

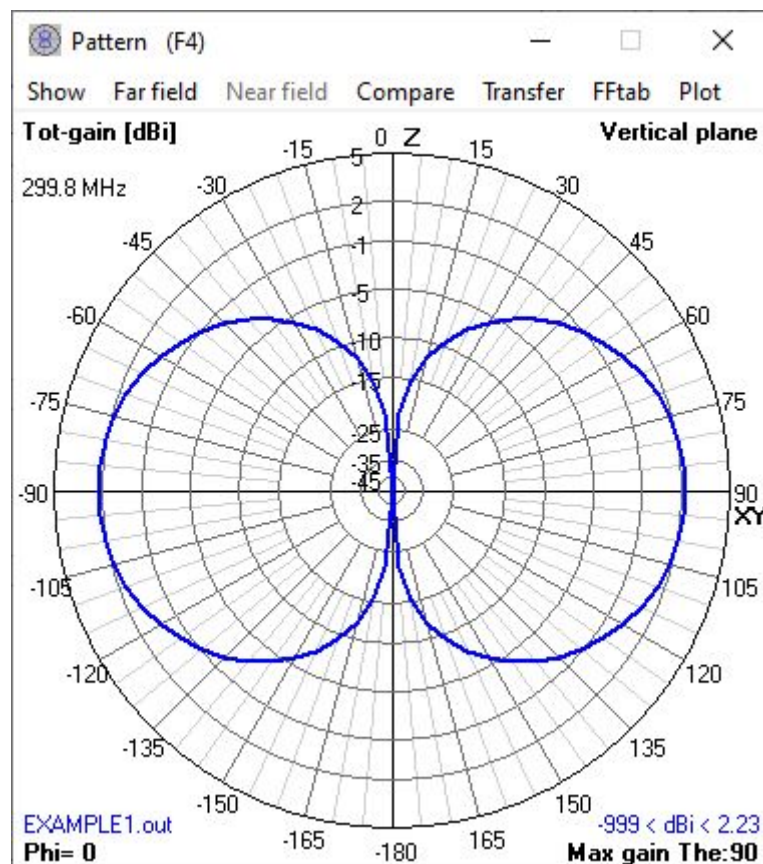
## Homework 1: Dipole Antenna Simulation

The basic "4nec2 Edit" window

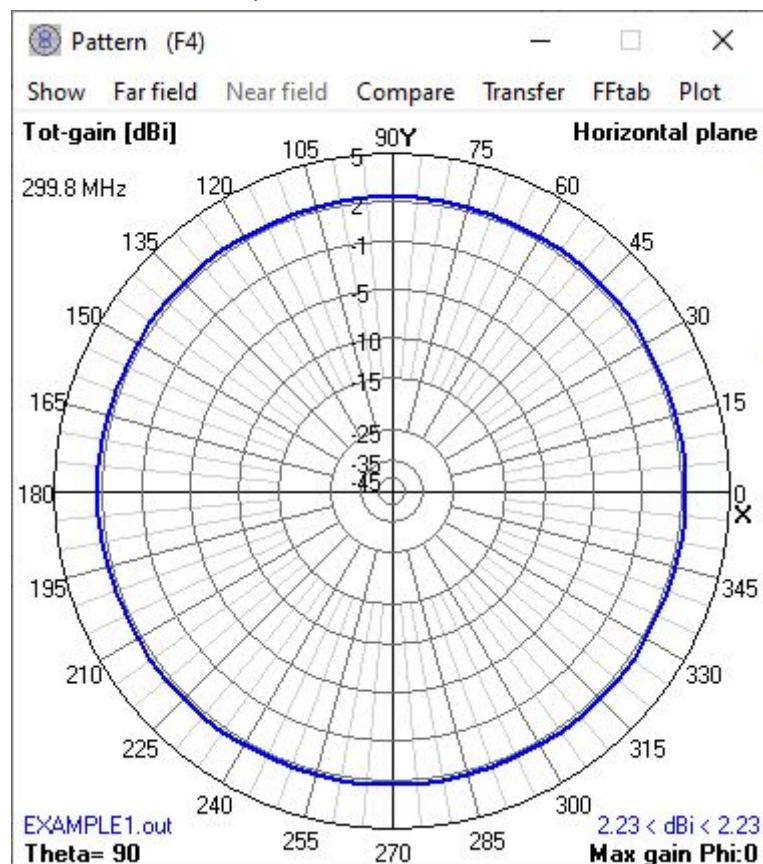
The screenshot shows the "4nec2 Edit" window with the title bar "EXAMPLE1.NEC - 4nec2 Edit (file changed)". The menu bar includes "File", "Cell", "Rows", "Selection", and "Options". The toolbar contains buttons for "Upd", "Ins", "Del", and icons for saving and running. The main area is divided into several tabs: "Symbols", "Geometry", "Source/Load", "Freq./Ground", "Others", and "Comment". The "Freq./Ground" tab is active, showing the following settings:

- Frequency:** Frequency is set to 299.8 Mhz. Nr steps is empty. Stepsize is empty. There is a checkbox for "Sweep" which is unchecked.
- Ground screen:** Nr of radials is empty. Radial length is empty mtr. Wire radius is empty mm.
- Environment:** Ground / Free-space is set to "Free-space". There is a checkbox for "Connect wire(s) for Z=0 to ground" which is unchecked.
- Main ground:** Ground type is empty. Conductivity is empty. Diel constant is empty. There are checkboxes for "Use ground-screen" and "Use second ground", both of which are unchecked.
- Second ground:** Ground type is empty. Conductivity is empty. Diel constant is empty. Distance is empty mtr. Depth is empty mtr. There are radio buttons for "Circular boundary" and "Perpendicular to Y-axis", both of which are unselected.

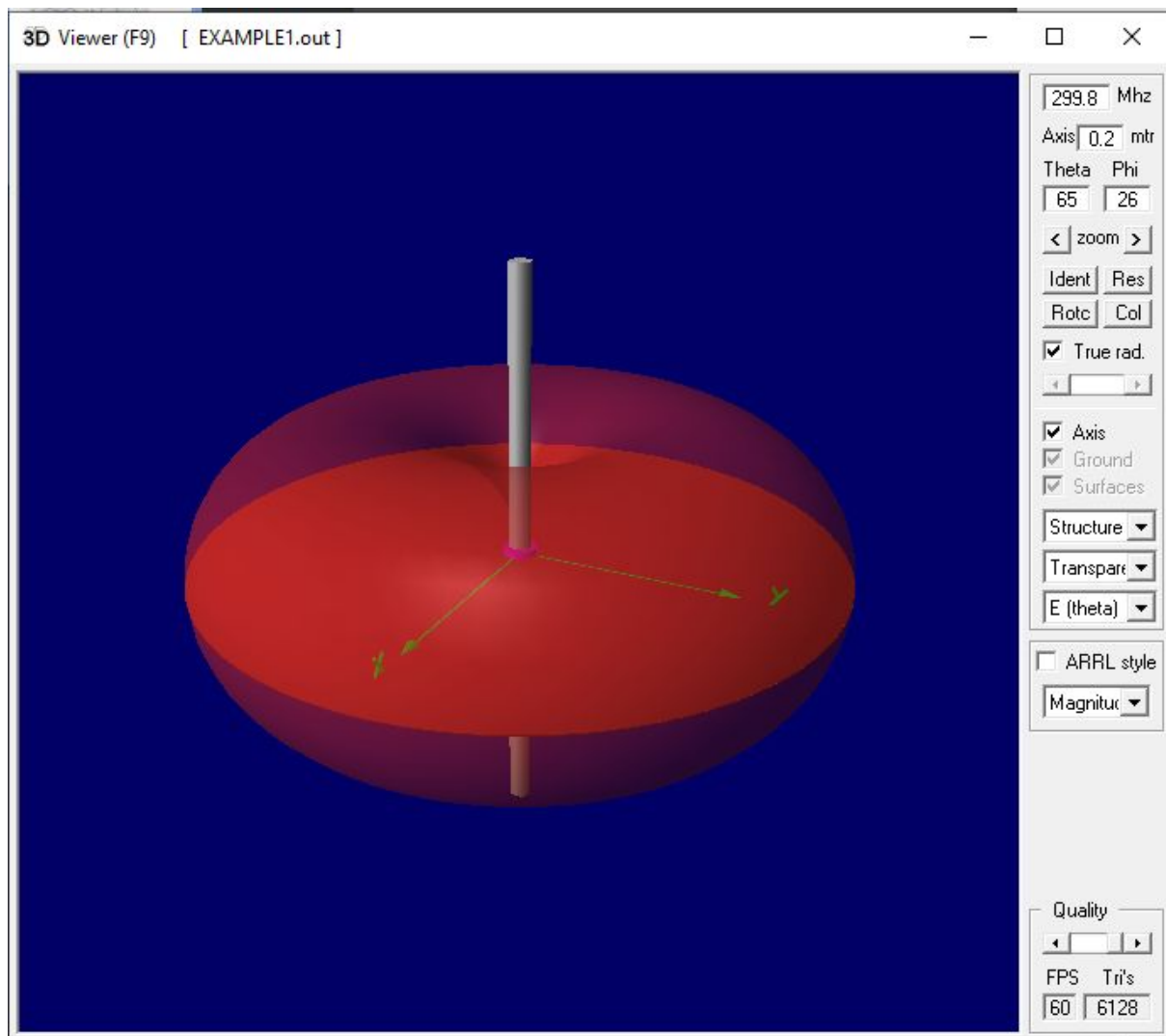
For vertical plane of basic setup ( $0 < V/m < 70.8$ )



