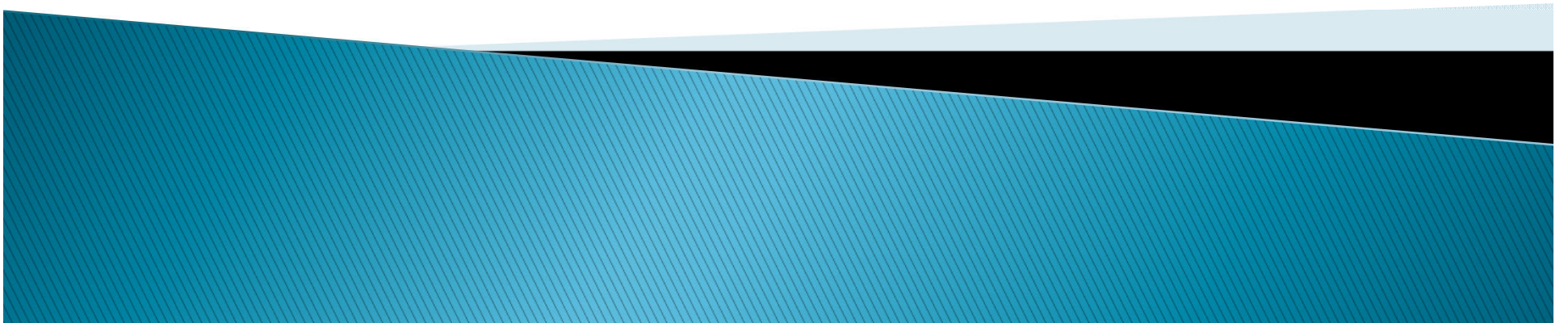


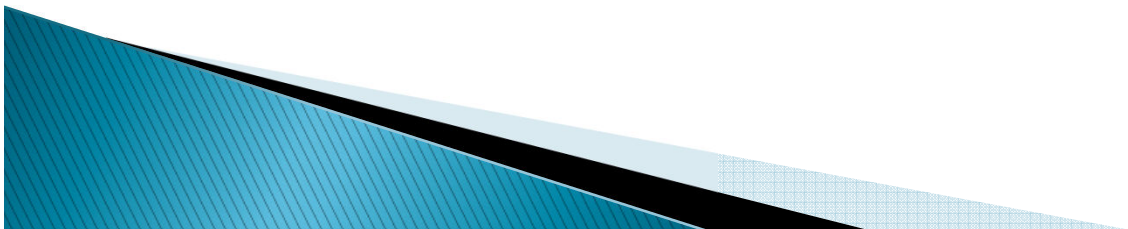
Antennas

By Barry Basile KG5IRR
For the Oak Forest Amateur Radio Club
Presented 5/23/20



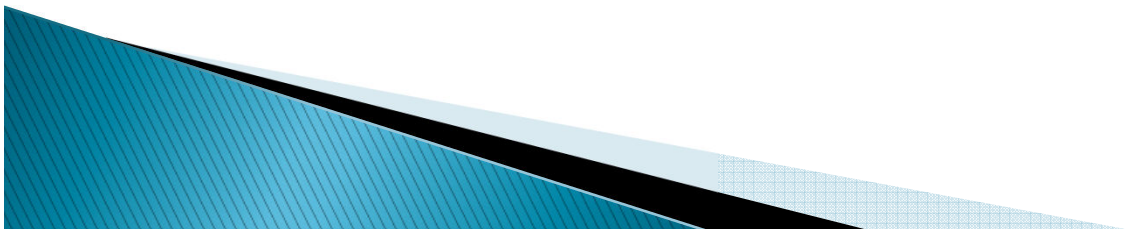
YouTube Links

- ▶ Ask Dave Episode 7, HF Antennas for Difficult Situations
 - <https://dcasler.com/2015/08/14/hf-antennas-for-difficult-situations-ask-dave-episode-7/>
- ▶ Extra Class Lesson 9.1, Basics of Antennas, 11th Edition
 - <https://dcasler.com/2016/10/17/extra-class-lesson-9-1-basics-of-antennas-11th-edition/>

