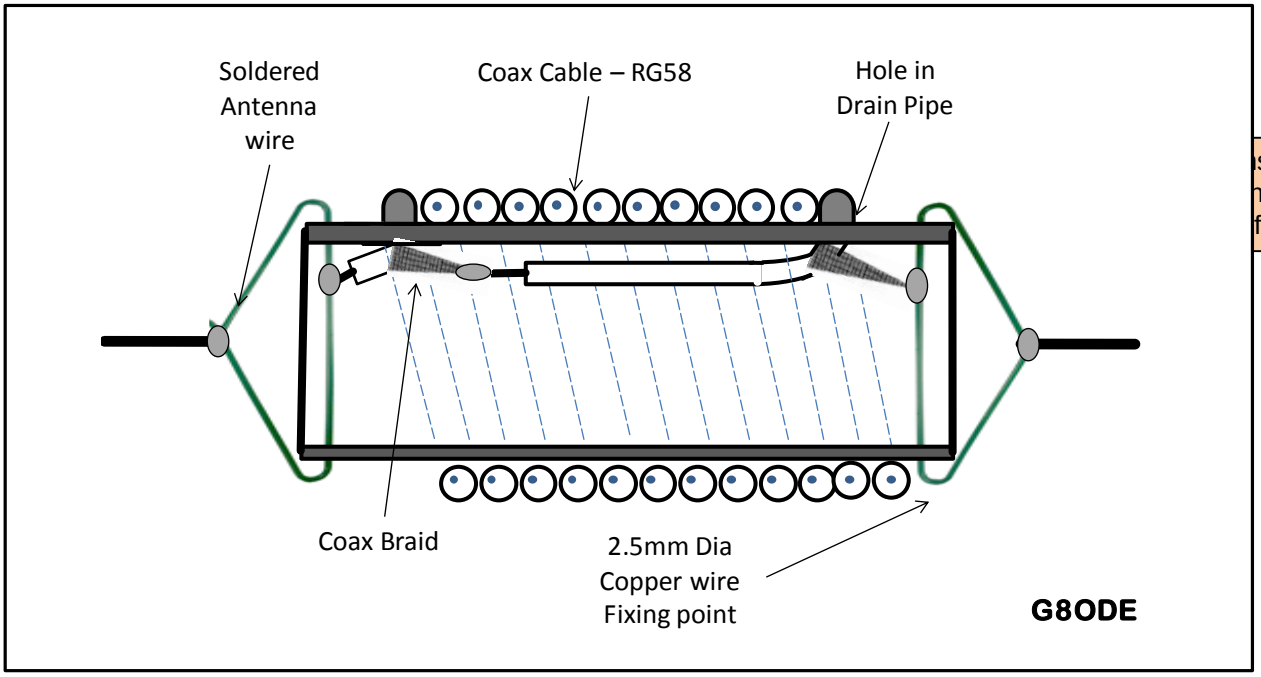
N.B. A very useful tool for coax-traps is a program by Tony VE6YP called "coaxtrap.exe". You can download the program from his website *www.qsl.net/ve6yp* .

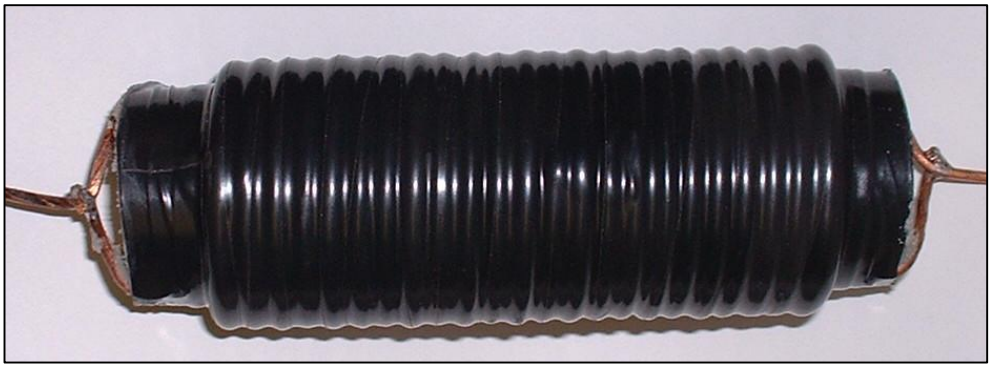
END FED INVERTED "L" ANTENNA FOR 160 – 80 – 40 METRES



s RG58
n RG58
former

Here are the photographs two that were made using this form of construction. The Coax has been taped over for additional protection, and the ends have been sealed by first fitting cut plastic discs and sealing these in with silicone bath sealer

