

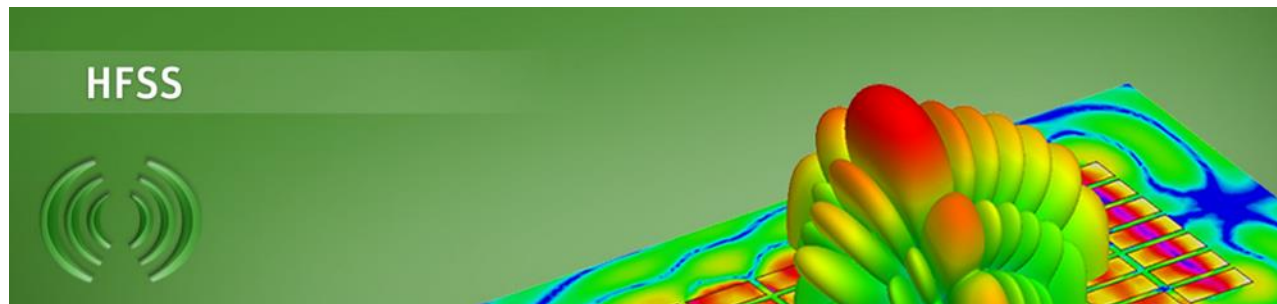
Ansys High Frequency Structure Simulator (HFSS) Tutorial

Souvik Dubey
Instructor: Dr. Jung-Chih Chiao

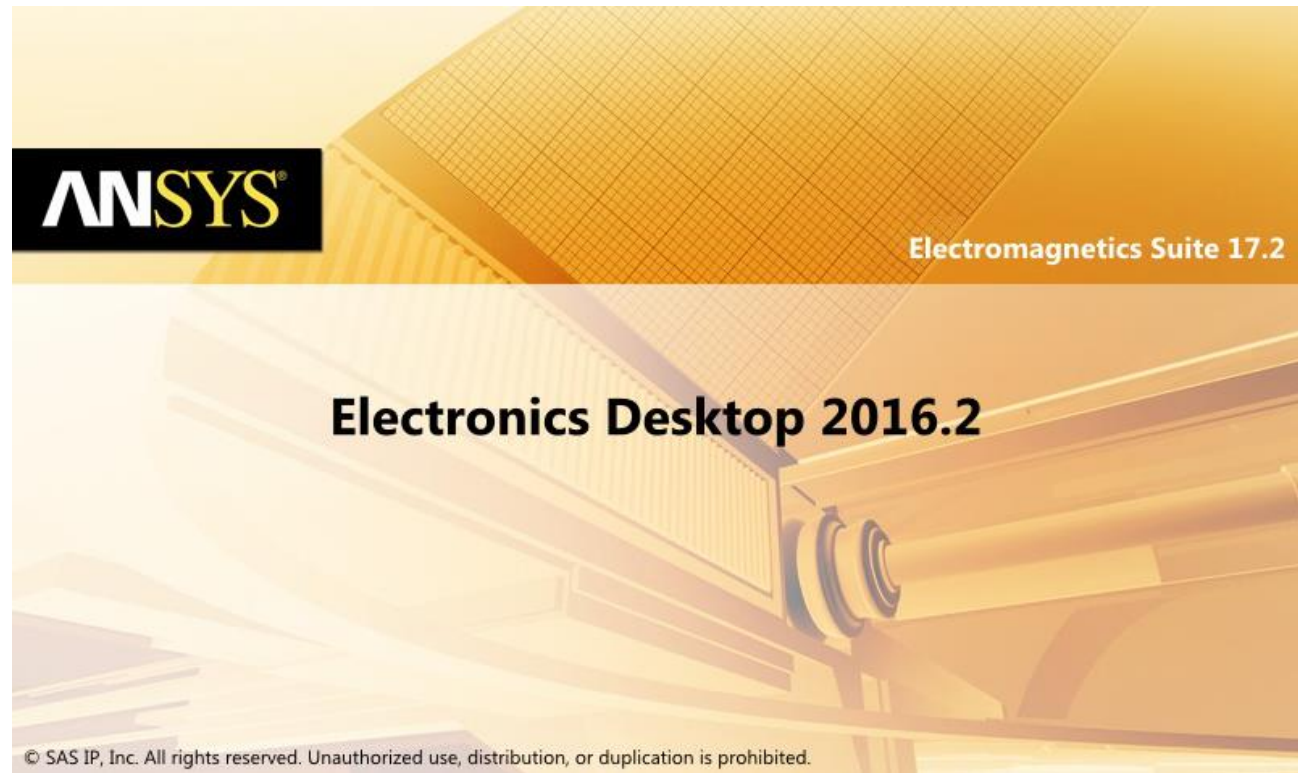
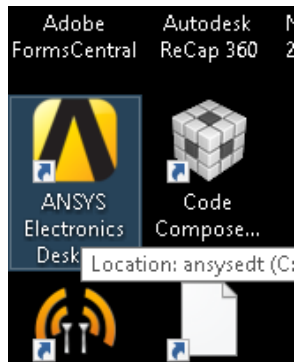
*EE 3407
Department of Electrical Engineering
University of Texas at Arlington
October 11th 2017*

How to solve this ?

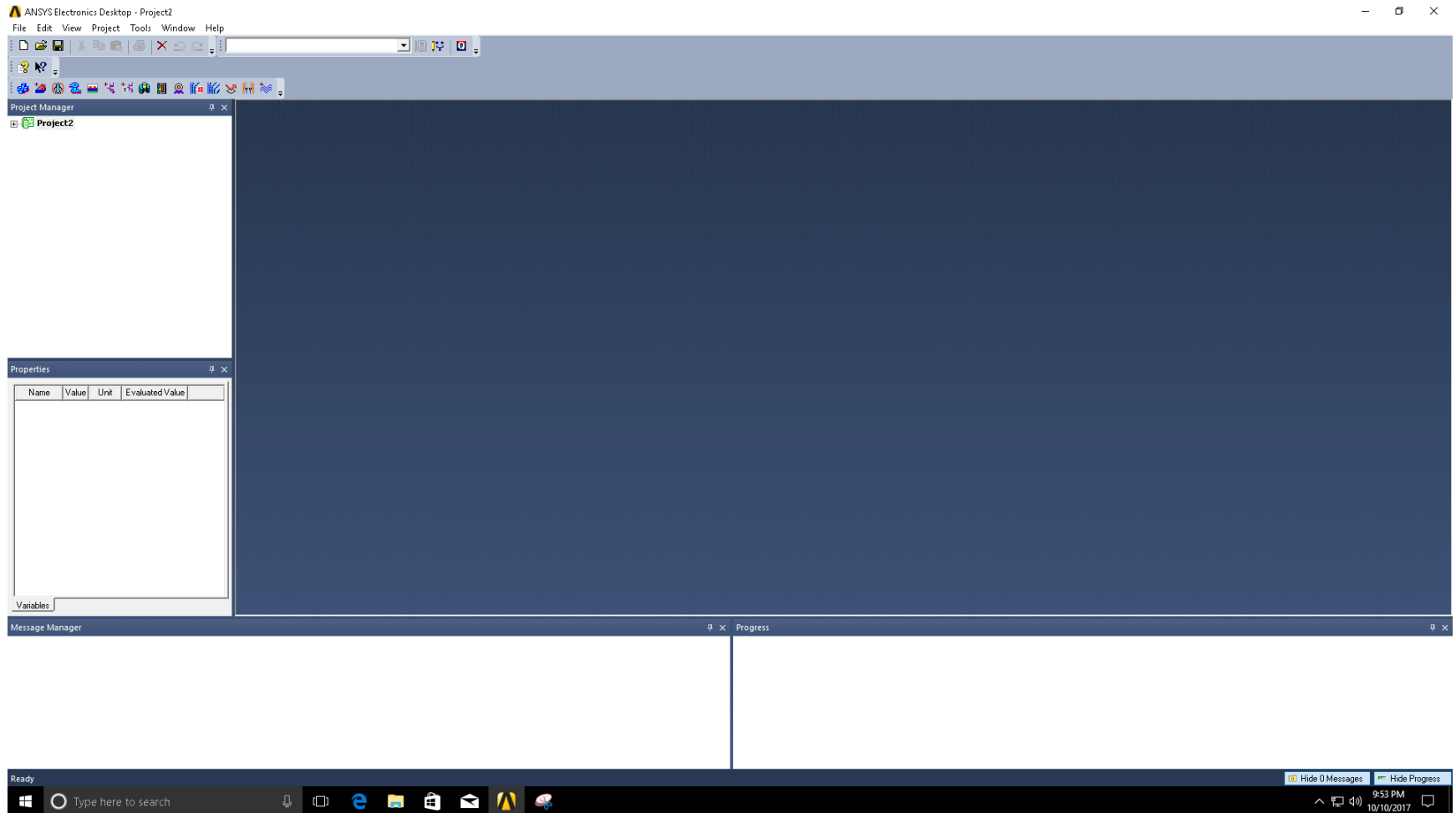
$$\begin{aligned}
 I &\equiv \frac{1}{c^2} \frac{\partial^2}{\partial t^2} \int_{-\infty}^{\infty} \mathbf{e}_\mu \varepsilon_{\mu\alpha}(\omega) E_\alpha(\mathbf{r}, \omega) \exp(-i\omega t) d\omega \\
 &= - \int_{-\infty}^{\infty} \frac{\omega^2 n^2(\omega)}{c^2} \frac{1}{2} \underbrace{\sum_{\omega_\sigma \geq 0} [\mathbf{E}_{\omega_\sigma}(\mathbf{r}, \omega - \omega_\sigma) + \mathbf{E}_{\omega_\sigma}^*(\mathbf{r}, -\omega - \omega_\sigma)]}_{\text{quasimonochromatic form of } \mathbf{E}(\mathbf{r}, \omega)} \exp(-i\omega t) d\omega \\
 &= \{ \text{denote } \omega^2 \varepsilon(\omega)/c^2 \equiv \omega^2 n_0^2(\omega)/c^2 \equiv k^2(\omega) \} \\
 &= -\frac{1}{2} \sum_{\omega_\sigma \geq 0} \int_{-\infty}^{\infty} k^2(\omega) [\mathbf{E}_{\omega_\sigma}(\mathbf{r}, \omega - \omega_\sigma) + \mathbf{E}_{\omega_\sigma}^*(\mathbf{r}, -\omega - \omega_\sigma)] \exp(-i\omega t) d\omega. \\
 &= -\frac{1}{2} \sum_{\omega_\sigma \geq 0} \int_{-\infty}^{\infty} k^2(\omega) \mathbf{E}_{\omega_\sigma}(\mathbf{r}, \omega - \omega_\sigma) \exp(-i\omega t) d\omega + \text{c. c.}
 \end{aligned}$$