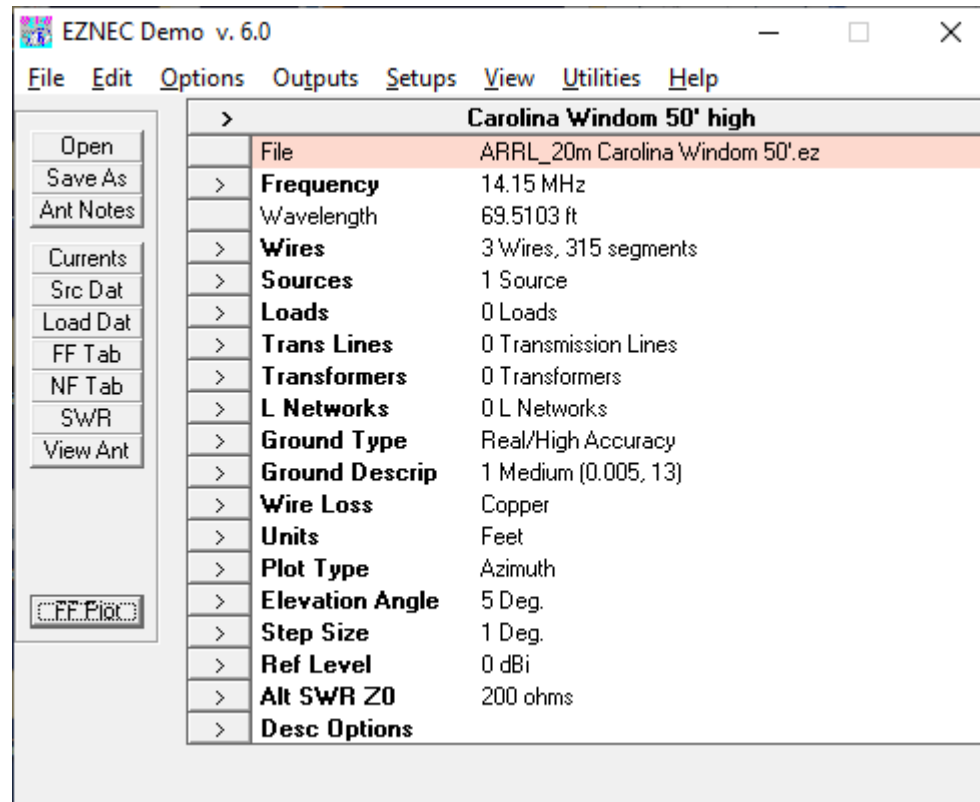


EZNEC Demo

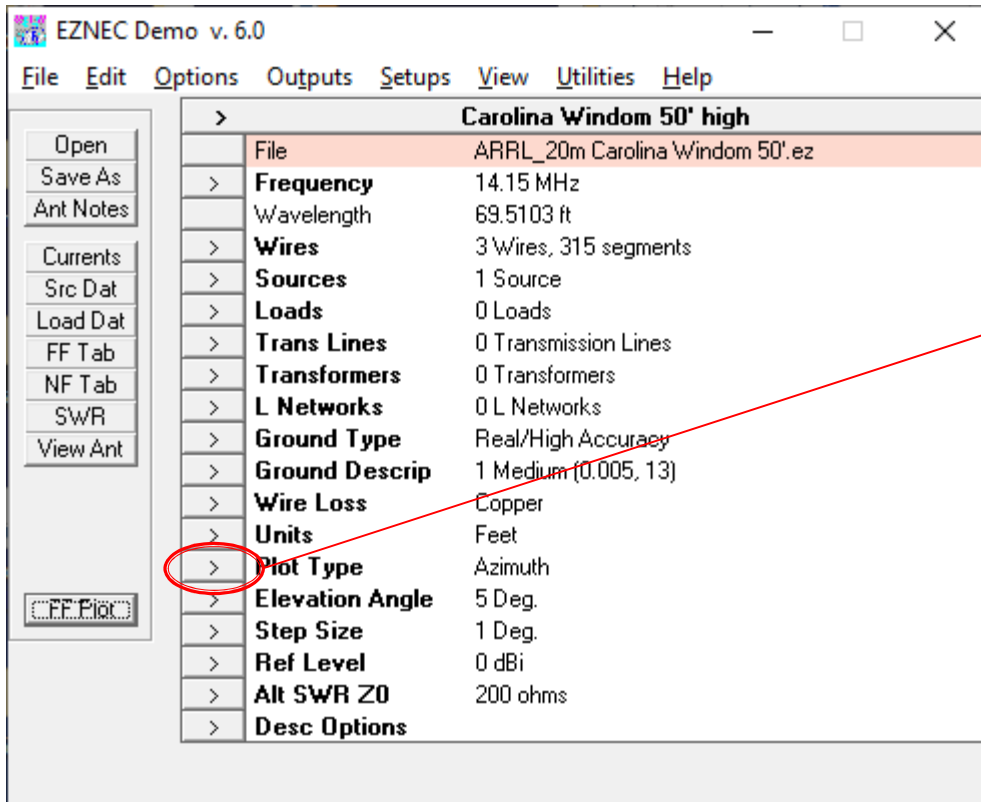
- ▶ EZNEC 6.0 Demo is a great resource
 - Estimates far field radiation patterns
 - Estimates VSWR
 - Supports different quality ground planes and free space environments
 - Supports common antenna system elements
 - Traps, loading coils, caps, inductors, and tuning stubs
 - Great library of popular designs published by ARRL
- ▶ Developed by Roy Lewallen (w7el), it's free:
 - <https://www.eznec.com/demoinfo.htm>



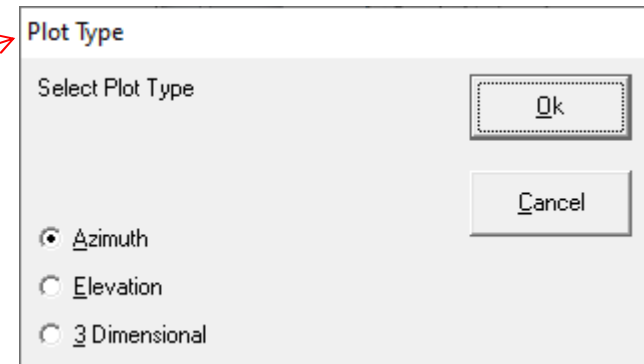
EZNEC – Carolina Windom 50'



EZNEC – Carolina Window 50'



Change plot type to 3D



EZNEC – Carolina Windom 50'

