

# **6-Meter Hen-Delta Inverted Skeleton Slot Antenna**

# The Inverted Hen-Delta 6-Meter Antenna

An updated version of Koji Sugihara's, JJ1UMS, 1982 6-meter "Hentenna," the Hen-Delta improves performance and is easy to build and tune.

**John Portune, W6NBC, and Jim Bailey, W6OEK**

The Hen-Delta is based on a 1982 "Hentenna" design with a rectangular shape that was not optimum. We updated the design with our Hen-Delta antenna.





**Hams today still know  
little about slots**

**Classical 40m Slot**



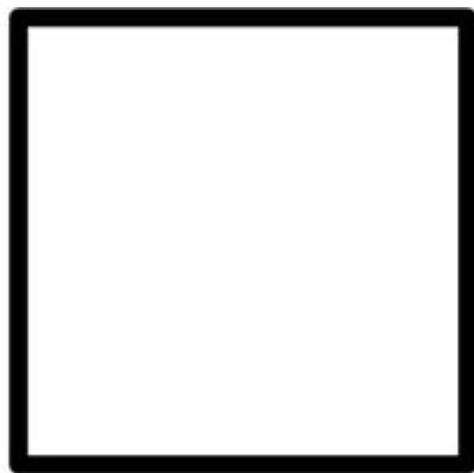
A man with a mustache, wearing a colorful patterned short-sleeved shirt and dark trousers, is sitting in a black office chair. He is leaning forward, focused on a device he is holding in his hands. The device is connected to a cardboard box that has a strip of silver reflective tape wrapped around it. The box is secured with blue tape at the top. The scene is set in a room with a light-colored carpet and a white wall.

