

# Horn Telescope Design and Construction

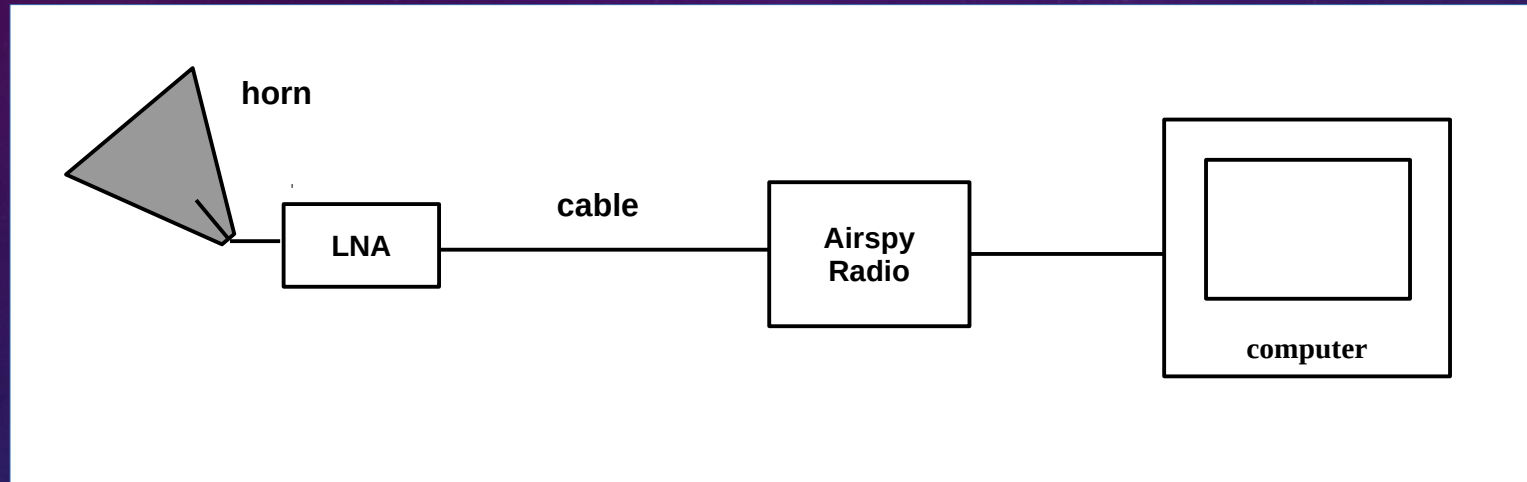
From a presentation by Daniel Bonnett at DSPIRA 2018  
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# TELESCOPE DESIGN

- The DSPIRA Horn is designed as an “optimal” horn.
  - (which means that the angles of the trapezoidal sides are set for the resolution of radio waves that are collected)
- The DSPIRA Horn is designed as an “inexpensive” horn.
  - (which means that any science classroom teacher can construct this with their students as a classroom lab activity.)