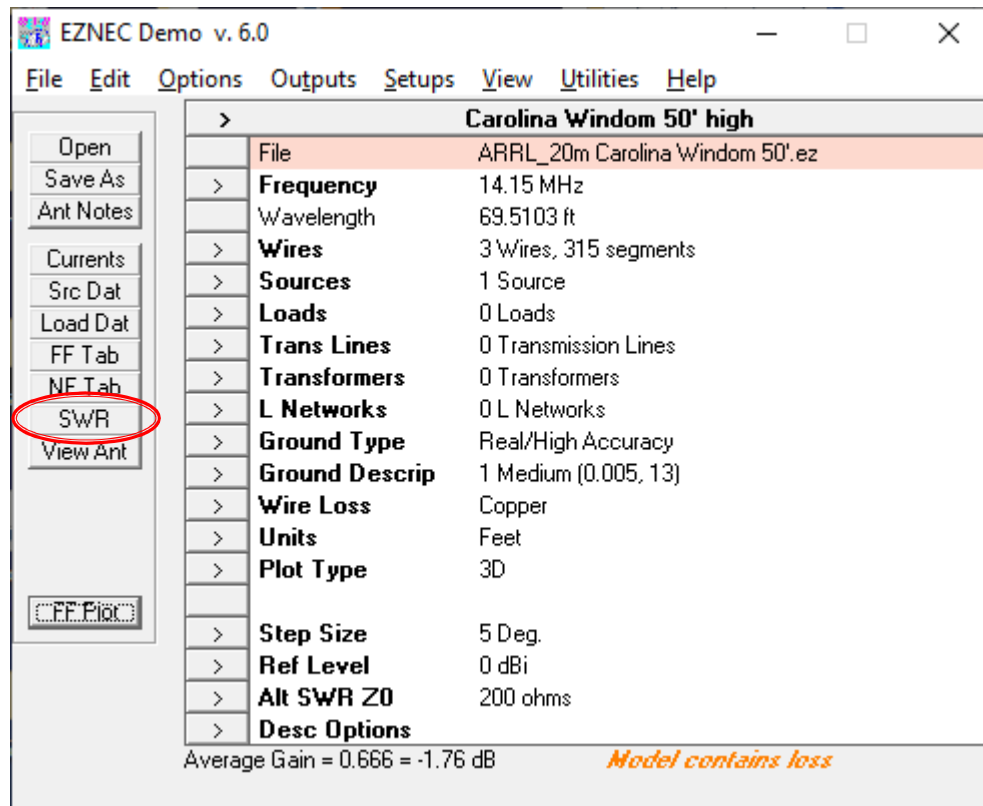
The image shows two windows from the EZNEC software. The main window, titled "EZNEC Demo v. 6.0", has a menu bar (File, Edit, Options, Outputs, Setups, View, Utilities, Help) and a toolbar. A sidebar on the left contains buttons for "Open", "Save As", "Ant Notes", "Currents", "Src Dat", "Load Dat", "FF Tab", "NF Tab", "SWR", and "View Ant". The "FF Tab" button is circled in red. The main area of the window displays a tree view for a project named "Carolina Windom 50' high". The tree view includes the following items:

- File: ARRL_20m Carolina Windom 50'.ez
- Frequency: 14.15 MHz
- Wavelength: 69.5103 ft
- Wires: 3 Wires, 315 segments
- Sources: 1 Source
- Loads: 0 Loads
- Trans Lines: 0 Transmission Lines
- Transformers: 0 Transformers
- L Networks: 0 L Networks
- Ground Type: Real/High Accuracy
- Ground Descrip: 1 Medium (0.005, 13)
- Wire Loss: Copper
- Units: Feet
- Plot Type: Azimuth
- Elevation Angle: 5 Deg.
- Step Size: 1 Deg.
- Ref Level: 0 dBi
- Alt SWR Z0: 200 ohms
- Desc Options

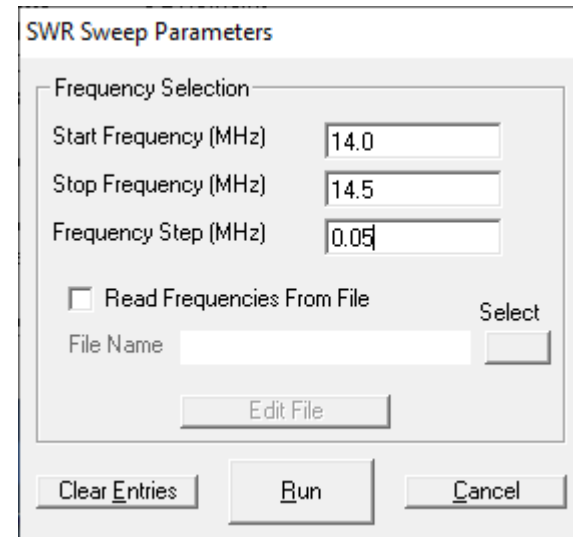
The second window, titled "3D Plot: Carolina Windom 50' high", shows a 3D radiation pattern plot. The plot is a wireframe model of a multi-lobed antenna radiation pattern. The plot is titled "EZNEC Demo". The plot has a "Highlight" section with three radio buttons: "Off" (selected), "Azimuth Slice", and "Elev Slice". Below the radio buttons are two sliders: "Slice Azimuth" (ranging from 0 to 360, currently at 55) and "Cursor Elev" (ranging from 0 to 180, currently at 20). There is also a checkbox labeled "Show 2D Plot" which is currently unchecked. The plot shows a complex radiation pattern with multiple lobes extending outwards from a central point, with a vertical Z-axis and a horizontal X-axis.