**I Wanted the  
Design Rules**

**Important  
Discoveries**

**Discovery 1**

**How a Slot  
Antenna Works**



ONE WAVELENGTH WIRE (QUAD) LOOP



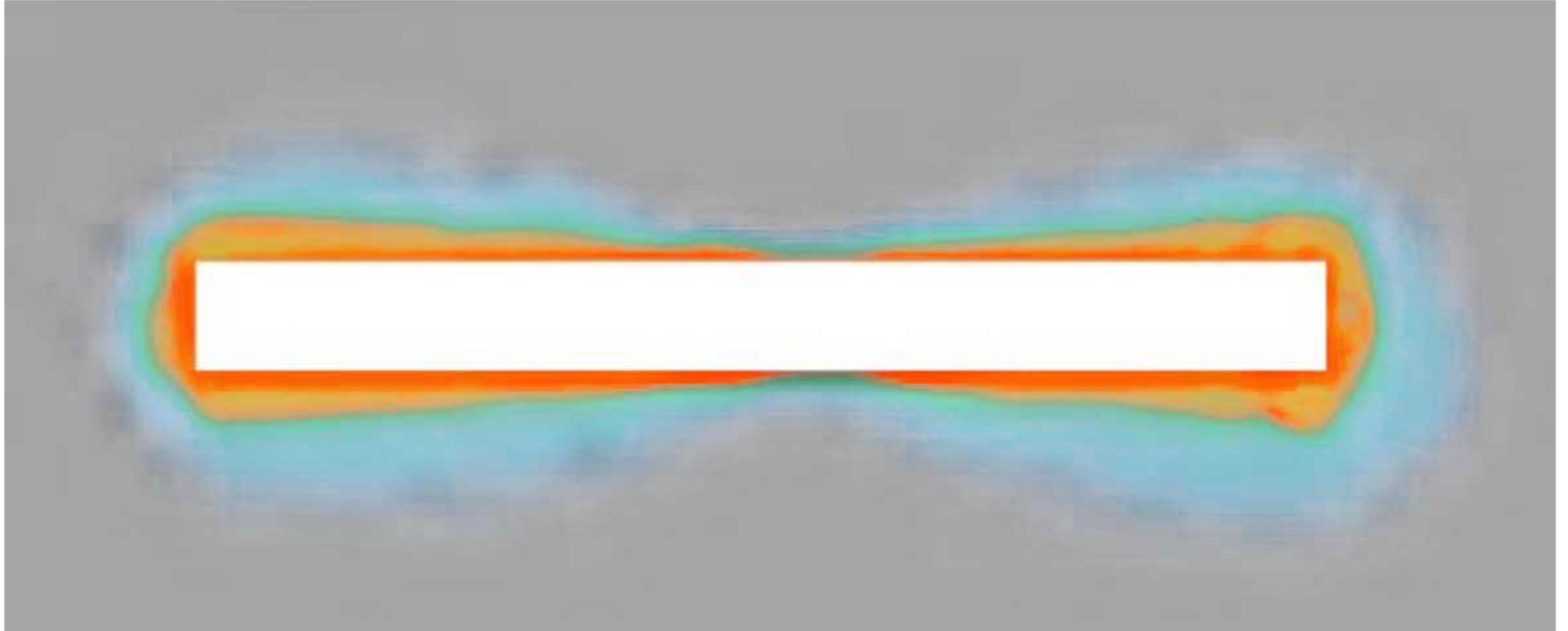
FOLDED DIPOLE



Feed Point

HALF WAVELENGTH SLOT ANTENNA

# Current Around a Slot Antenna

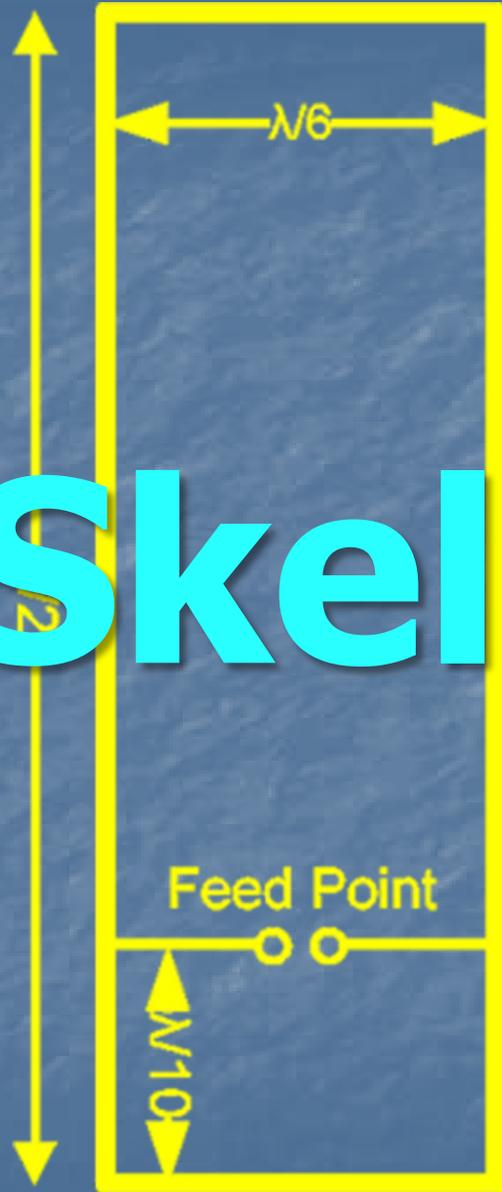


**Discovery 2**

**The Skeleton  
Slot**

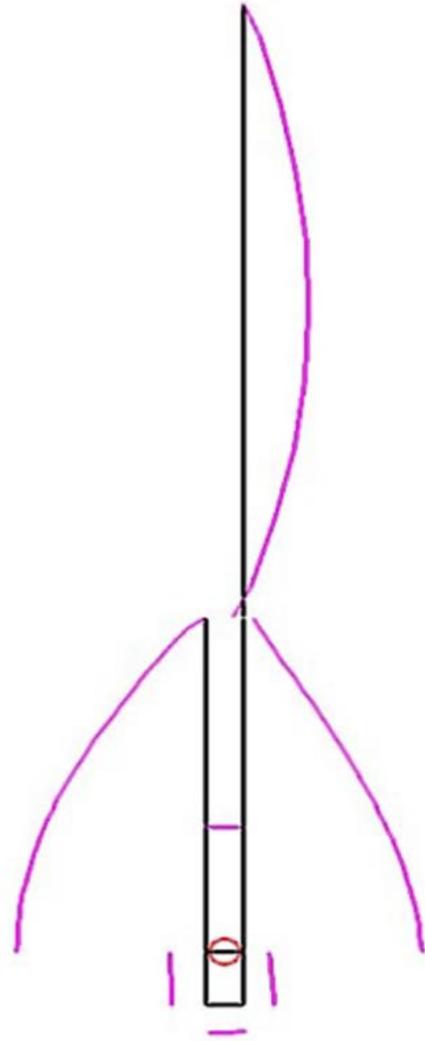