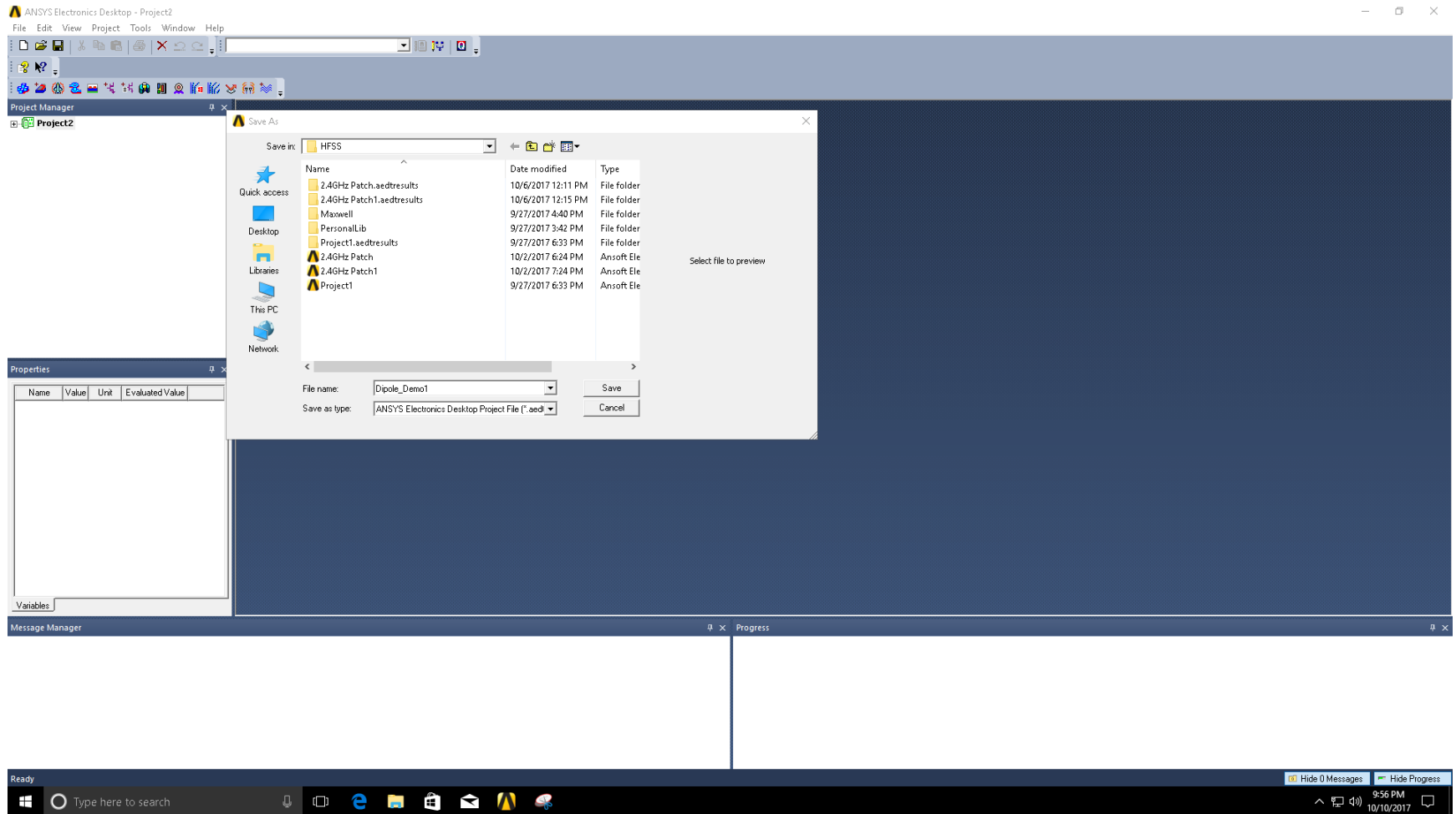
ANSYS Electronics Desktop



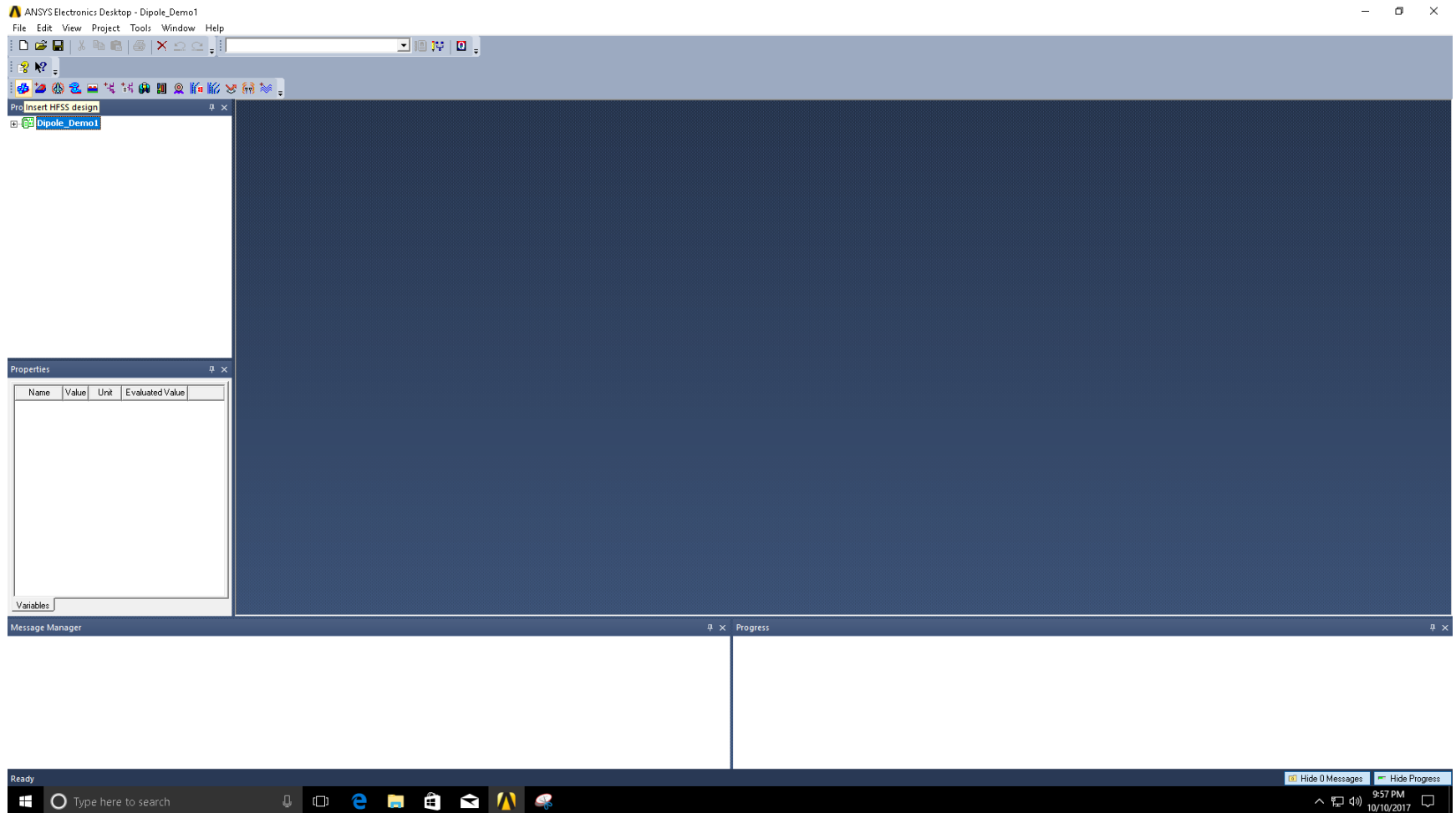
ANSYS Electronics User Interface



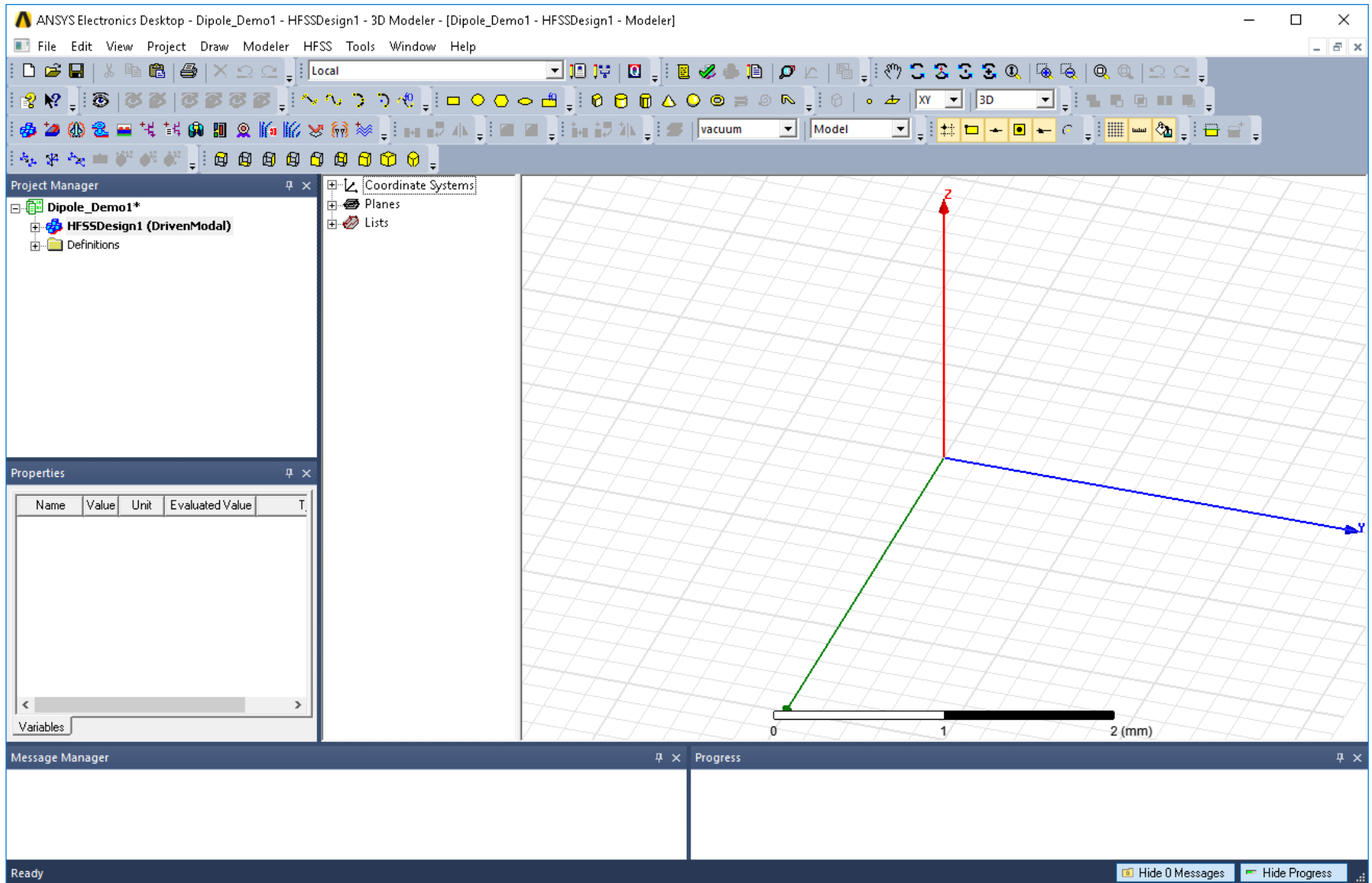
Save As Dipole_Demo1



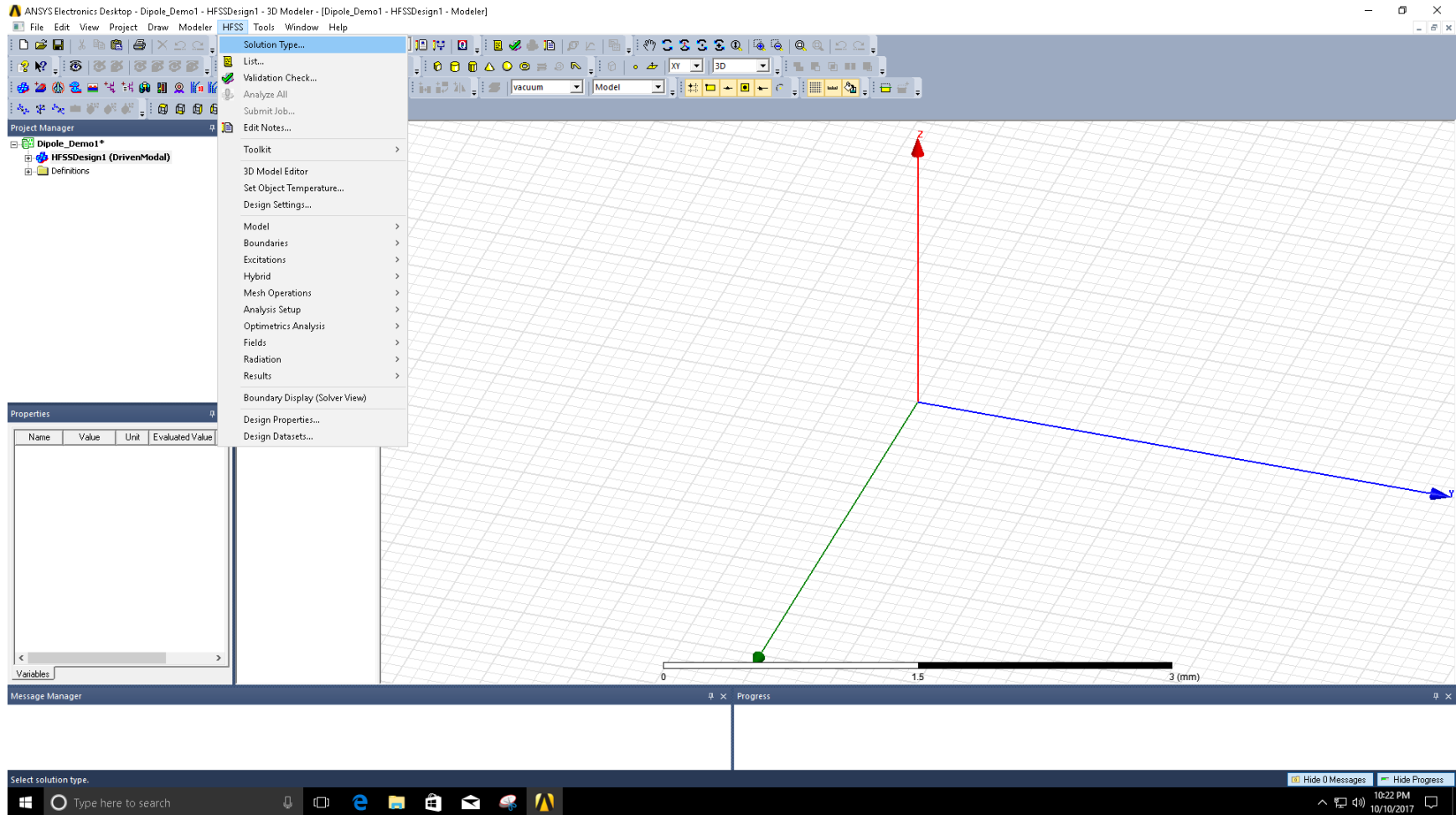
Insert HFSS Design



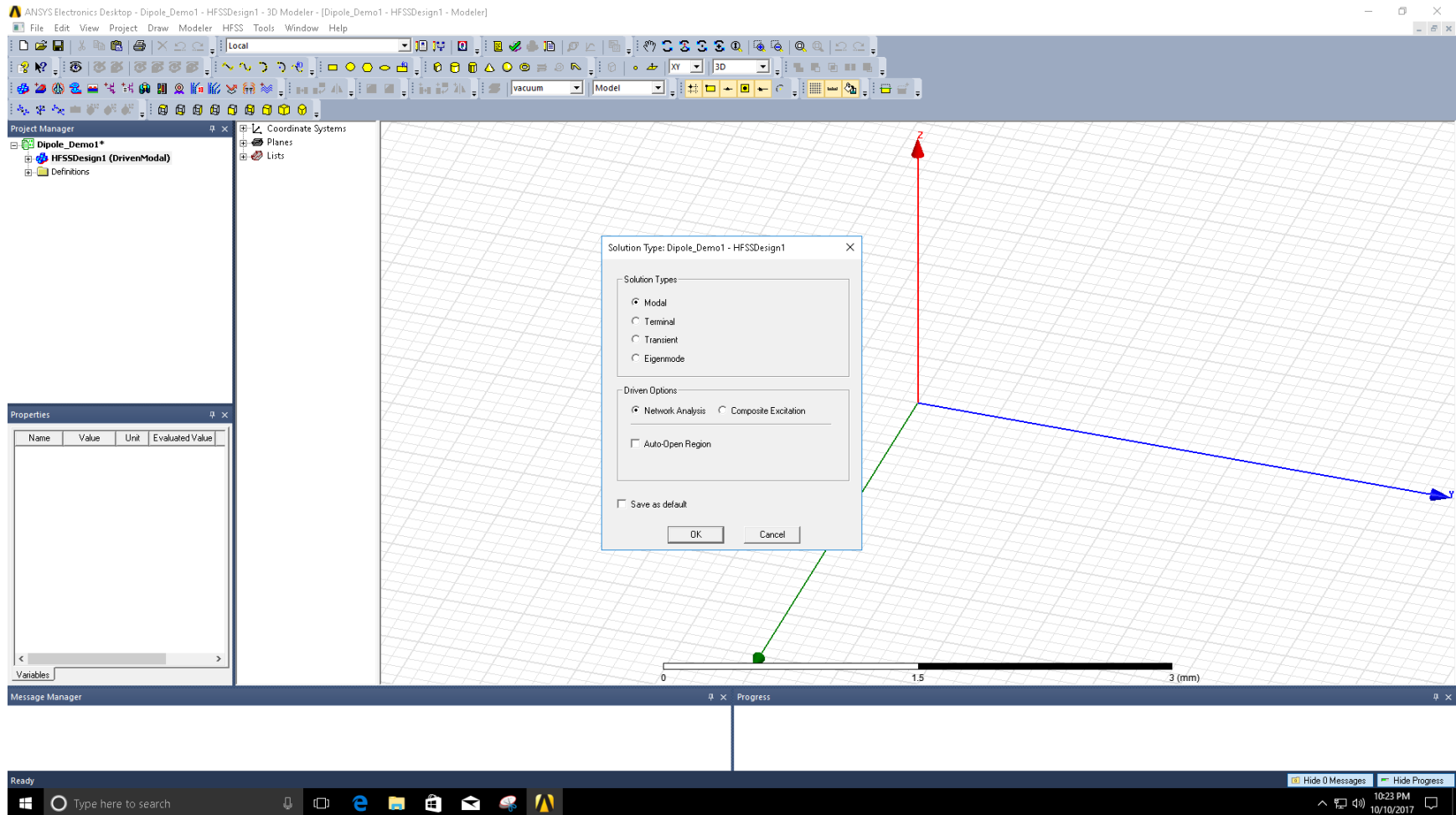
HFSS Modeler



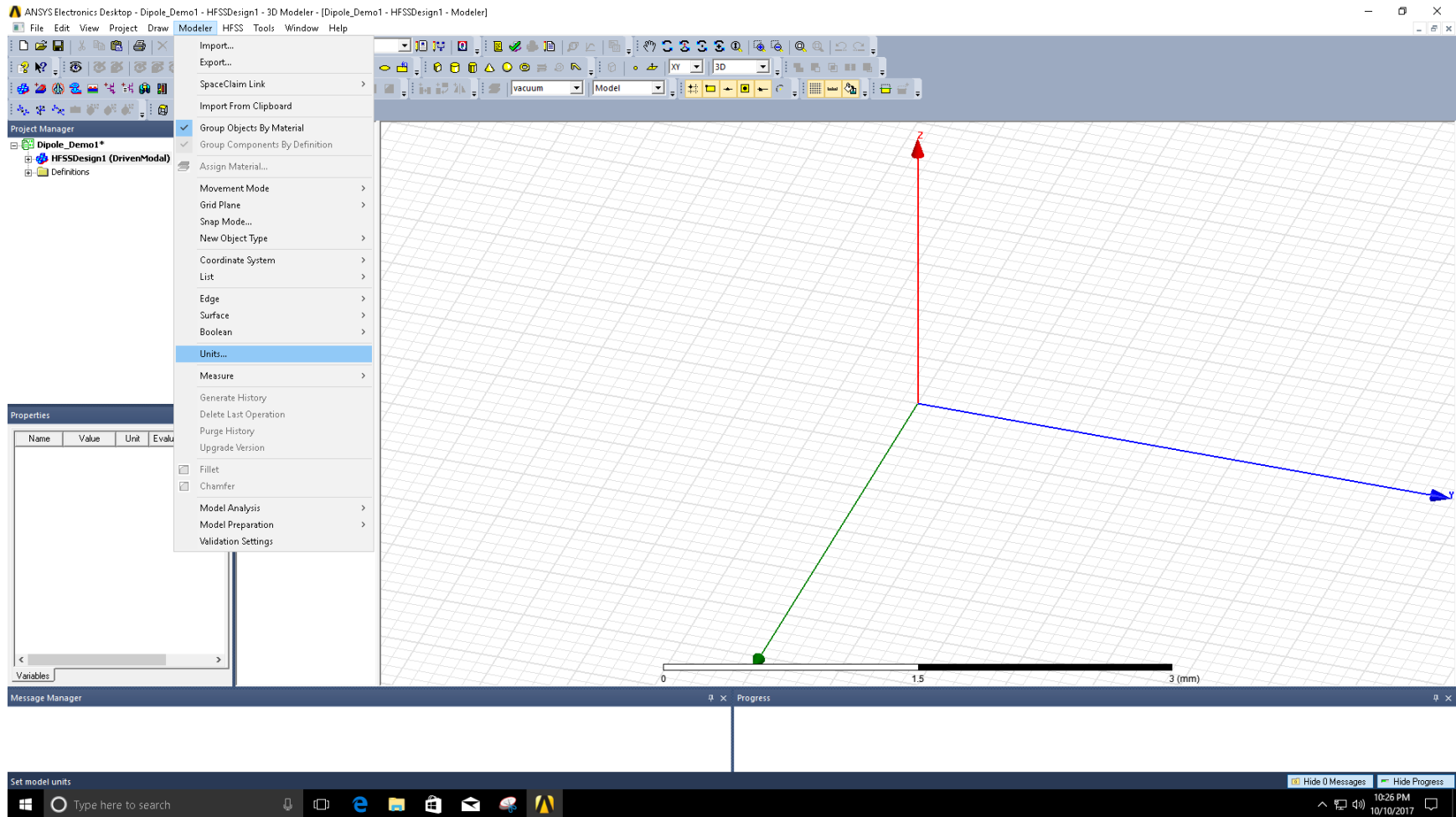
Solution Type Selection : HFSS > Solution Type



