

Reflector Dish

Description:

This is a paraboloidal reflector dish, more or less a satellite dish, that can easily be made from two sheets of plywood or other board, chicken wire or other mesh, and cable/zip ties.

It works by reflecting the microwaves of Wi-Fi or mobile signal and focusing them onto a receiver such as your phone, USB Wi-Fi adaptor, etc.

As long as the gaps in the metal wire mesh are smaller than about 12mm across they should reflect the signal as if they were a solid surface, except much lighter, cheaper, and easier to work into a smooth curve.

Tools:

- **Jigsaw**
Anything of this type of tool which will cut plywood
- **Power drill**
- **Drill Bit**
Anything 6mm to 8mm is fine, for metal or wood
- **Tape Measure**
- **Marker Pen**

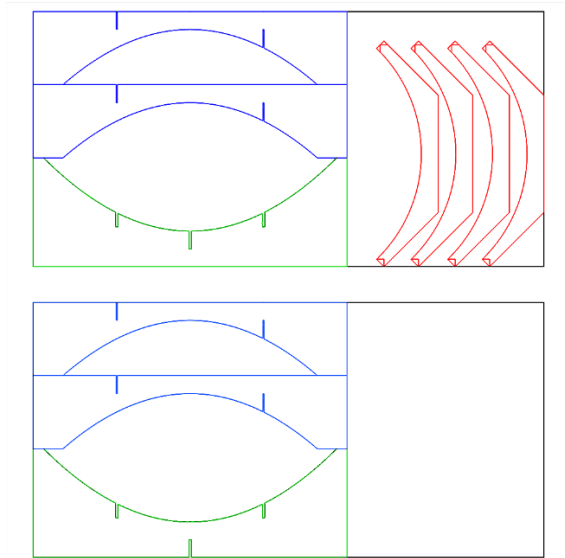
Materials:

- **2 Sheets Plywood / OSB / Other Board**
Standard size; 1200x2400 / 1220x2440 / 8' x 4'
12mm thick gives a nice solid result, but 6mm also works, is cheaper, lighter, and quicker to cut
- **4 Meters x 1 Meter Wide Chicken Wire / Metal Screen Mesh**
Anything as long as it's metal (plastic covered is ok) and the gaps are 12mm or less at their widest
- **200 Cable Ties / Zip Ties**
About 10-20cm long
- **2 Meters Fine Chain**
Small link as possible, metal is better than plastic
- **Spray Paint**
Any kind, any color
- **String / Twine**
Any kind, couple mm thick

Step by Step Build Instructions:

STEP 1:

First, mark out the templates on plywood. You'll need 4 of the red one, 4 of the blue one, and 2 of the green:



This is if you want to make the 1.5 square meter dish, you'll need to scale the numbers for different sizes.

STEP 2:

To draw the parabolas the easiest way is to get yourself some light chain. When a chain hangs it makes a catenary curve, which is reasonably close to a parabola.

Mark off a length of chain as described on the template (135 cm for the blue, 160 for green).

STEP 3:

Attach that length to the ply at the points marked, making sure they are the right distance apart. Spray-paint over the chain to mark its curve.

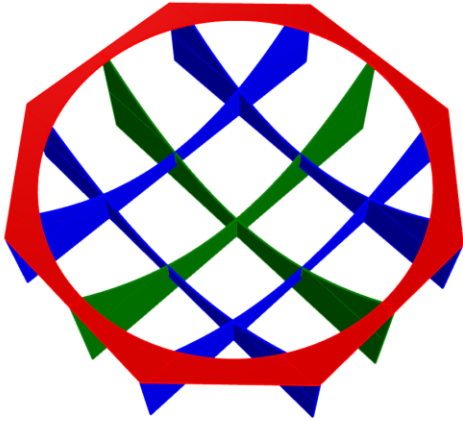
The 70cm radius circular curve on the red piece is easiest done by attaching your pen to a 70cm length of string to draw the radius.

STEP 4:

Cut out the templates with a jigsaw or similar. Once you've measured and cut one of each type of piece (blue, green, red) you can use it as a template to draw the others.

STEP 5:

Drill five holes close to the edge of each section of curve for putting cable ties through when you're attaching the mesh. Slot them all together, like so:



STEP 6:

Place a 2 meter length of chicken wire in the top half of the dish and start attaching to the wood with cable ties put through the drill holes and around the wire. Start from the center of the dish and work your way out, section by section, **keeping the mesh as tight as possible.**

STEP 7:

Tie two lengths of string across the dish so they meet at the center of the front opening. Get this as tight as possible. This is the focus of the dish and where you want to attach your Wi-Fi or mobile receiver device.