# HENTENNA

# Skeleton Slot



# Discovery 3

**Not all Parts  
of an Antenna  
Radiate**

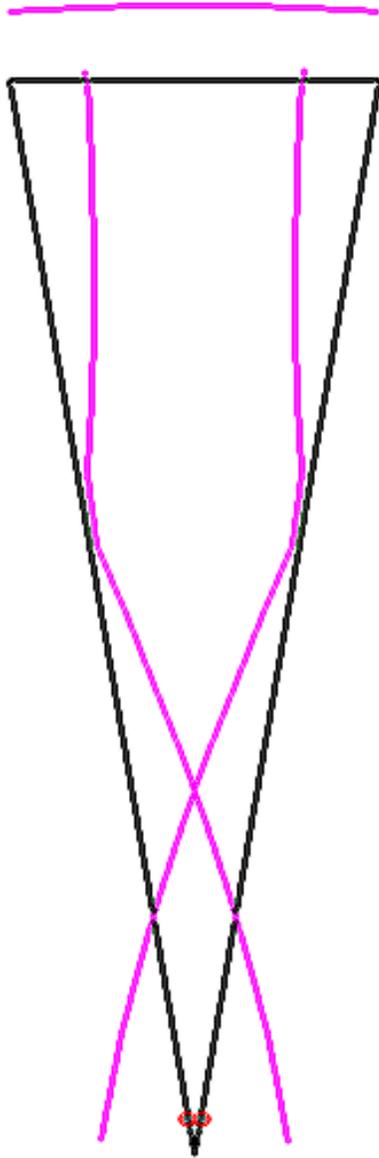


**Un-opposed  
Current**

**Equal  
Opposing  
Currents**

# **The Inverted Delta Skeleton Slot VERTICAL**

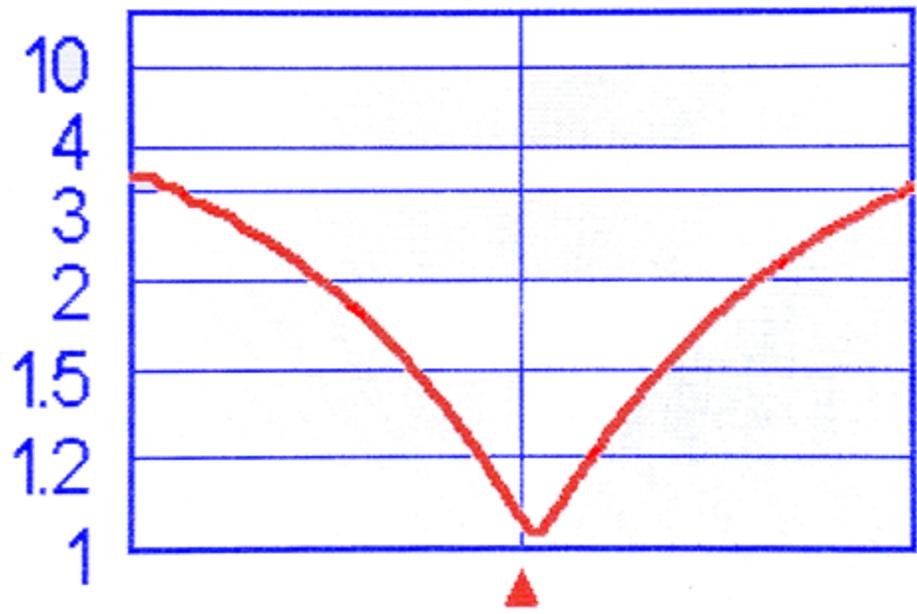
- 1. Low radiation angle**
- 2. Horizontally Polarized**
- 3. Elevated Radiation**
- 4. Azimuth Gain**