40 Metre Coaxial Trap



80 Metre Coaxial Trap

N.B. **A very useful tool for coax-traps is a program by Tony VE6YP called "coaxtrap.exe". You can download the program from his website *www.qsl.net/ve6yp* .**

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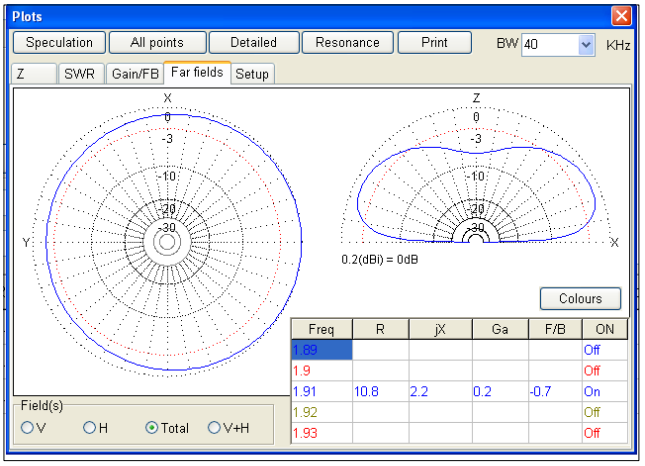
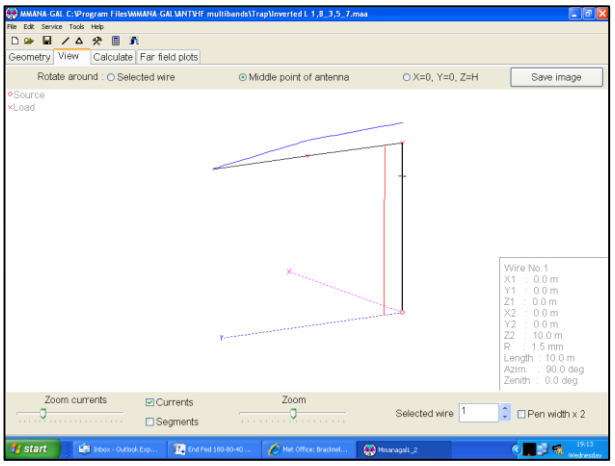
END FED INVERTED “L” ANTENNA FOR 160 – 80 – 40 METRES

Note: The Red & Blue colours are used simply to emphasise the vertical & horizontal components of the antenna current. The “X” marks the position of the traps.