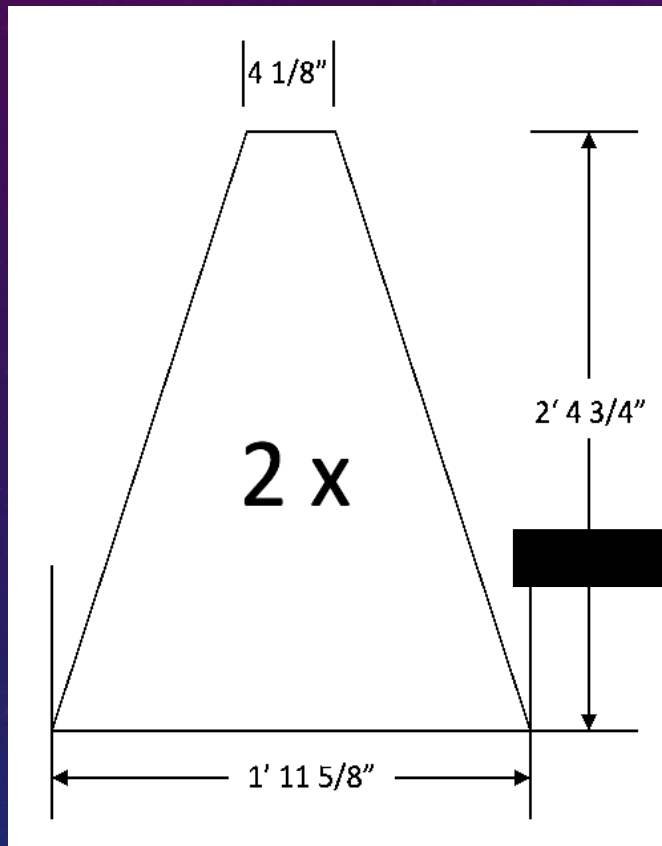
# TELESCOPE SCHEMATIC



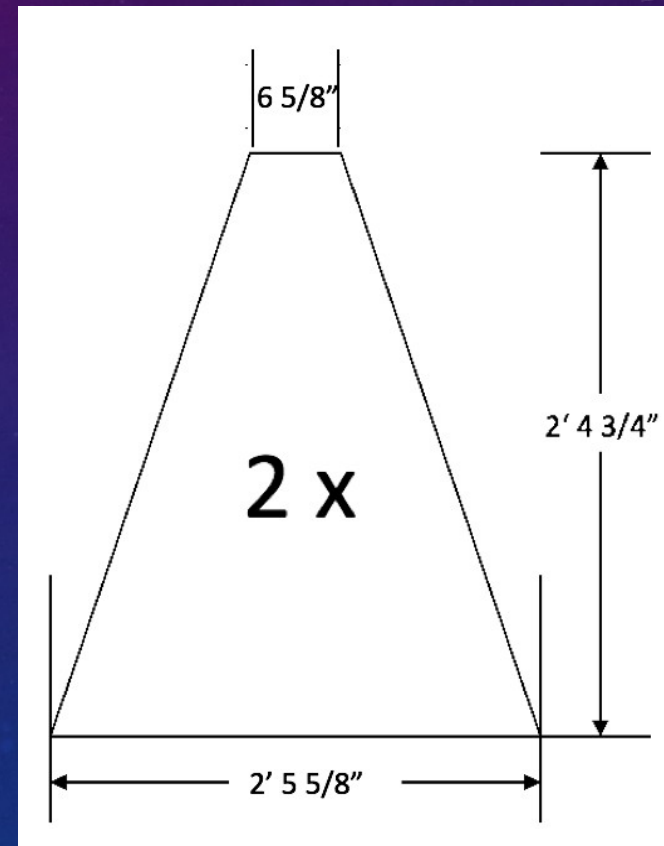
# HORN CONSTRUCTION MATERIALS

- 1 gallon rectangular paint thinner can
  - (F-style metal gallon container)
- The horn sides can be cut from a single 4x8 ft sheet  $\frac{1}{2}$ " to 1" thick aluminized home insulation Styrofoam board
- duct tape
- aluminum tape
- 2" x 4" boards
- 2" x 2" boards
- screws

# MEASUREMENTS OF THE SIDES



Smaller side of  
horn.



Larger side of  
horn.