**Bottom  
Currents  
Produce no  
Radiation**

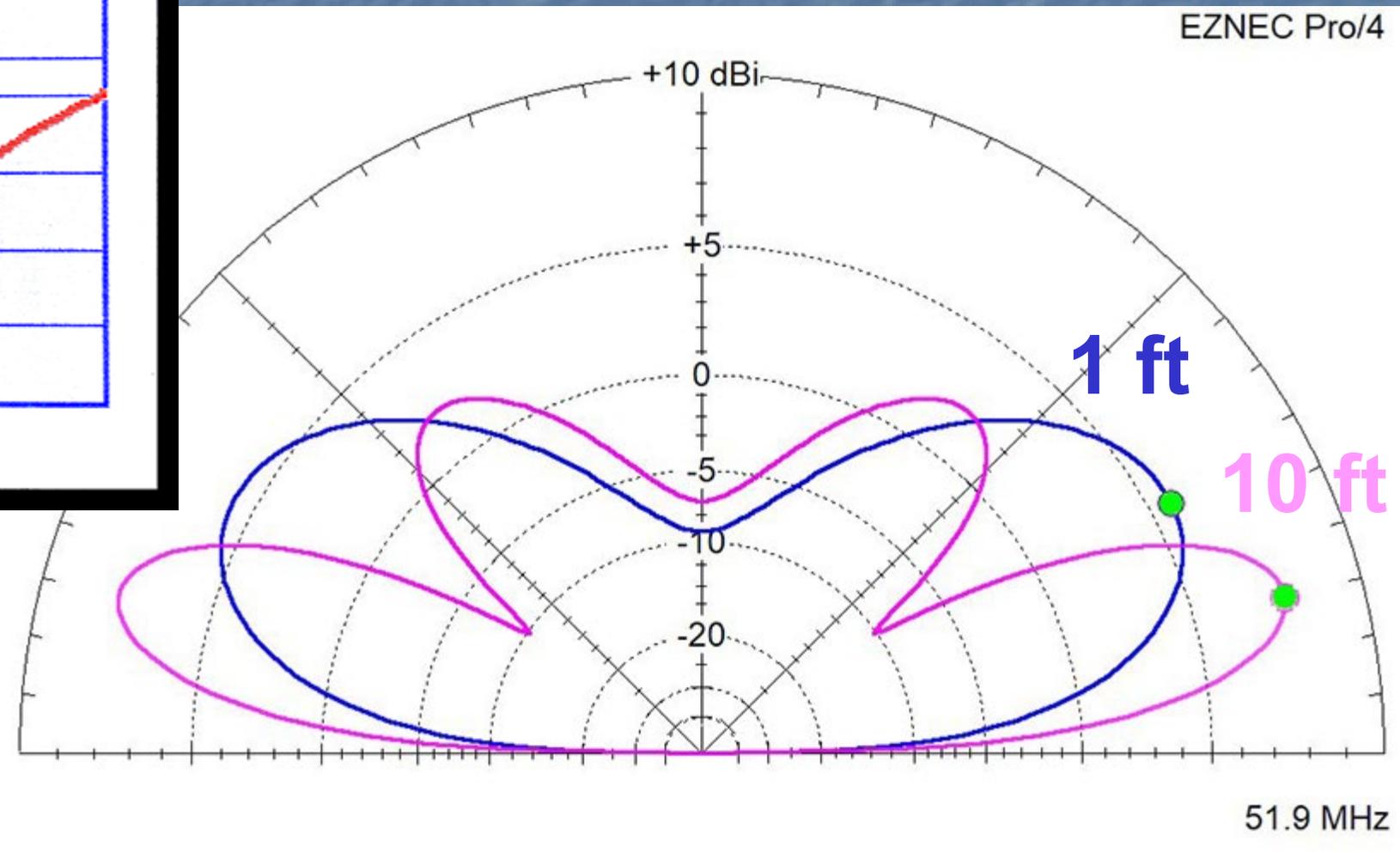
**Performance**

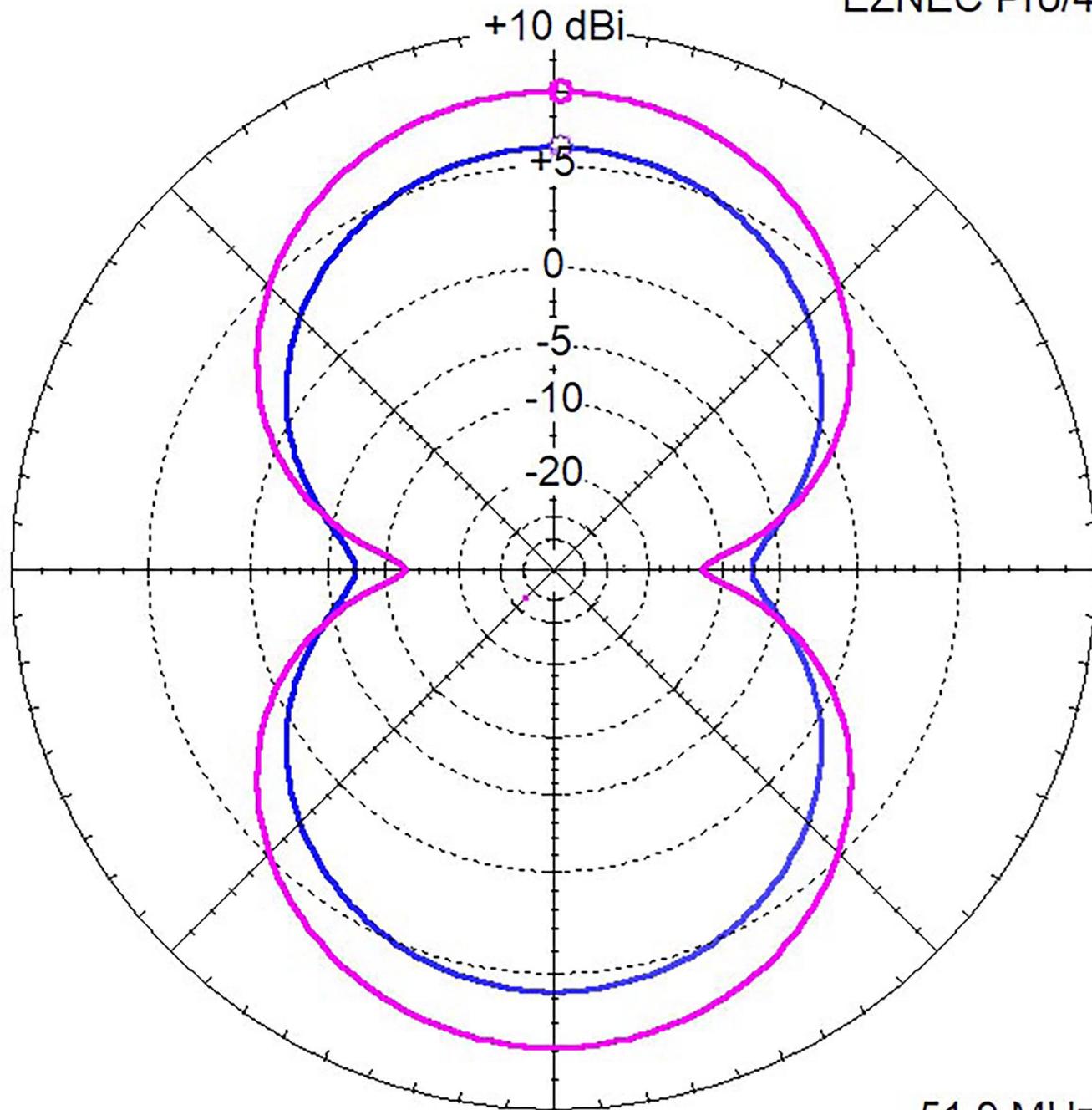
**SWR** 52 000 ± 500 kHz



**Bandwidth**

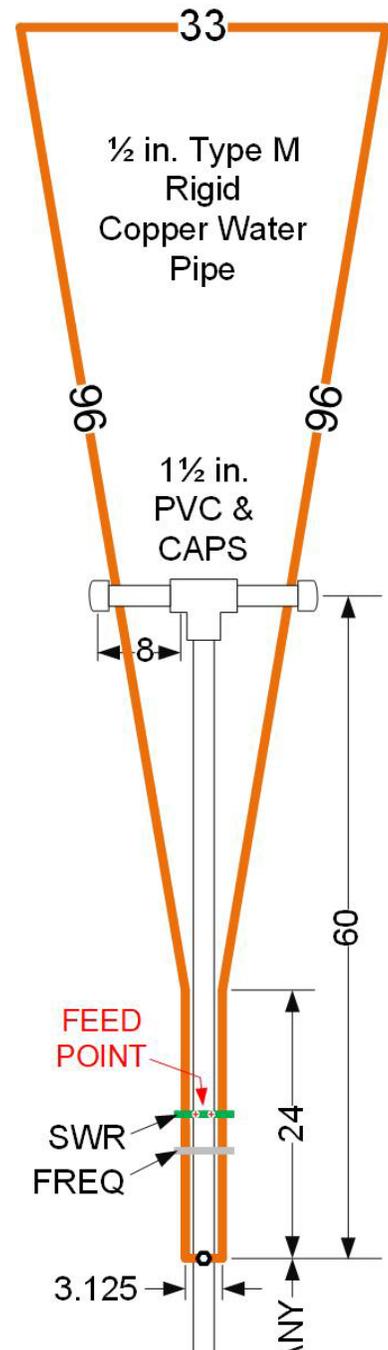