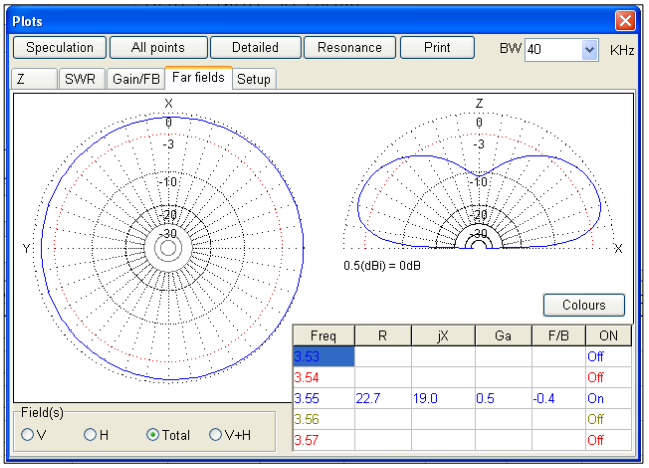
1.91MHz Plots

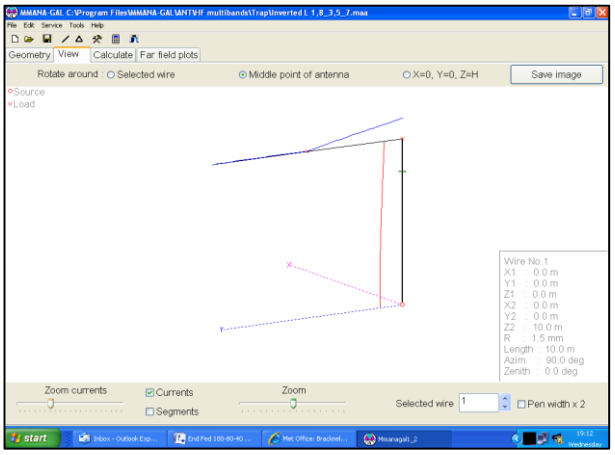




Looking at the current distribution, it will be seen that the 1.92MHz Frequency does not cause either of the two traps to become activated & the antenna behaves as a long wire.

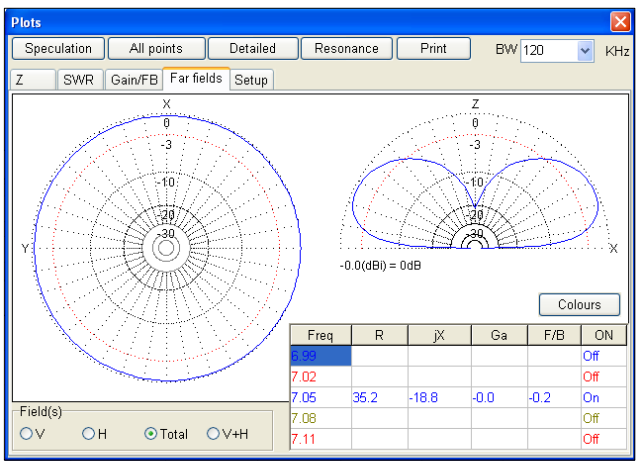
3.55MHz Plots

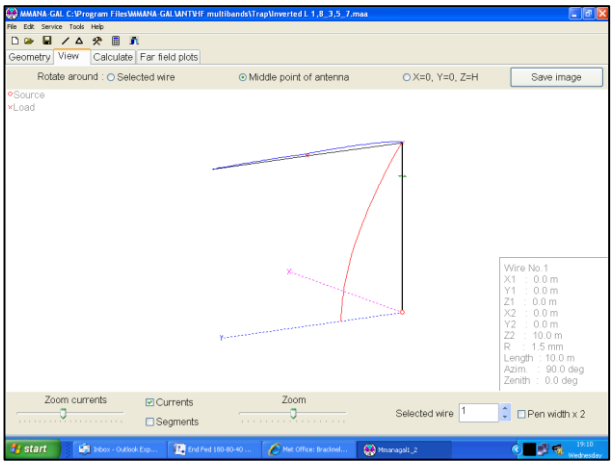




Here the 3.55MHz frequency causes the 80m trap to operate and electrically shorten the antenna. The current in the last section of the antenna is significantly reduced

7.05 MHz Plots





Here the 7.05 MHz frequency causes the 40m trap to operate and further electrically shorten the antenna. The current in the last two sections is thus significantly reduced

