

Introduction

Estimated DIY price: 0 to £2

This DIY 620-Alison 12dB Yagi DVB-T antenna performs well up to 20km from the transmitter.

The “ONE for all” 40dB indoor amplified aerial model SV-9141 was incapable of giving sufficient signal.

The 620-Alison Yagi antenna (aerial) delivered sufficient signal for a perfect picture for our Nikkai DVB-T digital TV. All UHF stations from 450Mhz to 850Mhz were captured.

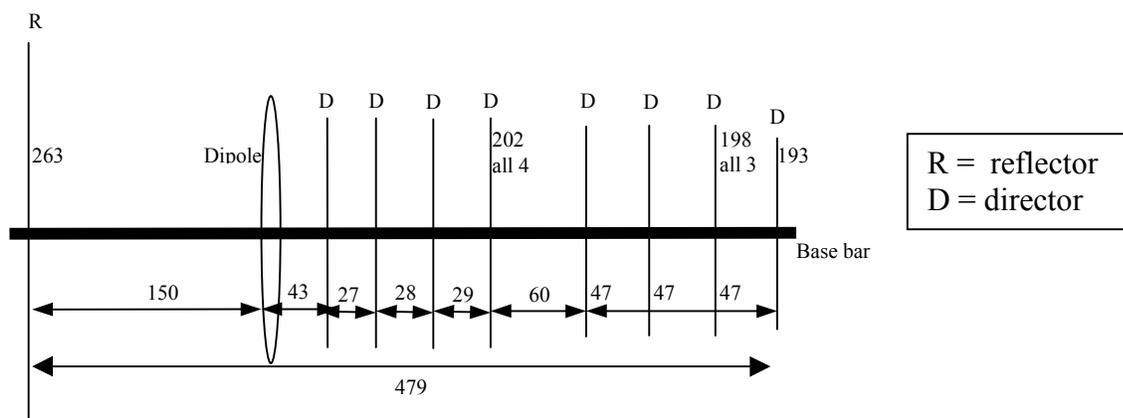


A functional, lightweight DVB-T antenna



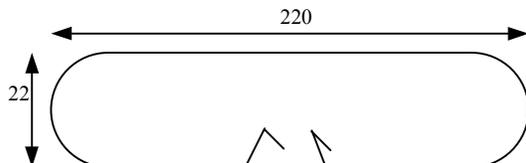
As indoor aerial

Diagram for the 620-Alison DVB-T Aerial (millimeters)

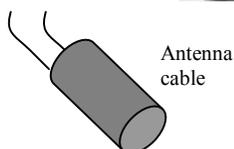
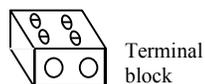


Make the reflector, directors and dipole of 1.35mm copper wire (or similar gauge)

Dipole

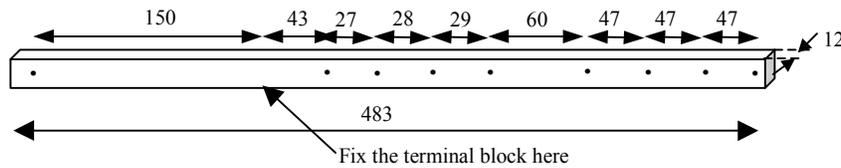


Make the dipole from 49cm of 1.35mm copper wire



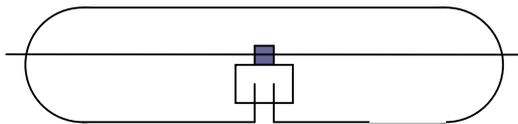
60 terminal blocks in Poundland for £1

Base Bar (4.5mm PVC)



Drill the 9 holes using a drill diameter of 1.5mm. Fix the corresponding reflector and directors in the holes.

Assemble as shown on the picture



Installation

General: Place horizontally as the UHF waves are horizontally transmitted. Avoid nearby metal in the front of the antenna.

Indoor use is possible. Best result is obtained outside.

Tests Made To Create 620-Alison

Clear sky. Fair signal from the 20km distant transmitter

- 1: Just adding the dipole gave insufficient signal
- 2: Adding the reflector gave insufficient signal
- 3: Adding the director #3 gave sufficient signal to look for new services
- 4: Adding the director #5 made the difference. Fine signal
- 5: Adding the director #8 might have improved the signal



Cloudy and rain: Poor signal from the 20km distant transmitter. Extra directors needed.

- 6: Adding the director #1 gave sufficient signal to look for new services
- 7: Adding the director #2 made the difference. Reasonable signal
- 8: Adding the director #4 gave a very good signal.
- 9: Adding directors #6 and #7 improved the signal to excellent

Test notes:

Using a full area PVC sheet 4.5mm thick made no actual difference to our first attempt using only a support width of 8cm (instead of 26cm)

Changing the copper wires with 10mm wide (microwave) copper tape is the same or perhaps improved the signal.
Changing the copper wires with 23mm aluminium tape lost the signal.

Bonding the adhesive copper tape to the PVC resulted in total loss of the signal!!

Using insulated copper wire: All signal lost. Surprisingly a missing reflector was better than using insulated copper wire as a reflector!! This only appears when the signal is weak. It implies that none insulated copper wire is best.

Remark: The copper wire was extracted from old stiff 230V cable.

DIY 600Mhz Directional Antenna (5 element Yagi)
620-Alison 12dB Yagi DVB-T Aerial

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<http://www.fahrenergy.org.uk/DVB-T.html>

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The base bar was made from 4.5mm PVC. Use anything rigid that is non conductive.