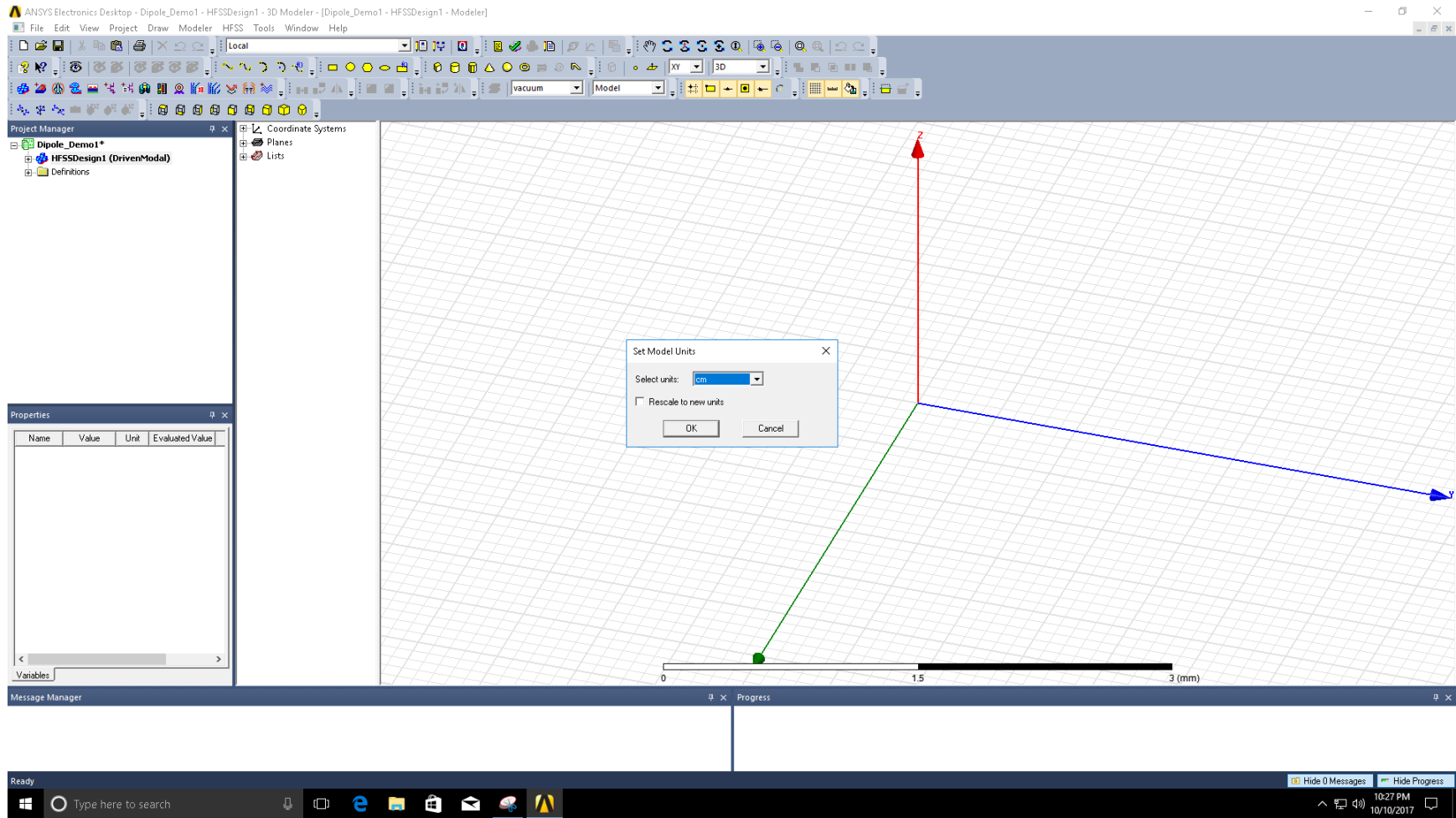
Select Modal > Press OK



Select Model Unit: Modeler>Units

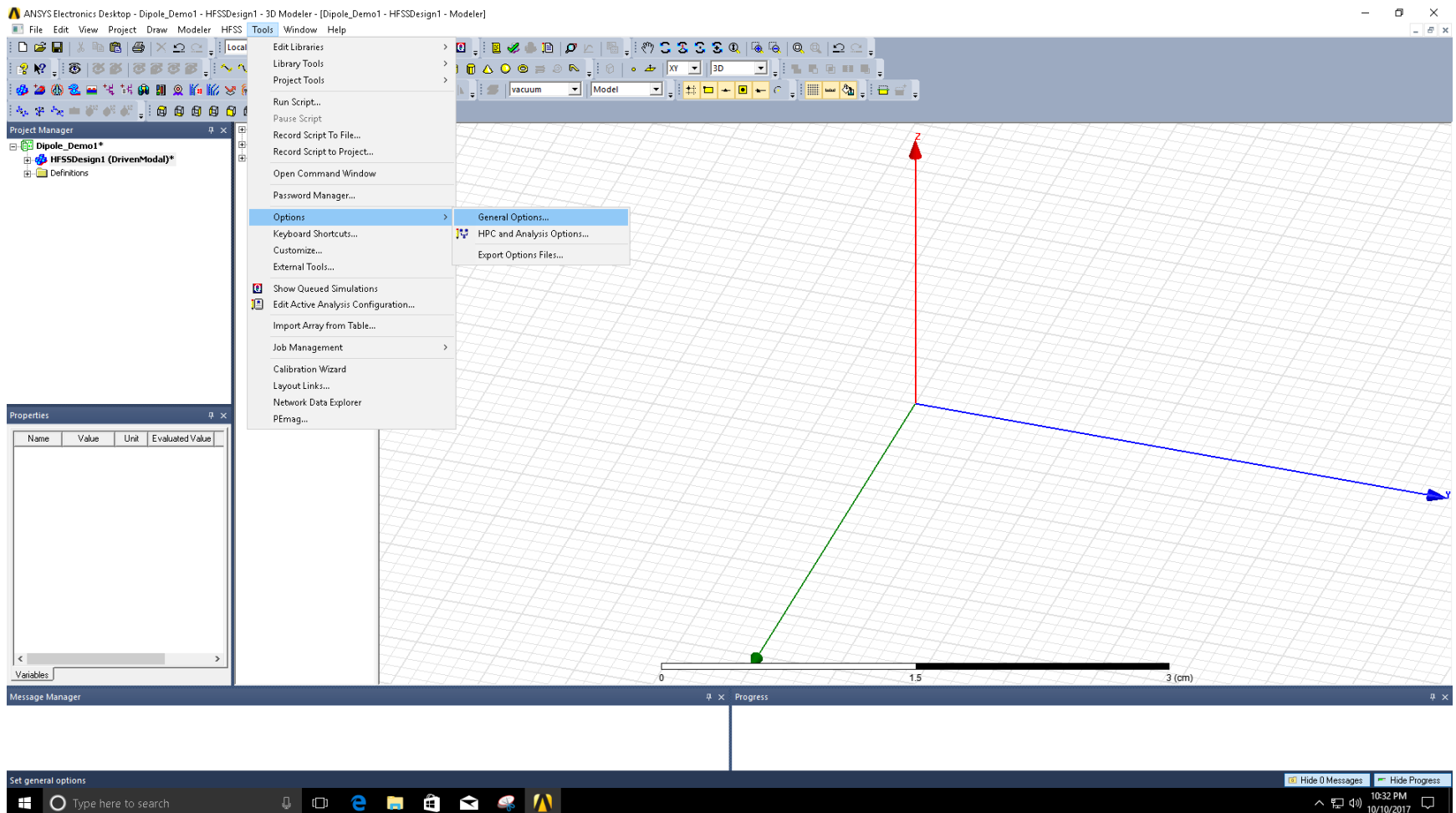


Select Model Unit: Modeler>Units>cm>ok



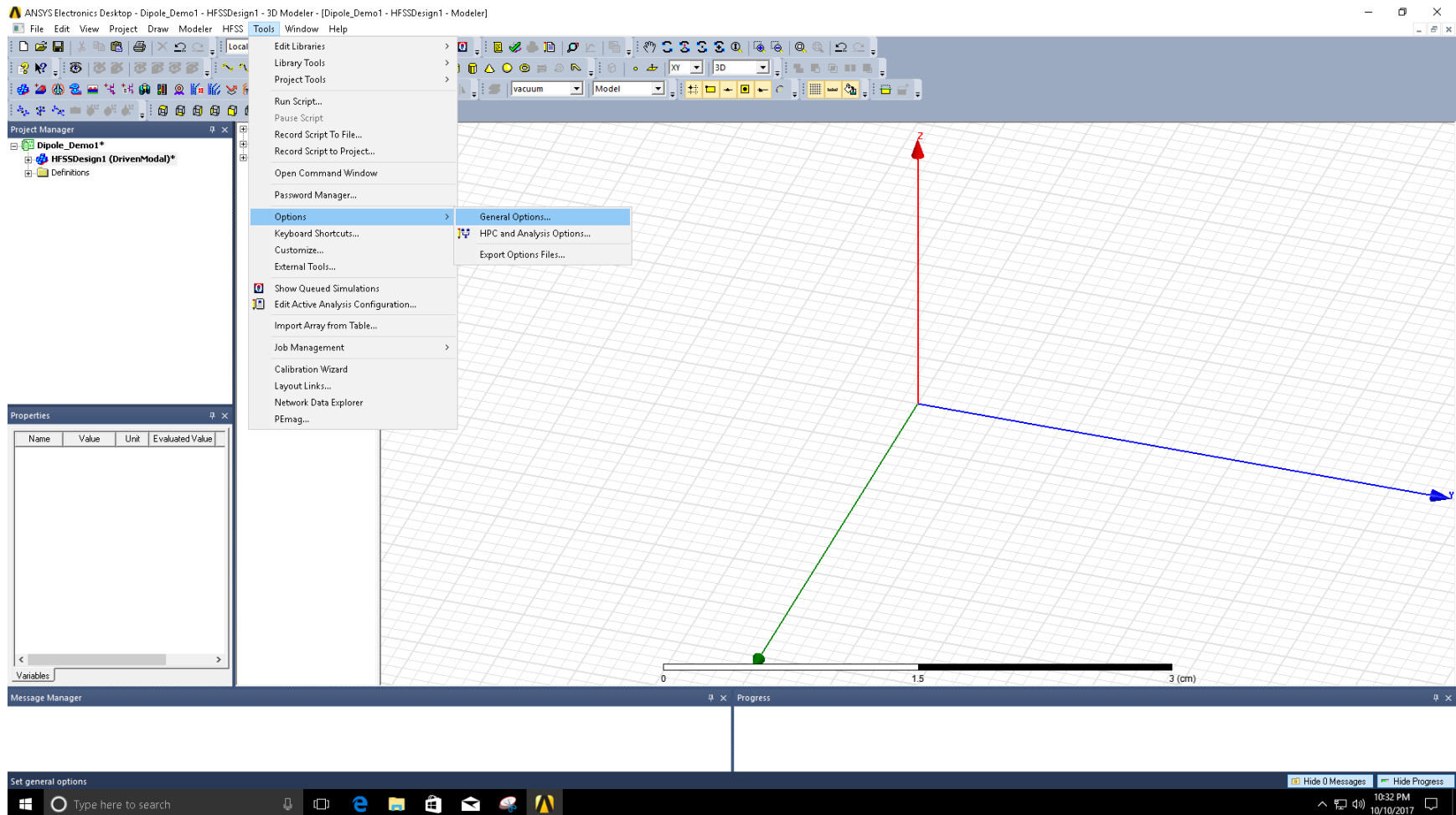
Set Dialog Data Entry Mode

Tools > Options > General Options



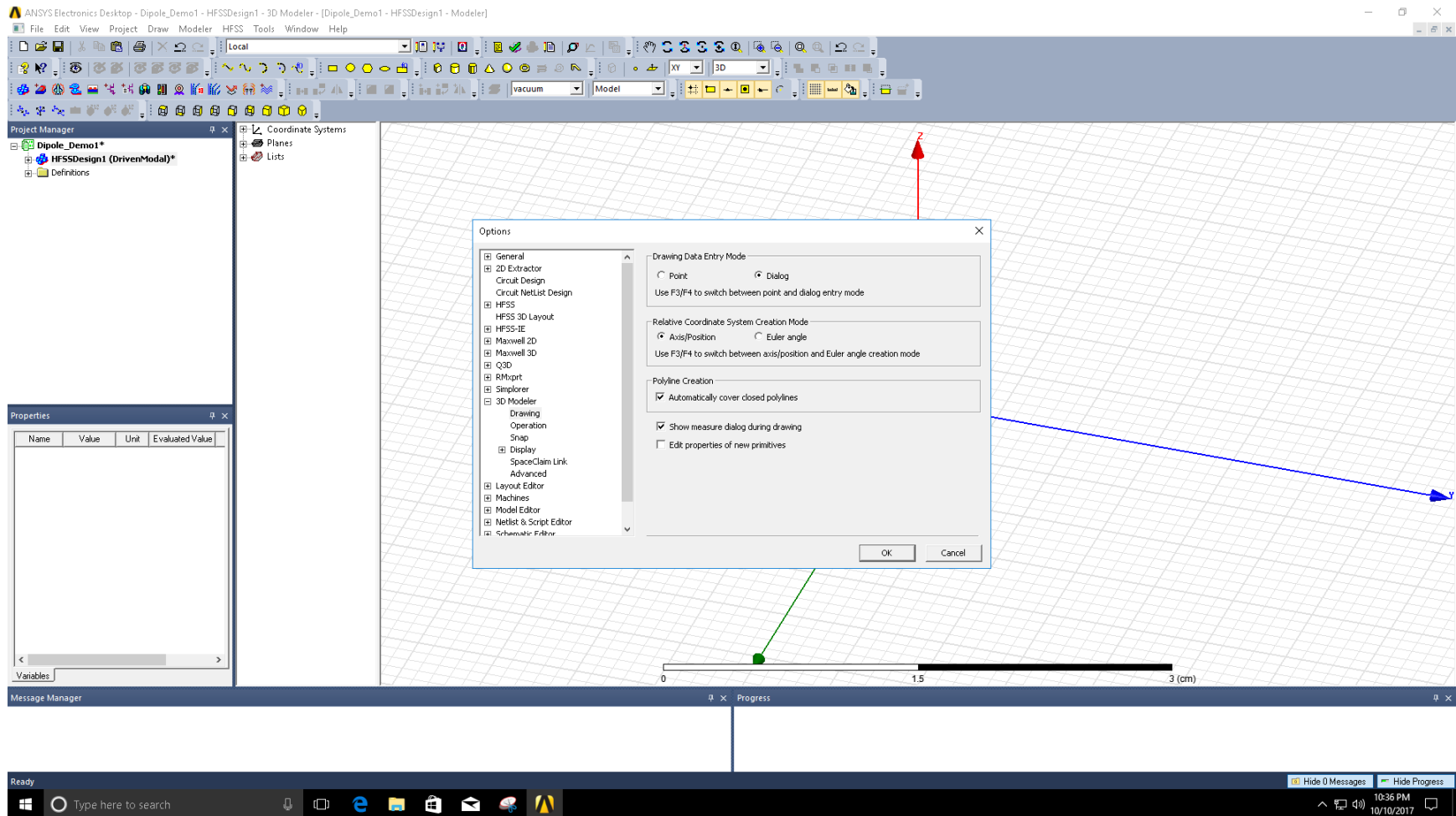
Set Dialog Data Entry Mode

Tools > Options > General Options



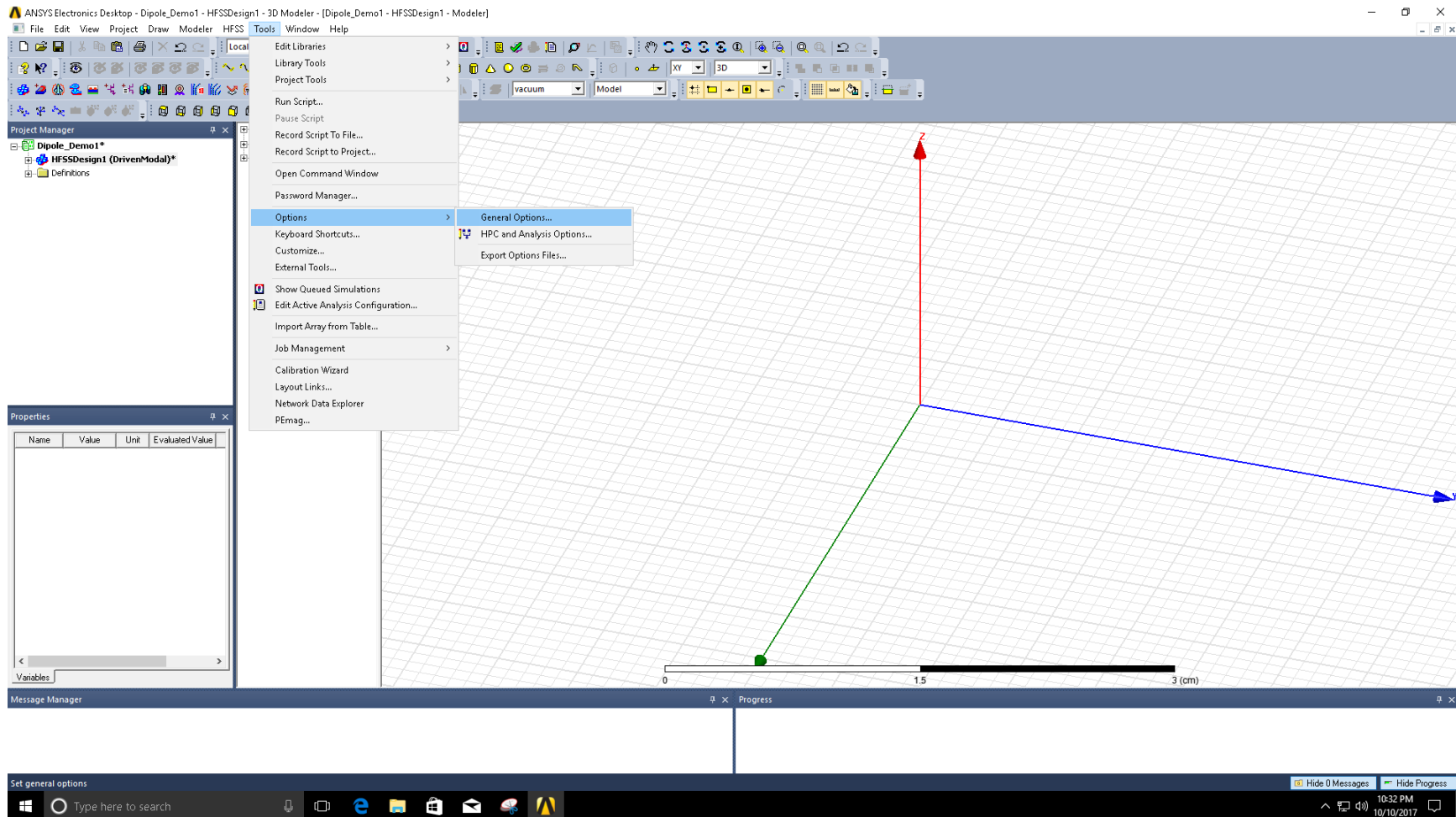
Set Dialog Data Entry Mode

3D Modeler > Drawing > Dialog



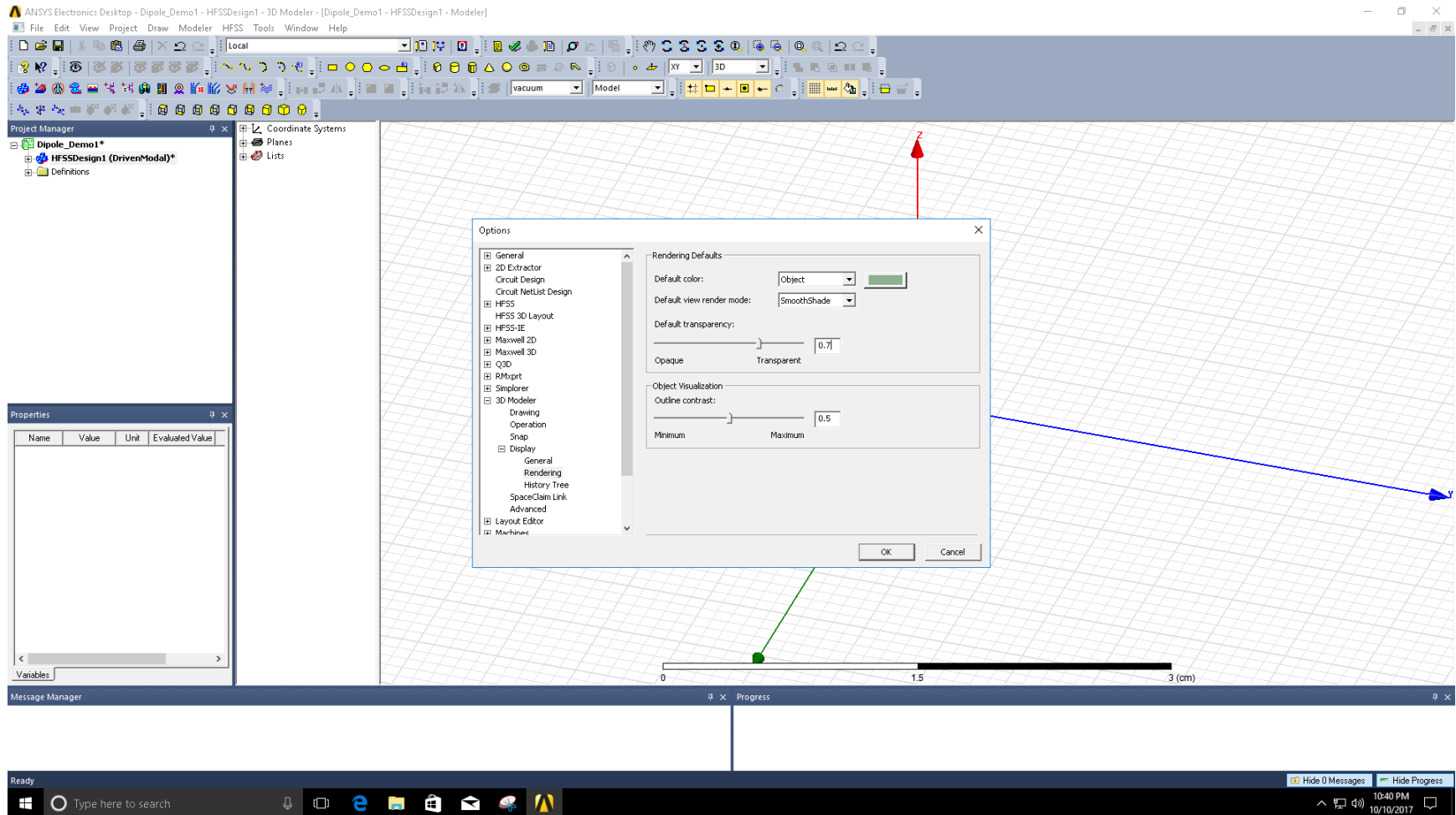
Set Default Transparency to 0.7

Tools > Options > General Options



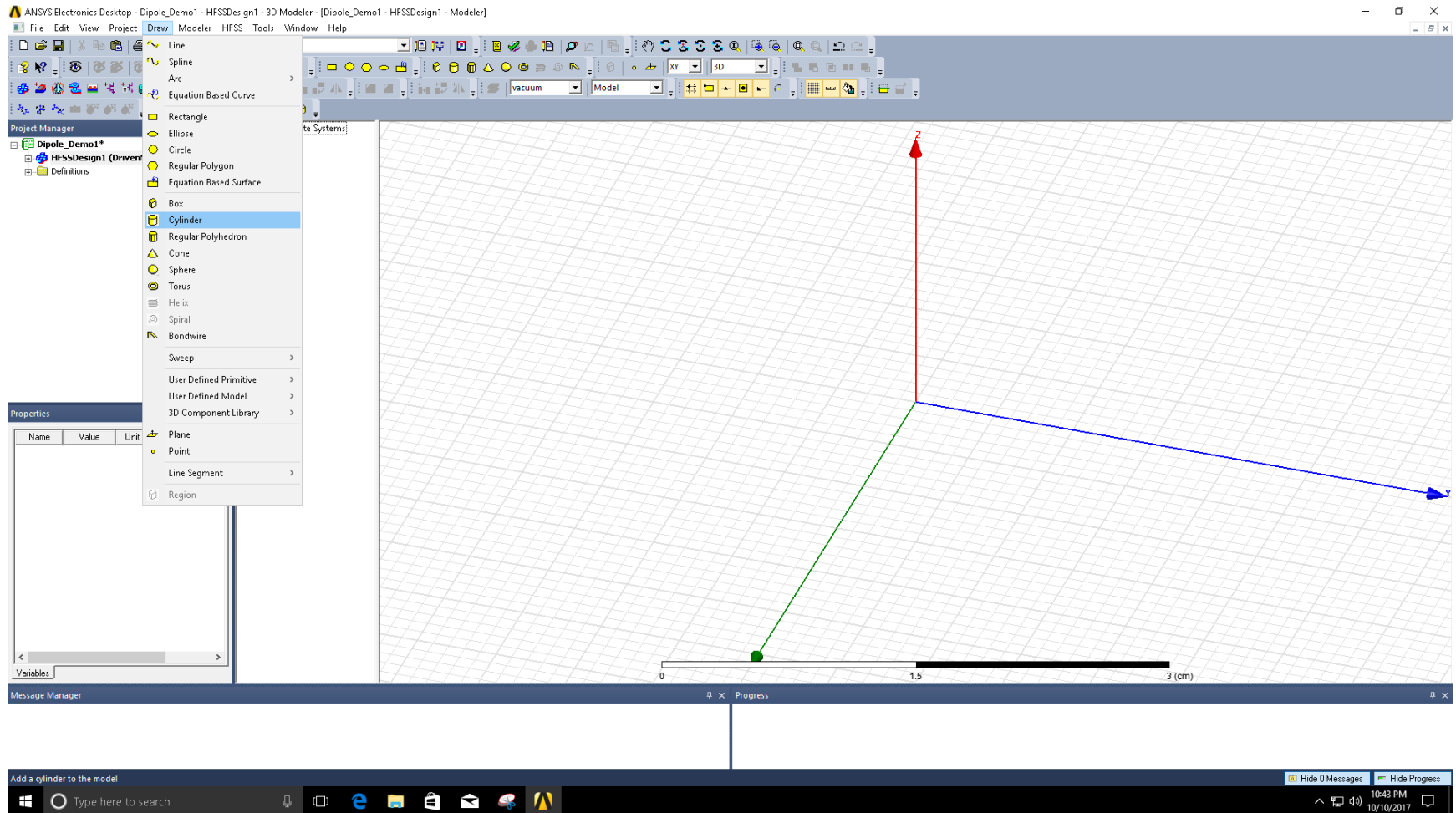
Set Default Transparency to 0.7

3D Modeler > Display > Rendering