For horizontal plane of basic setup ( $70.8 < V/m < 70.8$ )



*For 3D viewer of basic setup*



For last student ID digit is 5 then design antenna at frequency :: 322 MHz

The "4nec2 Edit" window

The screenshot shows the "4nec2 Edit" window for a file named "EXAMPLE1.NEC". The window has a menu bar with "File", "Cell", "Rows", "Selection", and "Options". Below the menu bar is a toolbar with buttons for "Upd", "Ins.", "Del.", and icons for saving and printing. The main area is divided into several tabs: "Symbols", "Geometry", "Source/Load", "Freq./Ground", "Others", and "Comment". The "Freq./Ground" tab is currently selected. It contains three main sections: "Frequency", "Ground screen", and "Second ground".

**Frequency**

Frequency: 322 Mhz  
Nr steps:  ☐ Sweep  
Stepsize:

**Ground screen**

Nr of radials:   
Radial length:  mtr  
Wire radius:  mm

**Environment**

Ground / Free-space:   
☐ Connect wire(s) for Z=0 to ground

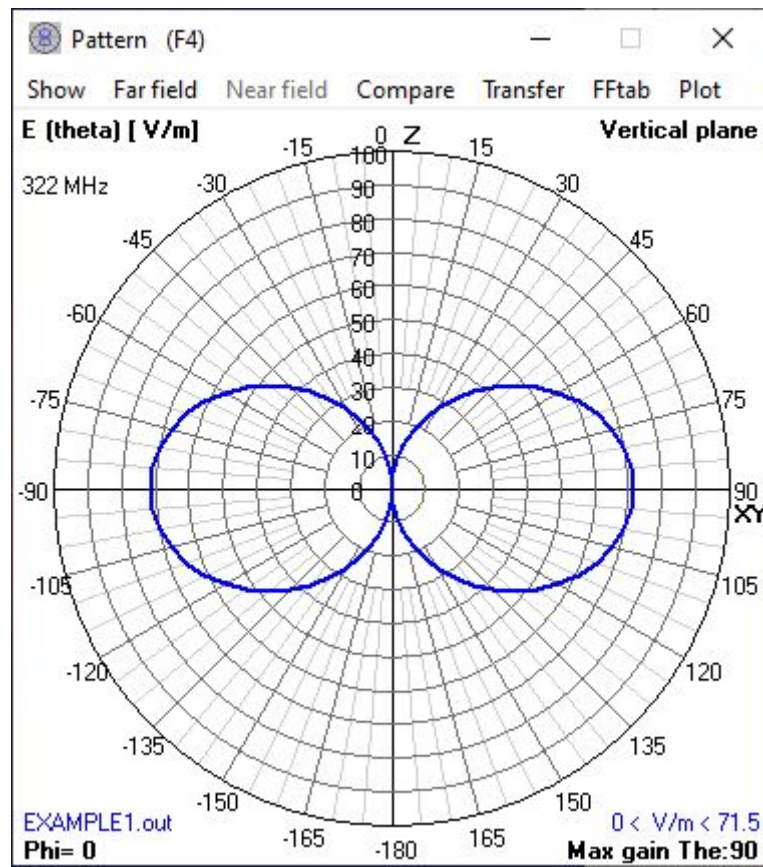
**Main ground**

Ground type:   
Conductivity:   
Dielectric constant:   
☐ Use ground-screen  
☐ Use second ground

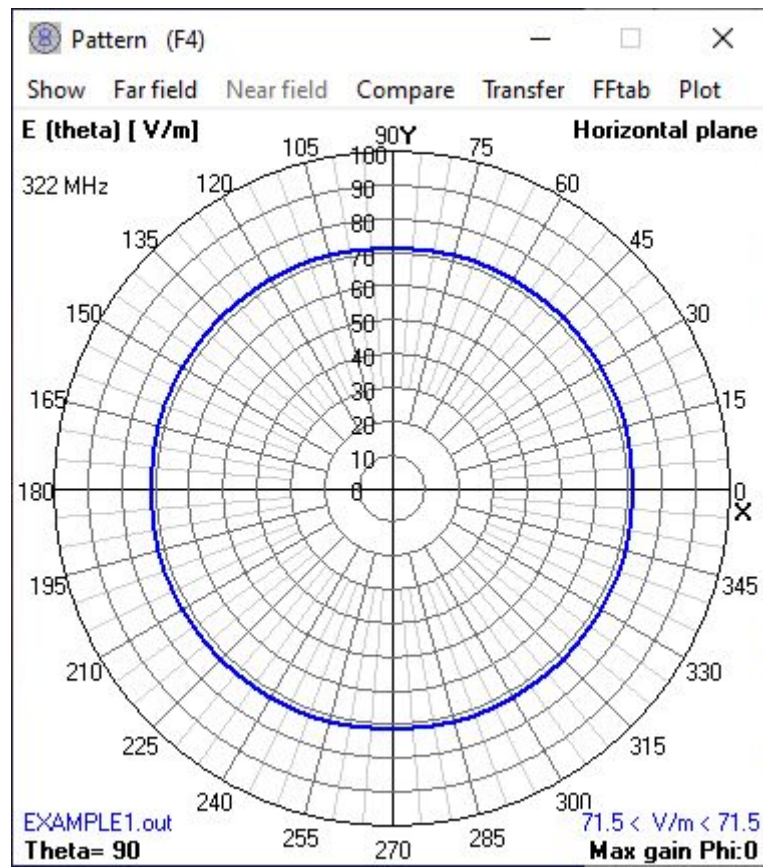
**Second ground**

Ground type:   
Conductivity:   
Dielectric constant:   
Distance:  mtr  
Depth:  mtr  
☐ Circular boundary  
☐ Perpendicular to Y-axis

*For vertical plane*



For horizontal plane





For 3D viewer