Click on FF Plot to see Radiation pattern

EZNEC – Carolina Windom 50'



Select SWR Parameters



Then click Run

EZNEC – Carolina Windom 50'

SWR Sweep Parameters

Frequency Selection

Start Frequency (MHz)

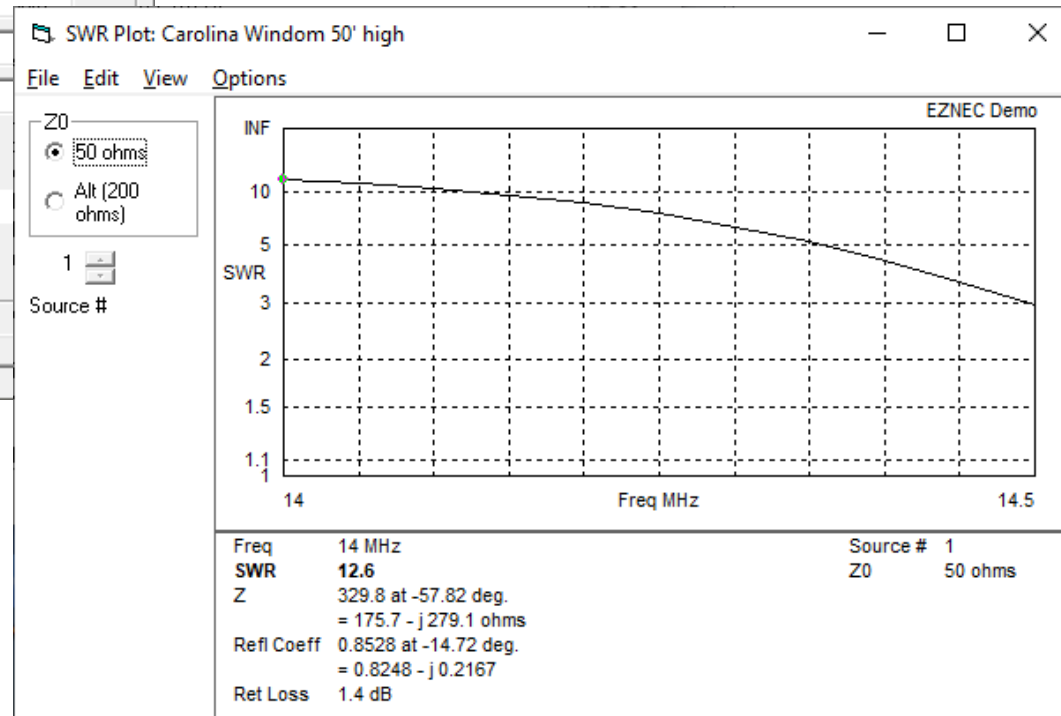
Stop Frequency (MHz)

Frequency Step (MHz)

Read Frequencies From File

File Name

Results with 50 ohm feed point



EZNEC – Carolina Windom 50'

SWR Sweep Parameters

Frequency Selection

Start Frequency (MHz)

Stop Frequency (MHz)

Frequency Step (MHz)

Read Frequencies From

File Name

Results with 200 ohm feed point
– implies you need a 4:1 balun
with this antenna