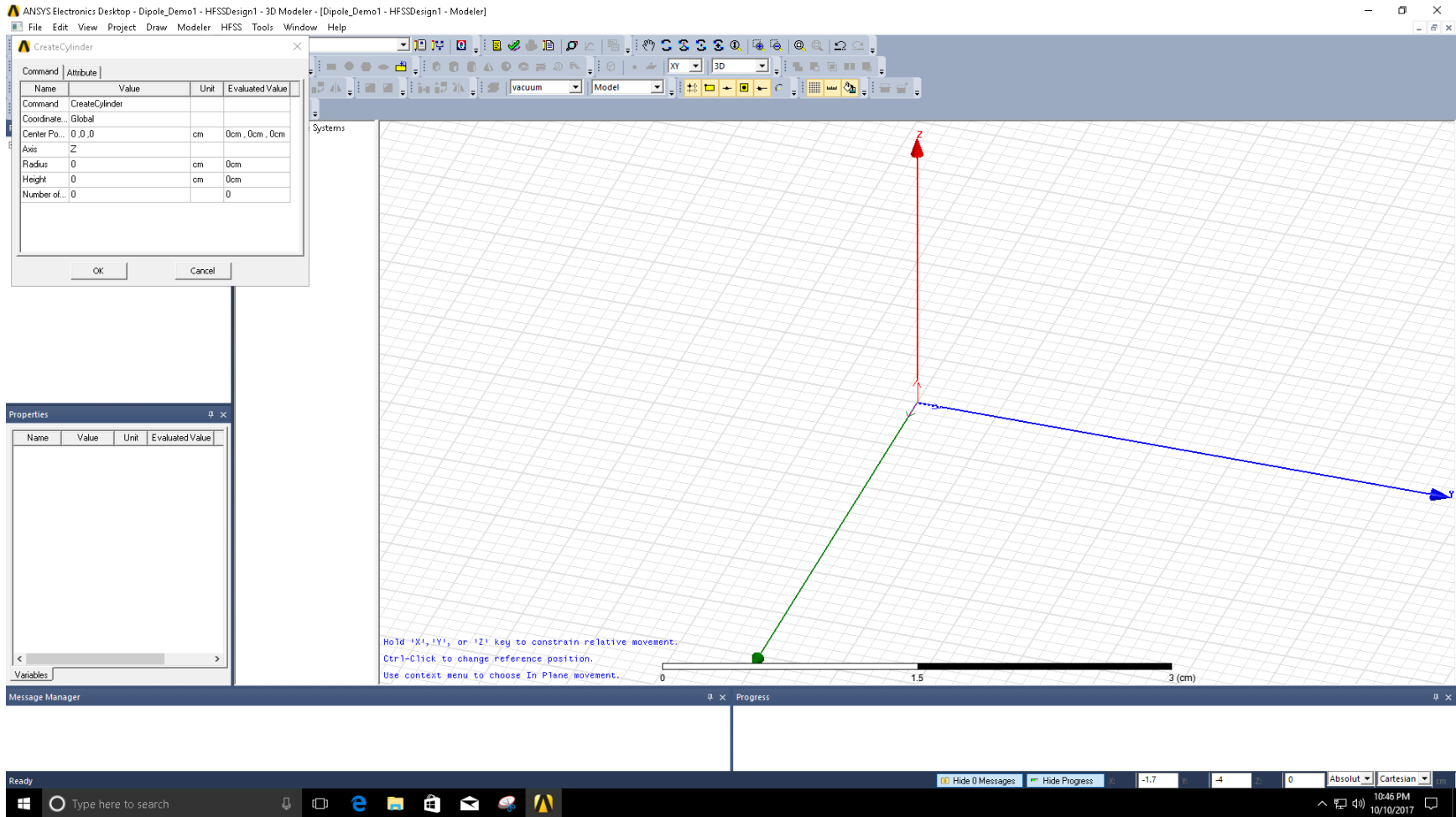
Drawing 3D Model

Draw > Cylinder



Drawing 3D Model

Create Cylinder Dialog Box Opens



Drawing 3D Model

Create Variables

ANSYS Electronics Desktop - Dipole_Demo1 - HFSSDesign1 - 3D Modeler - [Dipole_Demo1 - HFSSDesign1 - Modeler]

File Edit View Project Draw Modeler HFSS Tools Window Help

CreateCylinder

Name	Value	Unit	Evaluated Value
Command	CreateCylinder		
Coordinate...	Global		
Center Po...	0cm, 0cm, port_l/2	0cm, 0cm, 0.0...	
Axis	Z		
Radius	pole_rad	0.1cm	
Height	pole_l	1.5cm	
Number of...	0	0	

OK Cancel

Add Variable

Name: port_l

Unit Type: Length

Unit: cm

Value: 0.1

Type: Local Variable

OK Cancel

Add Variable

Name: pole_rad

Unit Type: Length

Unit: cm

Value: 0.1

