

## **I. INTRODUCTION**

### **Review of functions in Main Control Panel**

Setting defaults for Units, Frequency, etc.

Types of Grounds

Types of pattern projections (Elevation vs. Azimuth).

Far Field patterns

SWR Calculations

## **II. A 40 METER DOUBLET**

### **Setting up the Antenna Structure**

The x-y-z description

Antenna origin vs. height above ground

Setting up the WIRES table (lengths vs. end coordinates).

Number of Segments

Inserting a Source

### **Calculating patterns and SWR in Free Space**

Set Ground to Free Space

Calculate Elevation Pattern (pick out Major Lobe).

Select Azimuth Pattern

Set Elevation Angle to Major Lobe

Calculate Azimuth Pattern

Calculate SWR over Frequency Range.

Point out: cosine structure, gain in dbi, beam width

### **Calculating patterns and SWR over real ground**

Set Ground to Real

Calculate Elevation Pattern (pick out Major Lobe).

Select Azimuth Pattern

Set Elevation Angle to Major Lobe

Calculate Azimuth Pattern

Calculat SWR over Frequency Range.

Point out: cosine structure, gain in dbi, beam width

### **III. A 300 foot HORIZONTAL LOOP**

#### **Setting up the Antenna Structure**

The x-y-z description

Antenna origin vs. height above ground

Set up a Horizontal Loop (inputs to WIRES table).

Number of Segments

Inserting a Source

#### **Calculating patterns and SWR in Free Space**

Set Ground to Free Space

Calculate Elevation Pattern (pick out Major Lobe).

Select Azimuth Pattern

Set Elevation Angle to Major Lobe

Calculate Azimuth Pattern

Calculate SWR over Frequency Range.

Point out: cosine structure, gain in dbi, beam width

#### **Calculating patterns and SWR over real ground**

Set Ground to Real

Calculate Elevation Pattern (pick out Major Lobe).

Set up Azimuth Pattern

Set Elevation Angle to Major Lobe

Calculate Azimuth Pattern

Calculate SWR over Frequency Range.

Point out: cosine structure, gain in dbi, beam width

### **IV. CONCLUSION**

#### **Things we have NOT done**

Naming and documenting files

Applying common sense to results

Scaling to adjust to desired frequency

Adjusting antenna height