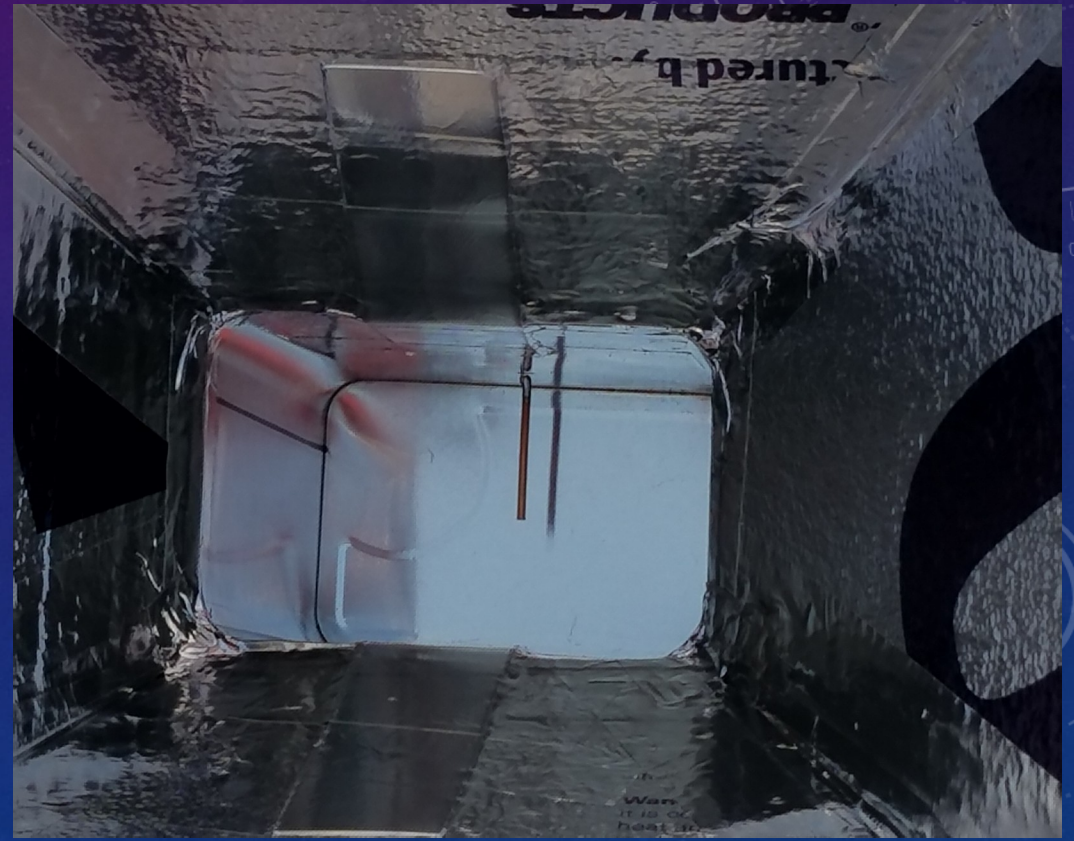
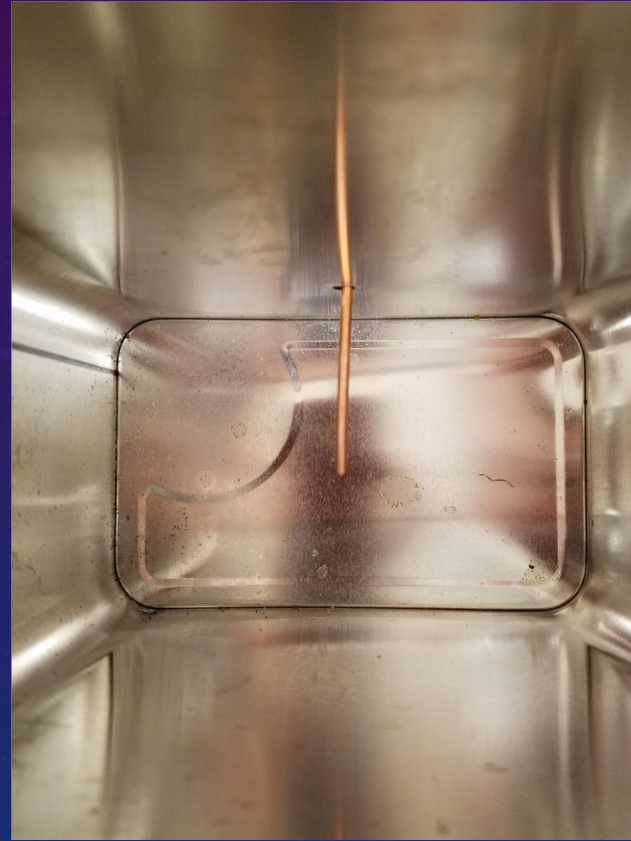
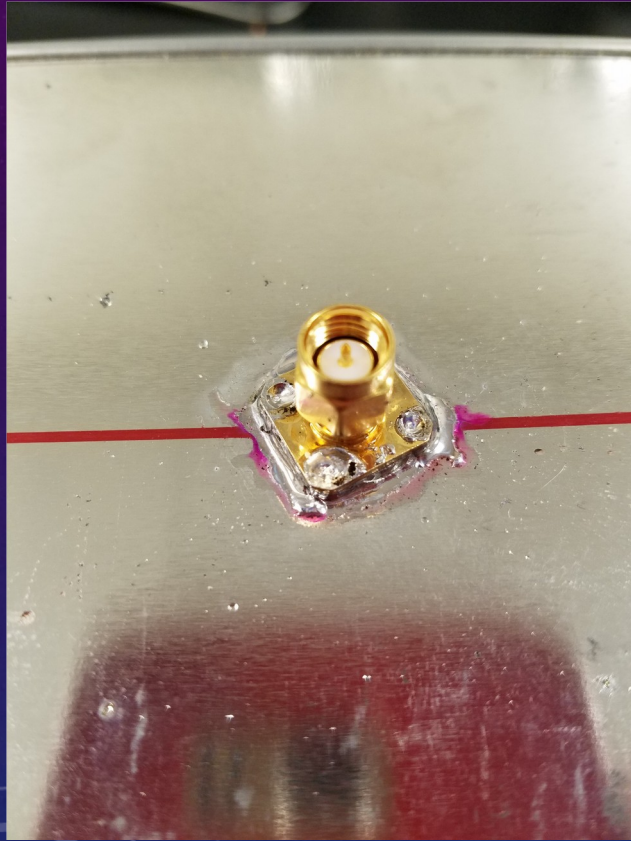


# Piecing the sides together





# The Can Antenna





The LNA mounts directly to the can.





# HORN STANDS

The background is a dark blue gradient with a subtle pattern of white stars and technical diagrams. On the right side, there are several circular diagrams resembling gauges or dials. One large gauge has a scale from 0 to 210 with major markings every 10 units and minor markings every 2 units. It features concentric circles, a central circle, and a dashed outer ring with an arrowhead pointing upwards. Below it is another similar gauge with a scale from 0 to 160. In the bottom left corner, there are more faint circular diagrams, including one with a dashed arrow pointing left.



# CONSTRUCTION





# Horn Base Mount