Type: Local Variable

OK Cancel

Properties

Name	Value	Unit	Evaluated Value
port_l	0.1	cm	0.1cm
radius	0.1	cm	0.1cm
pole_l	1.5	cm	1.5cm
pole_r	0.1	cm	0.1cm
pole_rad	0.1	cm	0.1cm

Variables

Hold 'X', 'Y', or 'Z' key to constrain relative movement.
Ctrl-Click to change reference position.
Use context menu to choose In Plane movement.

Add Variable

Name: pole_l

Unit Type: Length

Unit: cm

Value: 1.5

Type: Local Variable

OK Cancel

Message Manager

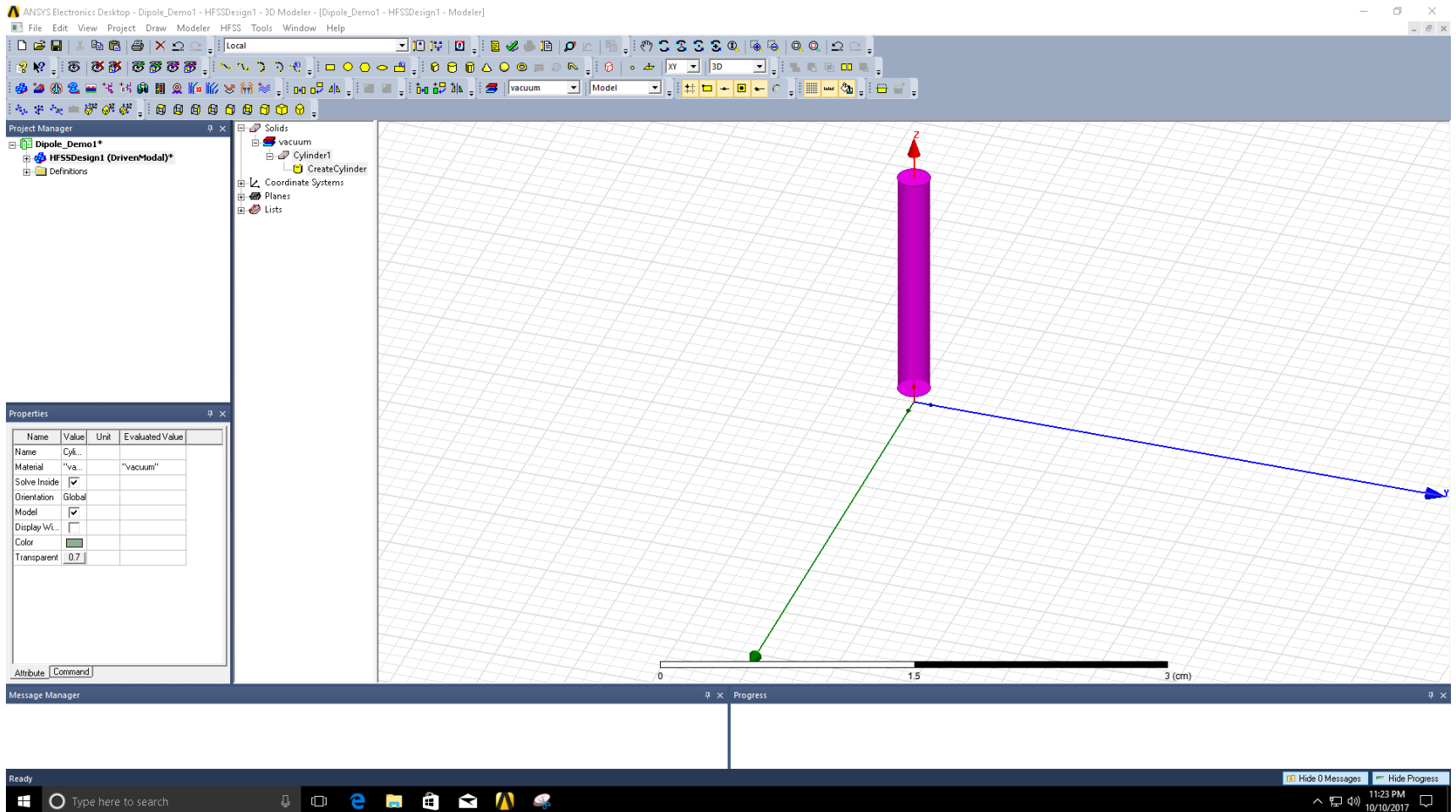
Ready

Type here to search

10/10/2017 11:21 PM

Drawing 3D Model

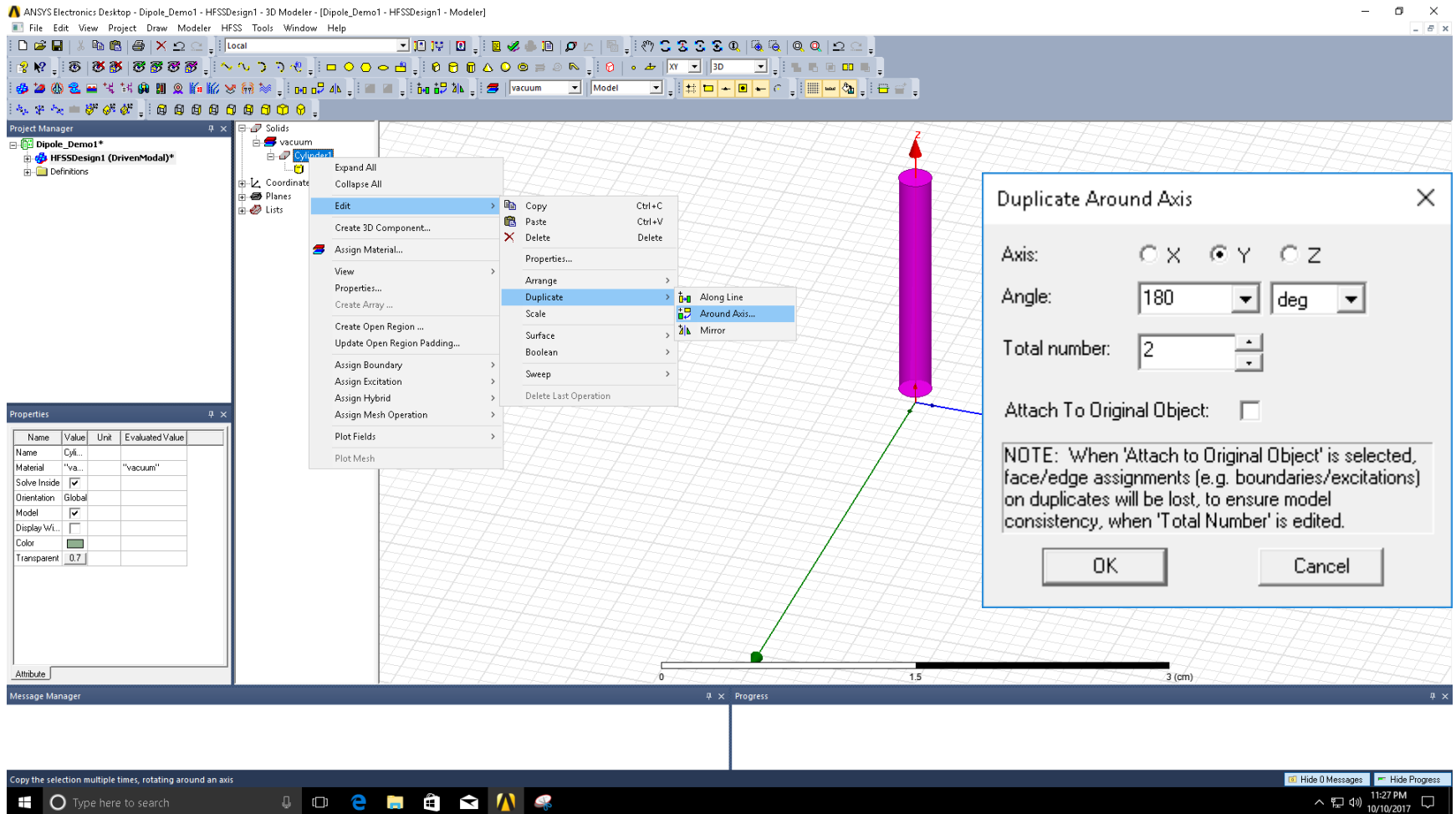
Cylinder1 Created



Drawing 3D Model

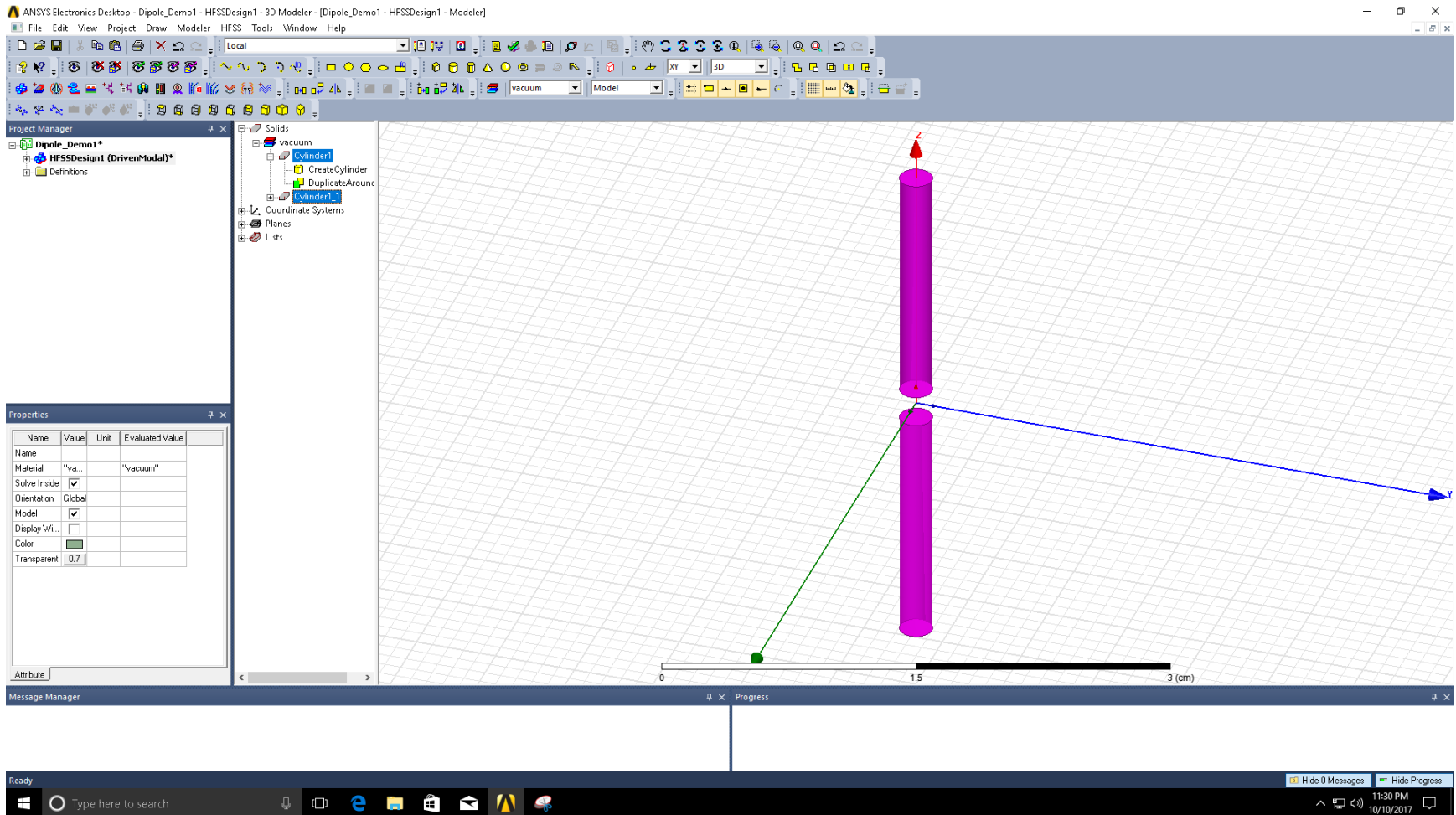
Duplicate Cylinder 1 to create second pole