# Radiation Angle





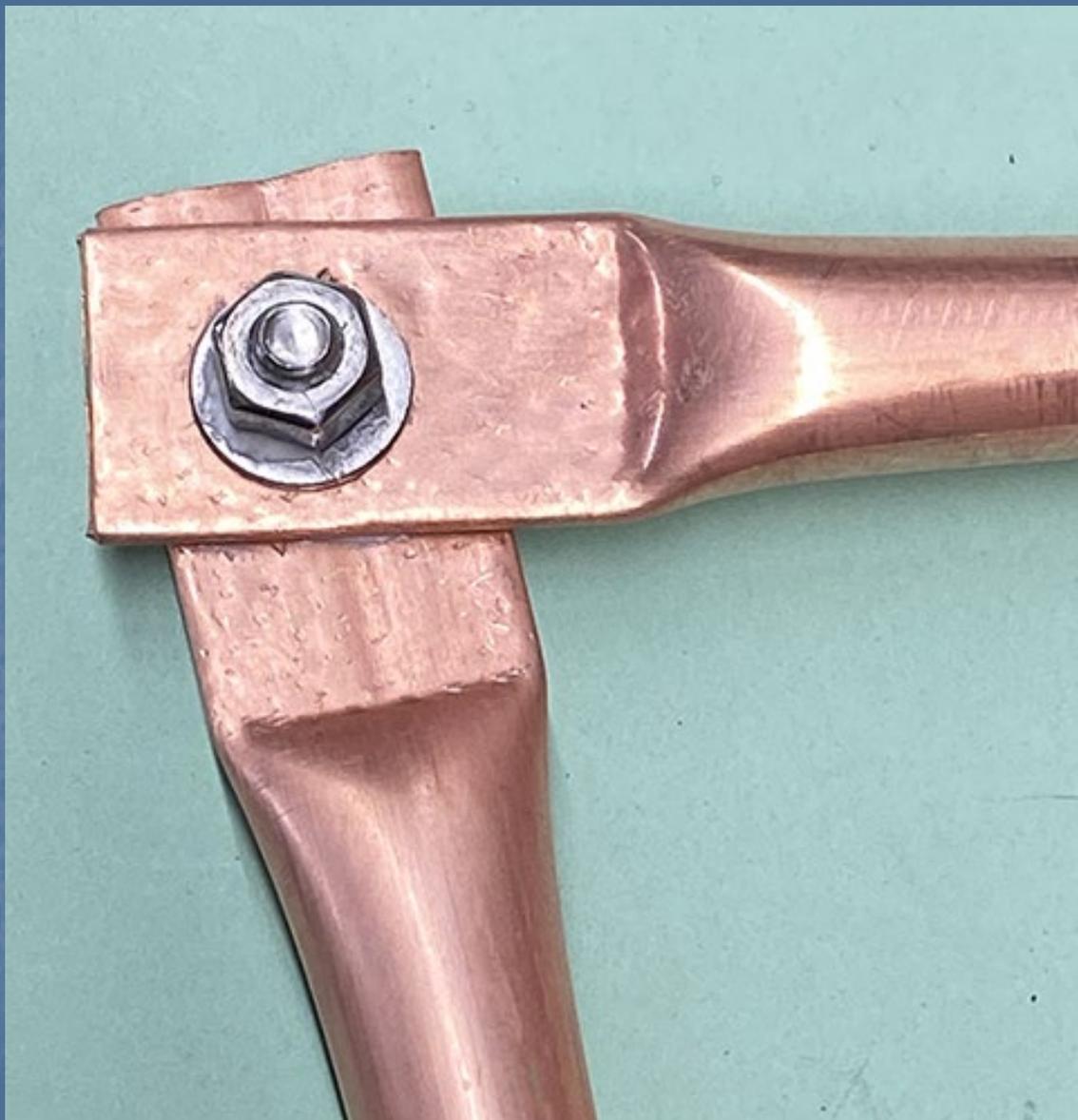
# A Vertical with Azimuth Gain

**Let's Build  
One**

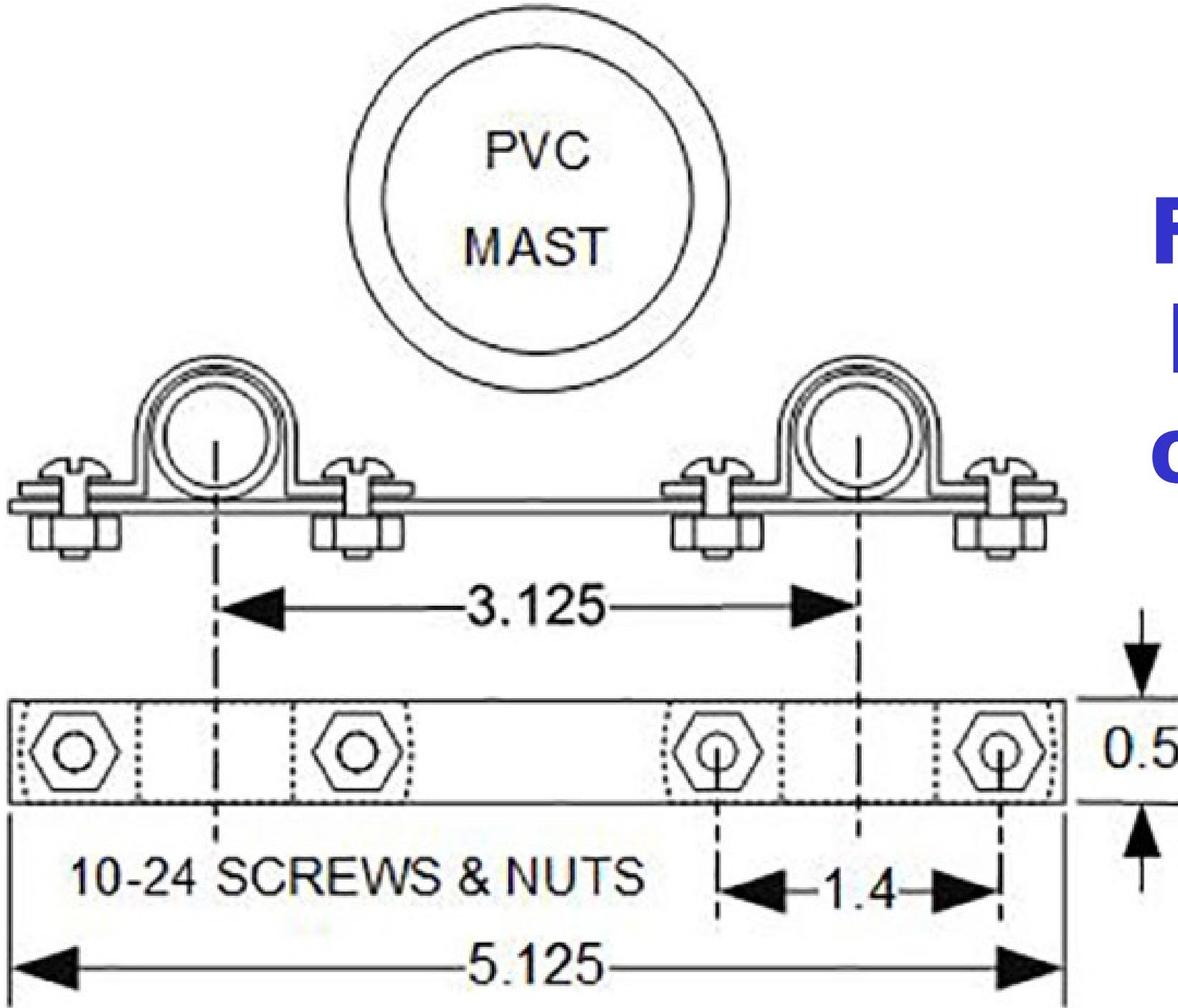




**10 ft. lengths  
Partially flattened  