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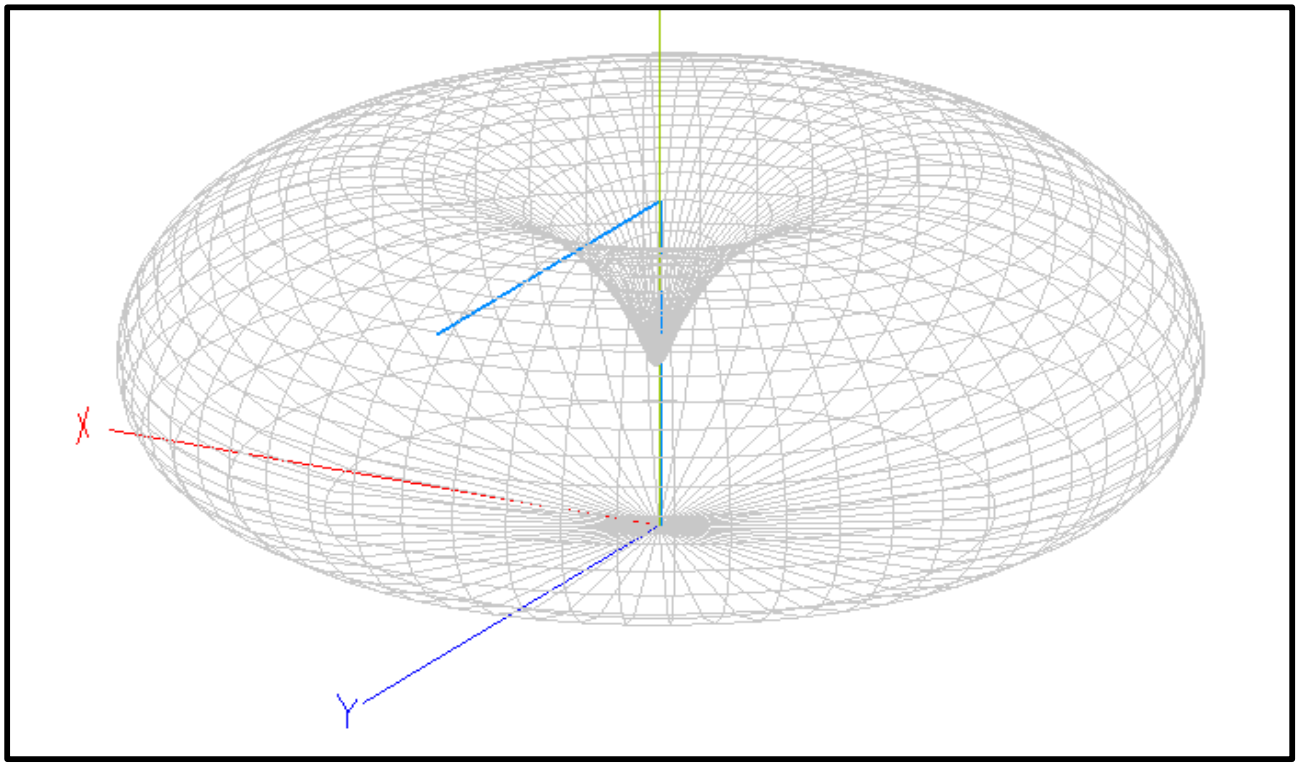
END FED INVERTED “L” ANTENNA FOR 160 – 80 – 40 METRES

3-D Far Field Total Radiation Plot for 7.05 MHz.



The 3.55Mhz &1.92MHz plots are very similar. The “funnel” in the centre gradually disappears. In all three cases the maximum radiation is at an angle of about 30 degrees to the ground.(see results below)

MMANA-GAL MODEL RESULTS

MMANA-GAL C:\Program Files\MMANA-GAL\ANT\HF multibands\Trap\Inverted L 1,8_3,5_7.maa

File Edit Service Tools Help

Geometry | View | Calculate | Far field plots

Multi-Band TRAP-DP (160m,80m,40m)

Freq 7.050 MHz

Ground
- Free space
- Perfect
- Real — Ground setup

Add height 0.00 m

Material Cu wire

```
WAVE LENGTH = 42.524 (m)
TOTAL PULSE = 174
THE LOWEST POINT OF ANTENNA = 0.000 M
FILL MATRIX...
FACTOR MATRIX...
PULSE     U (V)            I (mA)           Z (Ohm)          SWR
w1b       -1.00-j0.00      -22.10-j11.84    35.15-j18.83     1.76
CURRENT DATA...
FAR FIELD ...
NO FATAL ERROR(S)
0.41 sec
```

No.	F (MHz)	R (Ohm)	jX (Ohm)	SWR 50	Gh dBd	Ga dBi	F/B dB	Elev.	Ground	Add H.	Polar.
10	7.05	35.15	-18.83	1.76	---	-0.04	-0.18	26.5	Real	0.0	vert.
9	3.55	22.72	19.05	2.59	---	0.53	-0.42	27.2	Real	0.0	vert.
8	1.91	10.77	2.208	4.65	---	0.24	-0.75	27.2	Real	0.0	vert.

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The model only provides an indication of the expected performance of this antenna. In practice better SWR results & hence improved efficiencies can be obtained.