Cylinder1 >(right click) Edit > Duplicate > Around Axis



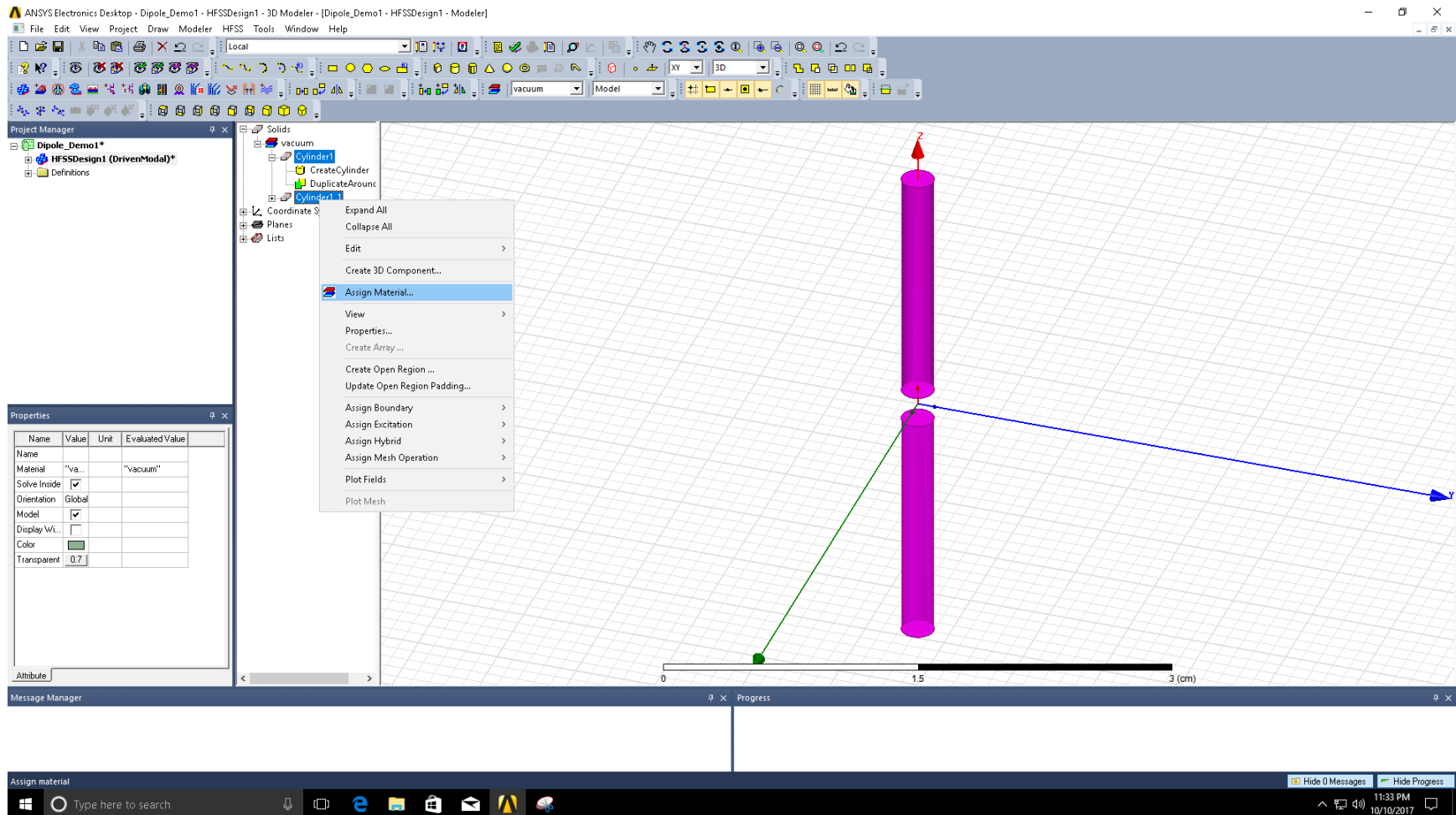
Drawing 3D Model

Cylinder1_1 created



Assigning Materials

Select Cylinder1 and Cylinder1_1 > (Right Click) > Assign Materials



Assigning Materials

Search Copper > Select > OK

Select Definition

Materials | Material Filters

Search Parameters

Search by Name

Copper

Search

Search Criteria

☒ by Name ☐ by Property

Relative Permittivity

Libraries ☒ Show Project definitions ☐ Show all libraries

[sys] Materials

[sys] RMxppt

	Name	Location	Origin	Relative Permittivity	Relative Permeability	B [^] Conc
	cast_iron	SysLibrary	Materials	1	60	1500000sien
	chromium	SysLibrary	Materials	1	1	7600000sien
	cobalt	SysLibrary	Materials	1	250	10000000sie
	copper	SysLibrary	Materials	1	0.999991	58000000sie
	coming_glass	SysLibrary	Materials	5.75	1	0
	cyanate_ester	SysLibrary	Materials	3.8	1	0
	diamond	SysLibrary	Materials	16.5	1	0
	diamond_hi_pres	SysLibrary	Materials	5.7	1	0
	diamond_pl_cvd	SysLibrary	Materials	3.5	1	0
	Dupont Type 100 HN Film (tm)	SysLibrary	Materials	3.5	1	0
	Duroid (tm)	SysLibrary	Materials	2.2	1	0

View/Edit Materials... Add Material... Clone Material(s) Remove Material(s) Export to Library...

OK Cancel Help

Create Port

Draw > Rectangle > OK

ANSYS Electronics Desktop - Dipole_Demo1 - HFSSDesign1 - 3D Modeler - [Dipole_Demo1 - HFSSDesign1 - Modeler]

File Edit View Project Draw Modeler HFSS Tools Window Help

Project Manager

Dipole_Demo1*

HFSSDesign1 (Driven)

Definitions

Properties

Name	Value	Unit	Eval
Name			
Material	"co..."		"cop..."
Solve Inside	<input type="checkbox"/>		
Orientation	Global		
Model	<input checked="" type="checkbox"/>		
Display W/L...	<input type="checkbox"/>		
Color			
Transparent	0.7		

Attribute

Message Manager

Dipole_Demo1 [C:/Users/sxd9613/Desktop/HFSS/]

HFSSDesign1 (DrivenModel)

*Solve inside for object 'Cylinder1' is unset, due to material assignment change. (11:36:17 PM Oct 10, 2017)

*Solve inside for object 'Cylinder1_1' is unset, due to material assignment change. (11:36:17 PM Oct 10, 2017)

Add a rectangle to the model

Hide 2 Messages Hide Progress

11:37 PM 10/10/2017

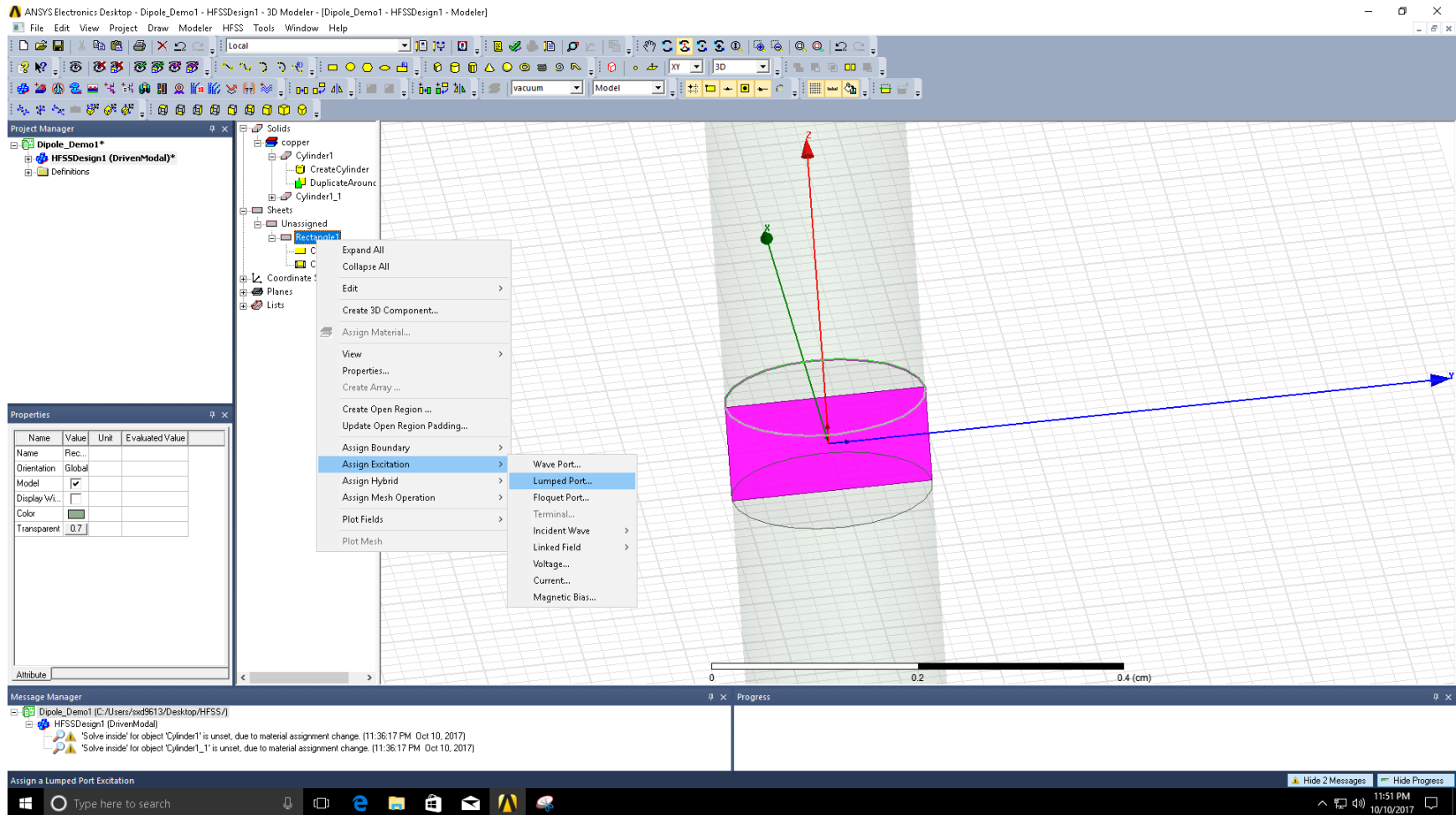
CreateRectangle

Name	Value	Unit	Evaluated Value
Command	CreateRectangle		
Coordinate...	Global		
Position	0cm, -pole_rad, -port_l/2		0cm, -0.1cm, ...
Axis	X		
Width	2*pole_rad		0.2cm
Length	port_l		0.1cm

OK Cancel

Create Port

Select Rectangle1 > (right click) > Assign Excitation > Lumped Port



Create Port

Give Name Port1 > Next > Integration Line > New Line

Lumped Port : General

Name:

Full Port Impedance

Resistance: ohm

Reactance: ohm

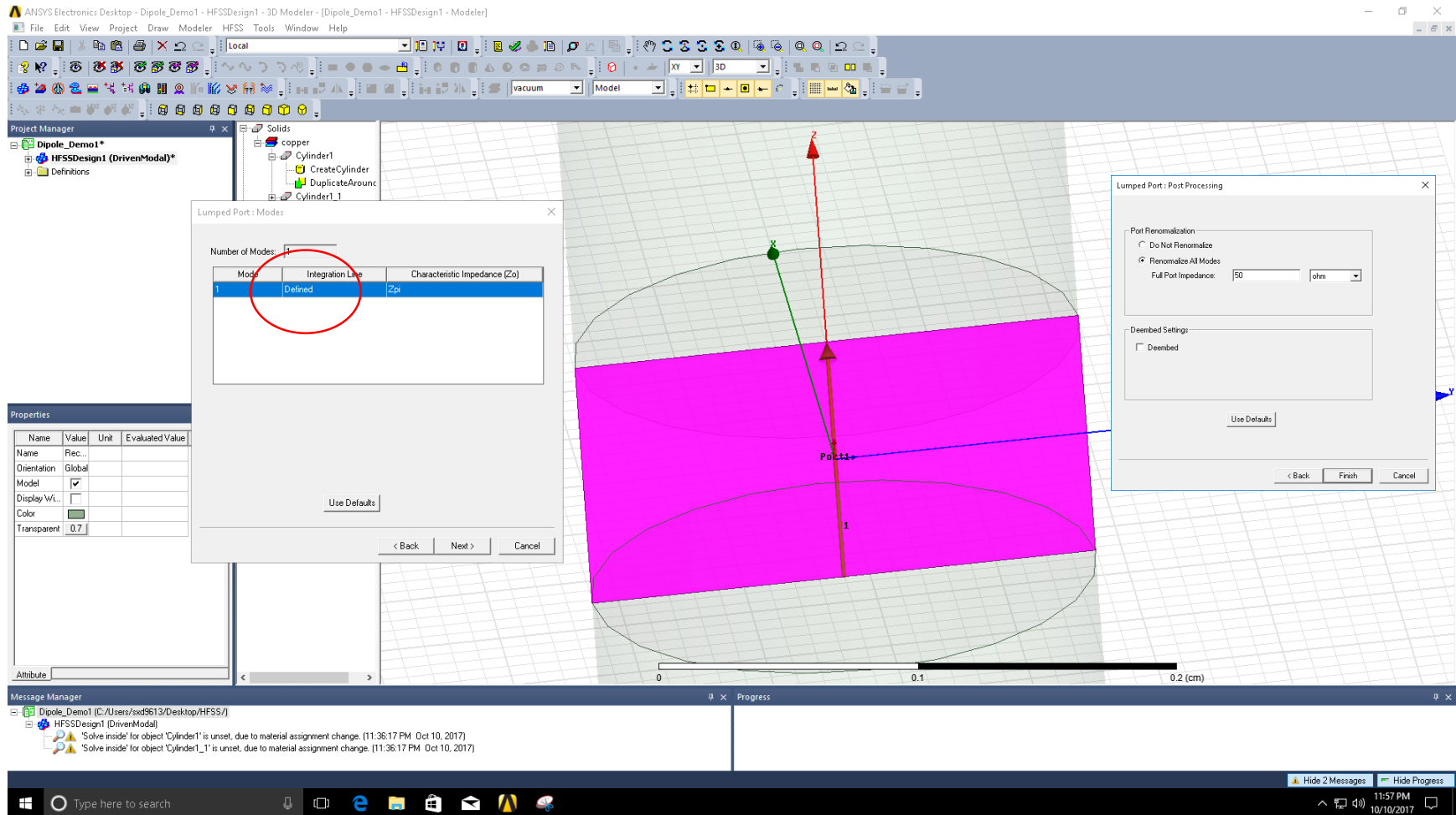
Lumped Port : Modes

Number of Modes:

Mode	Integration Line	Characteristic Impedance (Z_0)
1	None None New Line...	Zpi

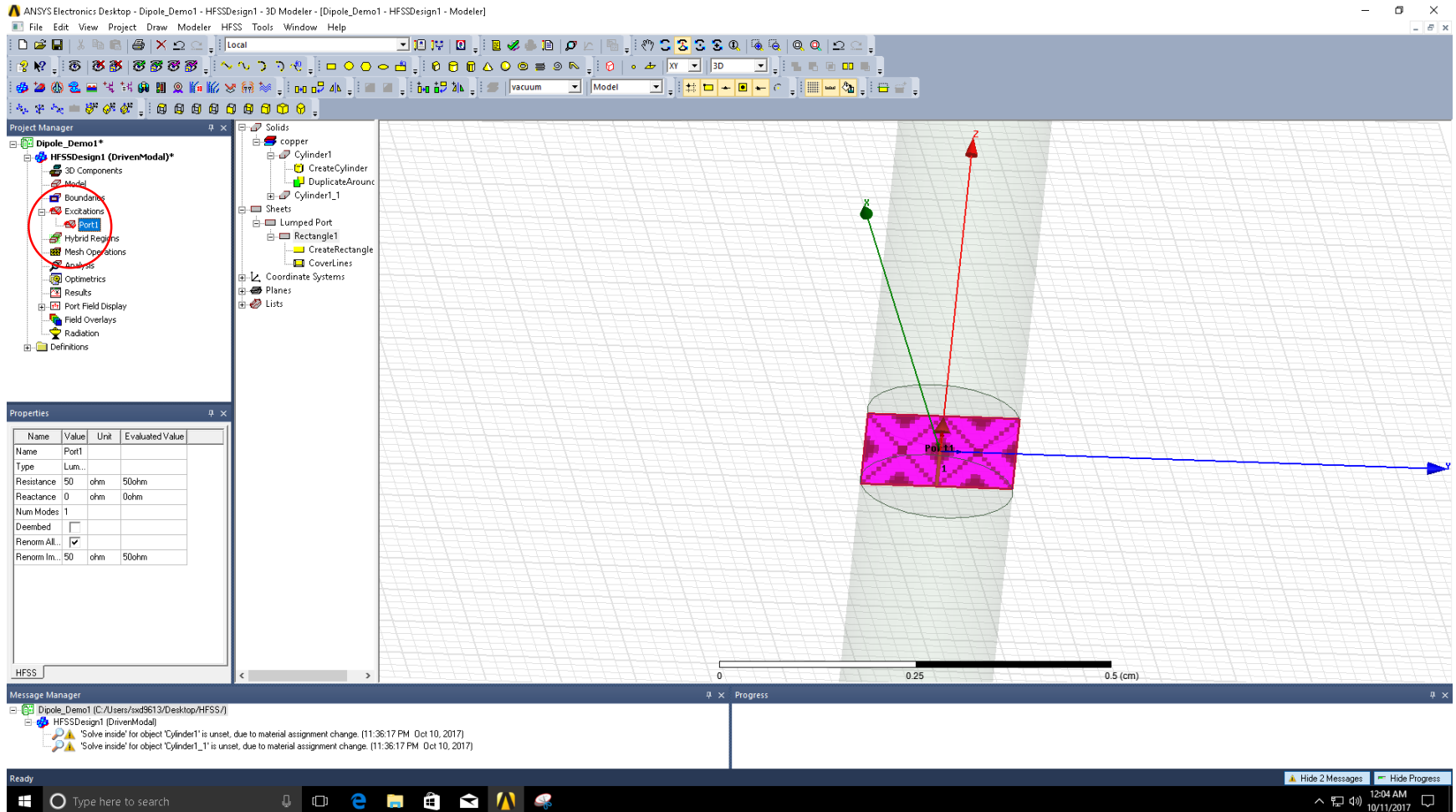
Create Port

Draw New Integration line along the center of the port between antenna arms >
Next > Renormalize all modes to 50 Ohm > Finish



Create Port

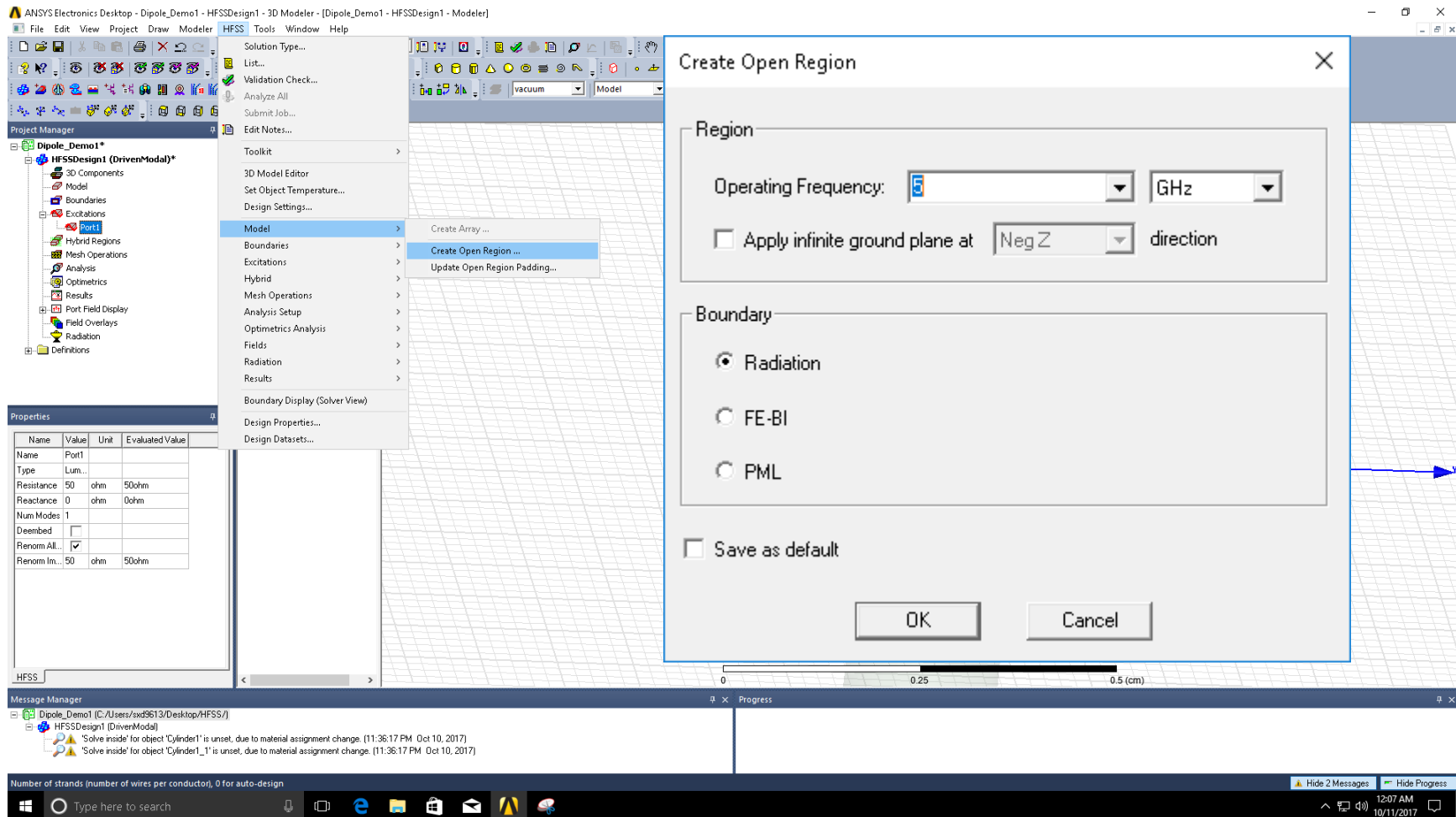
Port assignment should look like this



Create Radiation Boundary

HFSS > Model > Create Open Region

Enter Operation Frequency and select radiation boundary



ANSYS Electronics Desktop - Dipole_Demo1 - HFSSDesign1 - 3D Modeler - [Dipole_Demo1 - HFSSDesign1 - Modeler]

File Edit View Project Draw Modeler HFSS Tools Window Help

Solution Type...
List...
Validation Check...
Analyze All
Submit Job...
Edit Notes...

Project Manager

Dipole_Demo1*

HFSSDesign1 (DrivenModal)*

3D Components
Model
Boundaries
Excitations
Hybrid Regions
Mesh Operations
Analysis
Optimetrics
Results
Port Field Display
Field Overlays
Radiation
Definitions

Toolkit

3D Model Editor
Set Object Temperature...
Design Settings...

Model

Create Array...
Create Open Region...
Update Open Region Padding...

Boundaries
Excitations
Hybrid
Mesh Operations
Analysis Setup
Optimetrics Analysis
Fields
Radiation
Results
Boundary Display (Solver View)
Design Properties...
Design Datasets...

Properties

Name	Value	Unit	Evaluated Value
Name	Port1		
Type	Lum...		
Resistance	50	ohm	50ohm
Reactance	0	ohm	0ohm
Num Modes	1		
Deembed	<input type="checkbox"/>		
Renorm All...	<input checked="" type="checkbox"/>		
Renorm Im...	50	ohm	50ohm

HFSS

Message Manager

Dipole_Demo1 (C:/Users/svd3613/Desktop/HFSS/)

HFSSDesign1 (DrivenModal)

'Solve inside' for object 'Cylinder1' is unset, due to material assignment change. (11:36:17 PM Oct 10, 2017)

'Solve inside' for object 'Cylinder_1' is unset, due to material assignment change. (11:36:17 PM Oct 10, 2017)

Number of strands (number of wires per conductor, 0 for auto-design)

Type here to search

Progress

0 0.25 0.5 (cm)