and bent at 2 ft.  
to be  
parallel at  
the bottom**

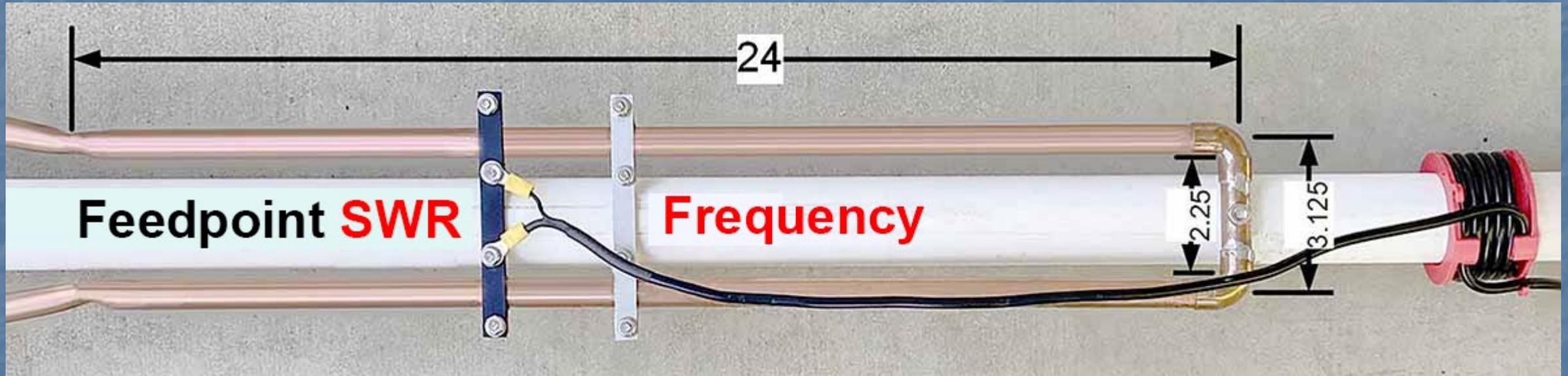


**Top corners  
Flattened, drilled  
and bolted with  
stainless bolts,  
nuts and washers**



**SWR and  
Frequency  
bars slide  
on bottom  
tubes**

# Adjustment Section



# **The Inverted Delta Skeleton Slot VERTICAL**

- 1. Low radiation angle**
- 2. Horizontally Polarized**
- 3. Elevated Radiation**
- 4. Azimuth Gain**

# HF All-band Double Inverted Delta Skeleton Slot





[w6nbcmail@  
gmail.com](mailto:w6nbcmail@gmail.com)  
[w6nbc.com](http://w6nbc.com)

**DØGGY**



*"That's all Folks!"*