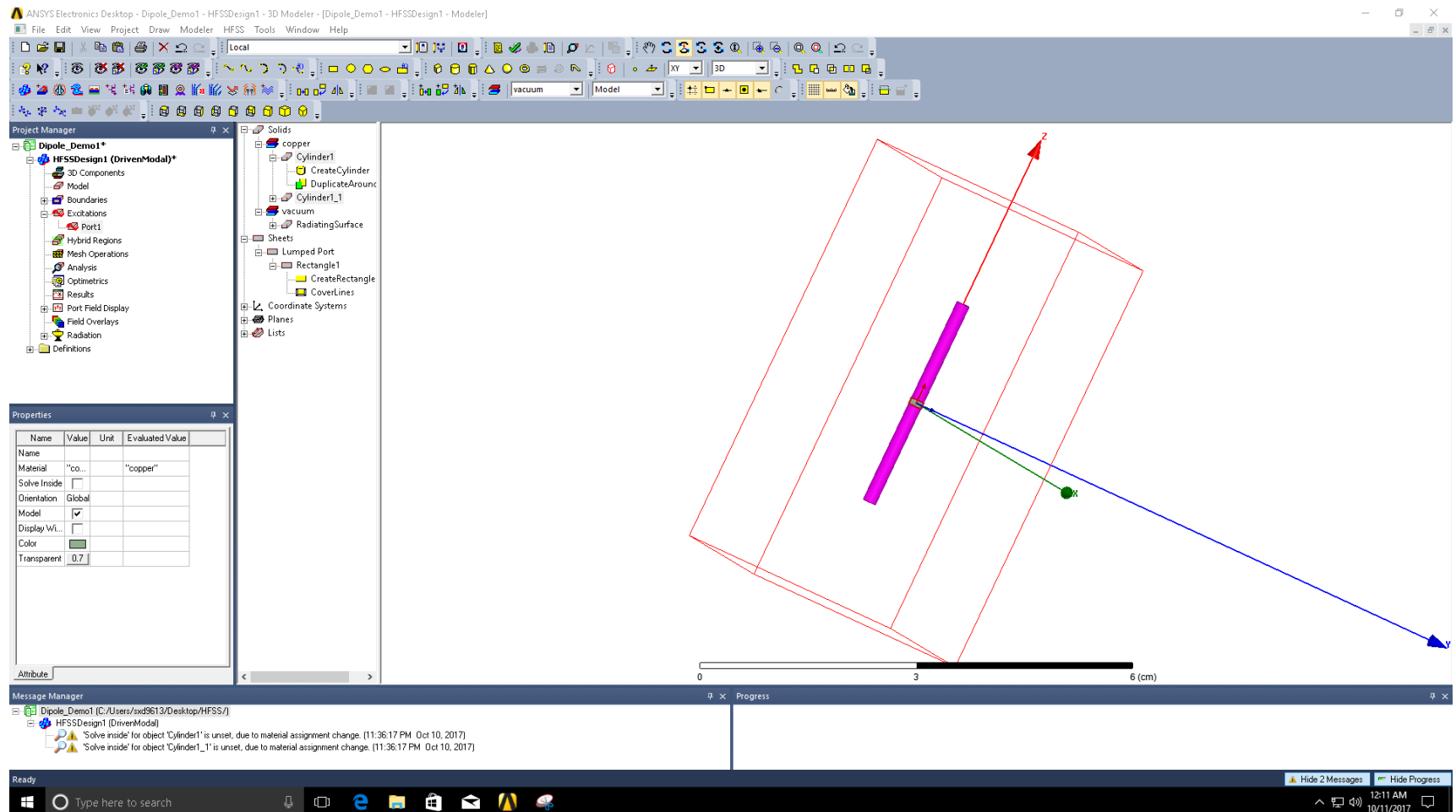
OK Cancel

Hide 2 Messages Hide Progress

12:07 AM 10/11/2017

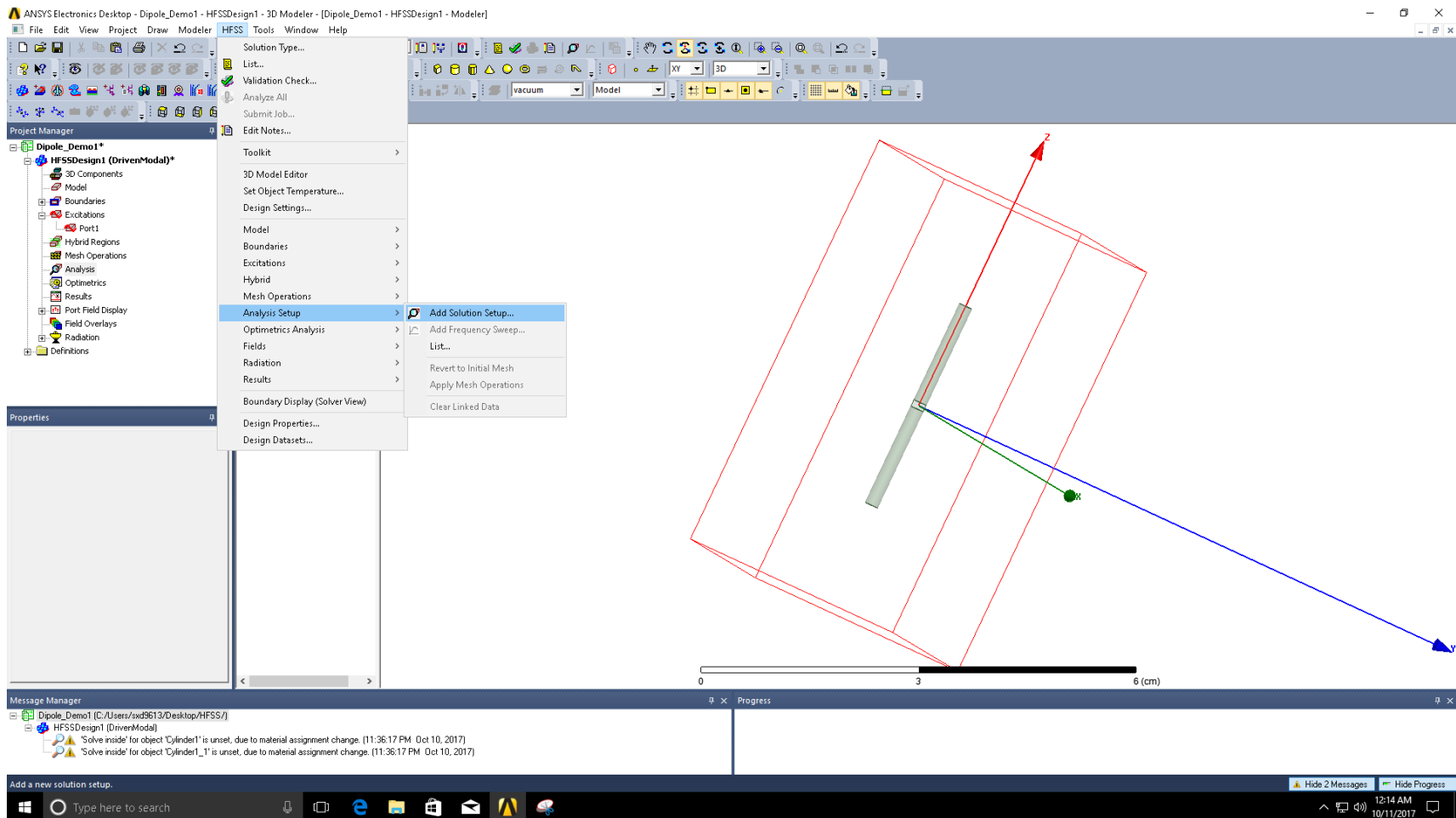
Create Radiation Boundary

Vacuum Radiating Surface Created



Solution Setup

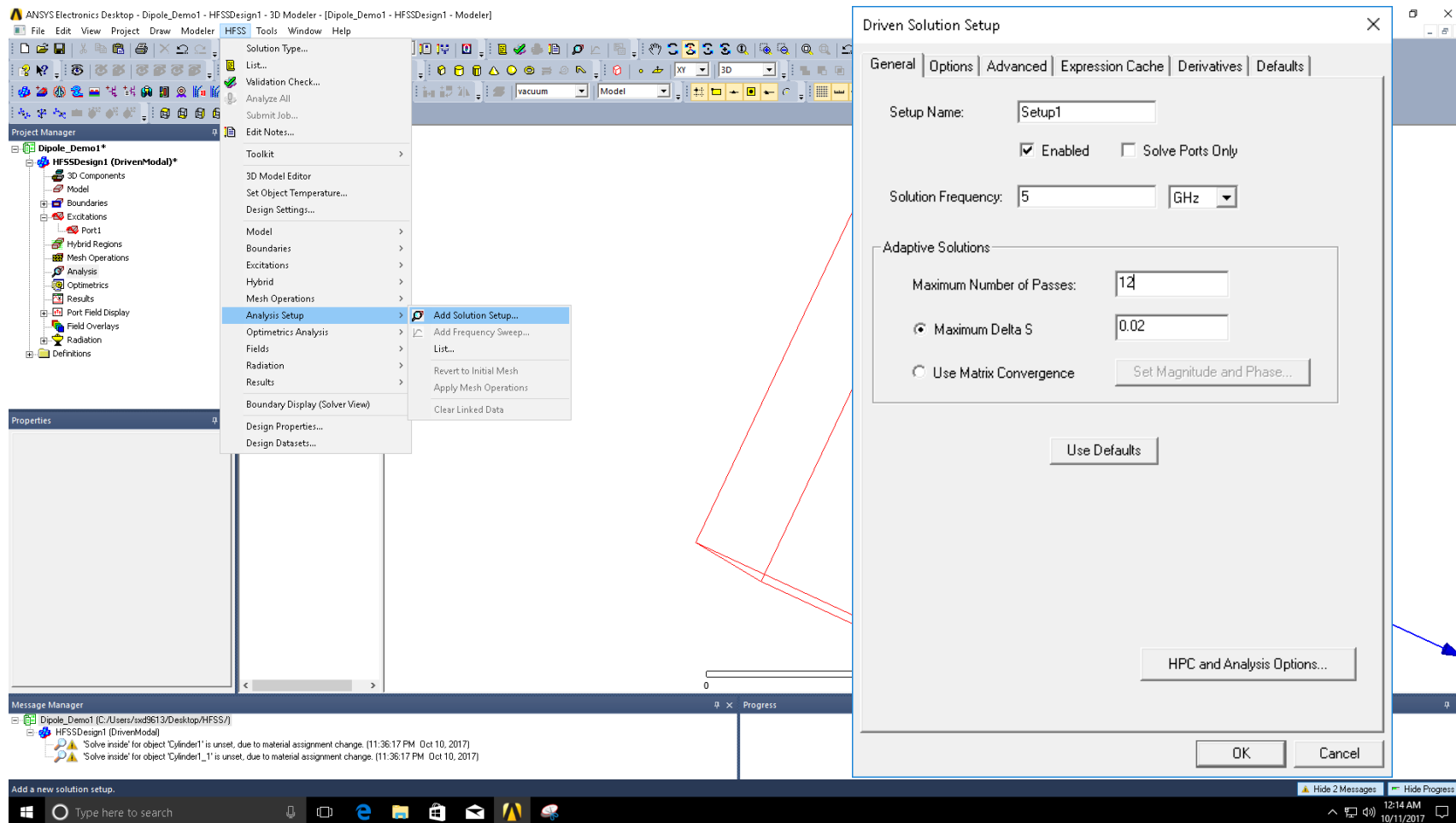
HFSS > Analysis Setup > Add Solution Setup



Solution Setup

HFSS > Analysis Setup > Add Solution Setup

Select solution frequency , Maximum Number of Passes 12



ANSYS Electronics Desktop - Dipole_Demo1 - HFSSDesign1 - 3D Modeler - [Dipole_Demo1 - HFSSDesign1 - Modeler]

File Edit View Project Draw Modeler HFSS Tools Window Help

Project Manager

Dipole_Demo1*

HFSSDesign1 (DrivenModal)*

Model

Boundaries

Excitations

Port1

Hybrid Regions

Mesh Operations

Analysis

Optimetrics

Results

Port Field Display

Field Overlays

Radiation

Definitions

Properties

Message Manager

Dipole_Demo1 (C:\Users\sxd9613\Desktop\HFSS\)

HFSSDesign1 (DrivenModal)

'Solve inside' for object 'Cylinder1' is unset, due to material assignment change. (11:36:17 PM Oct 10, 2017)

'Solve inside' for object 'Cylinder1_1' is unset, due to material assignment change. (11:36:17 PM Oct 10, 2017)

Add a new solution setup.

Driven Solution Setup

General Options Advanced Expression Cache Derivatives Defaults

Setup Name: Setup1

☒ Enabled ☐ Solve Ports Only

Solution Frequency: 5 GHz

Adaptive Solutions

Maximum Number of Passes: 12

☒ Maximum Delta S 0.02

☐ Use Matrix Convergence Set Magnitude and Phase...

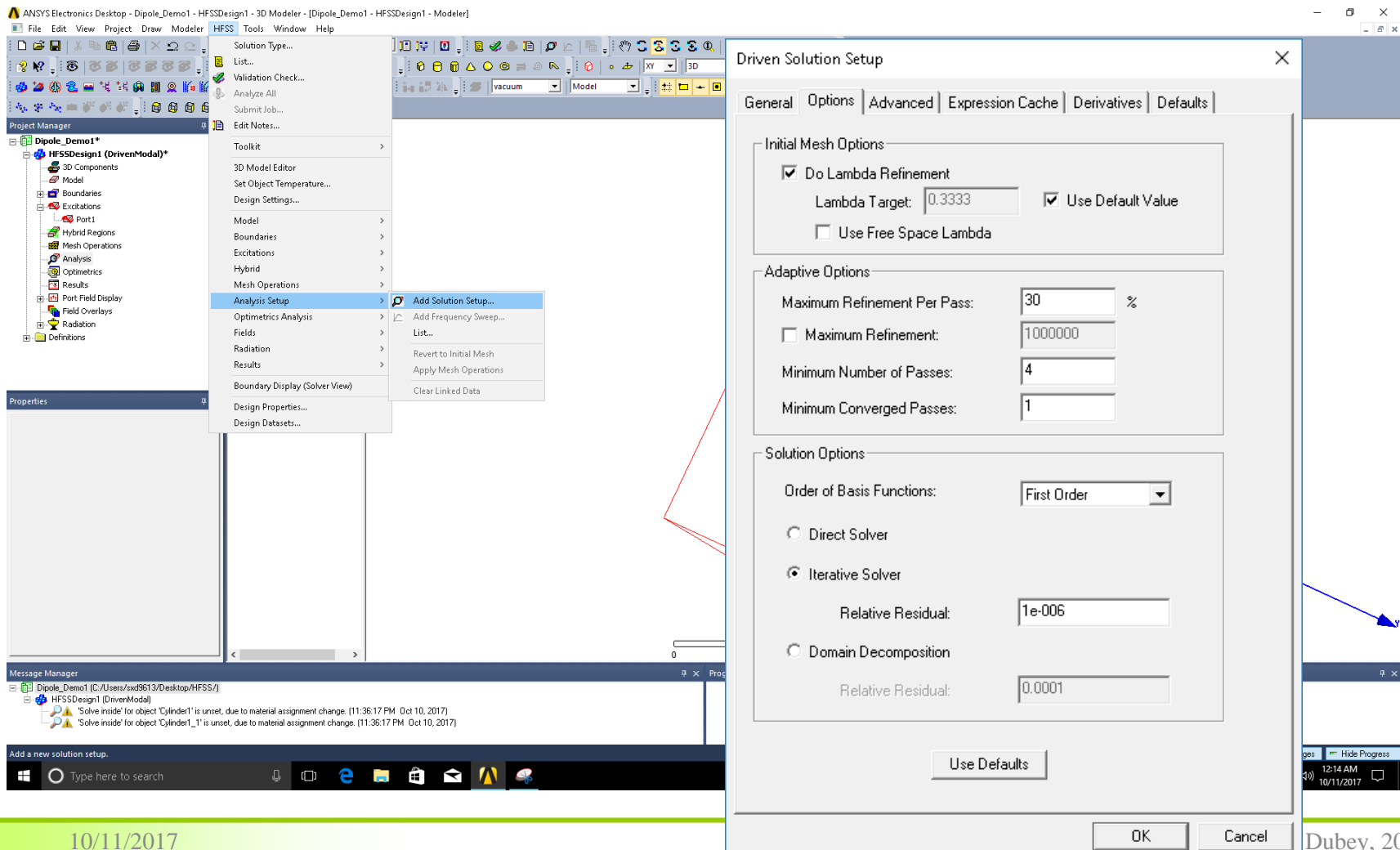
Use Defaults

HPC and Analysis Options...

OK Cancel

Solution Setup

In option tab enter Minimum Number of Passes 4, Solution option Iterative Solver



ANSYS Electronics Desktop - Dipole_Demo1 - HFSSDesign1 - 3D Modeler - [Dipole_Demo1 - HFSSDesign1 - Modeler]

File Edit View Project Draw Modeler HFSS Tools Window Help

Project Manager

Dipole_Demo1*

HFSSDesign1 (DrivenModal)*

3D Components

Model

Boundaries

Excitations

Port1

Hybrid Regions

Mesh Operations

Analysis

Optimetrics

Results

Port Field Display

Field Overlays

Radiation

Definitions

Properties

Design Settings...

Model

Boundaries

Excitations

Hybrid

Mesh Operations

Analysis Setup

Optimetrics Analysis

Fields

Radiation

Results

Boundary Display (Solver View)

Design Properties...

Design Datasets...

Add Solution Setup...

Add Frequency Sweep...

List...

Revert to Initial Mesh

Apply Mesh Operations

Clear Linked Data

Driven Solution Setup

General Options Advanced Expression Cache Derivatives Defaults

Initial Mesh Options

☒ Do Lambda Refinement

Lambda Target: 0.3333

☒ Use Default Value

☐ Use Free Space Lambda

Adaptive Options

Maximum Refinement Per Pass: 30 %

☐ Maximum Refinement: 1000000

Minimum Number of Passes: 4

Minimum Converged Passes: 1

Solution Options

Order of Basis Functions: First Order

☐ Direct Solver

☒ Iterative Solver

Relative Residual: 1e-006

☐ Domain Decomposition

Relative Residual: 0.0001

Use Defaults

OK Cancel

Message Manager

Dipole_Demo1 (C:\Users\sxd9613\Desktop\HFSS\)

HFSSDesign1 (DrivenModal)

'Solve inside' for object 'Cylinder1' is unset, due to material assignment change. (11:36:17 PM Oct 10, 2017)

'Solve inside' for object 'Cylinder1_1' is unset, due to material assignment change. (11:36:17 PM Oct 10, 2017)

Add a new solution setup.

Type here to search

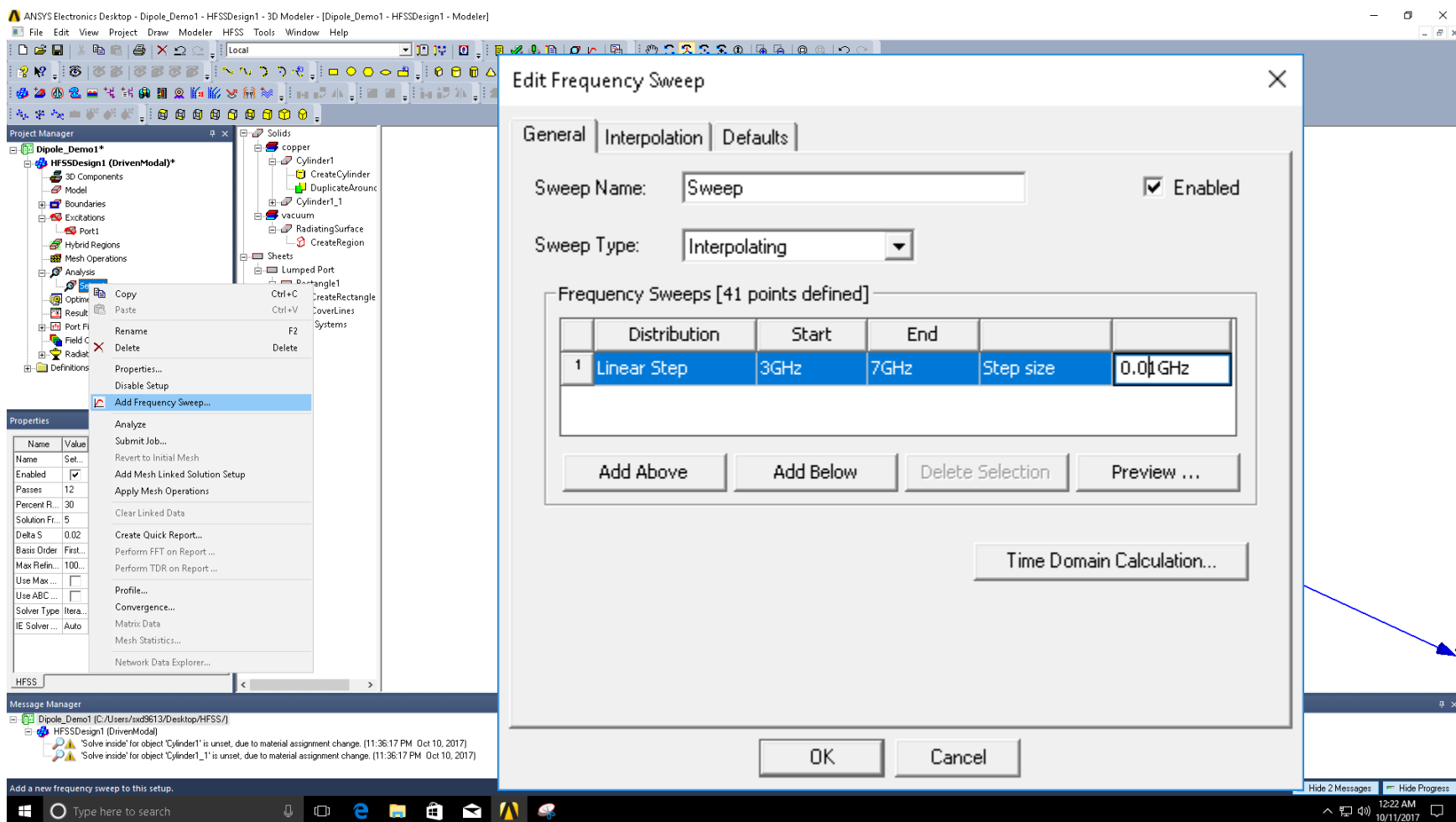
10/11/2017

Dubey, 2017

34

Add Frequency Sweep

Right click on newly created Setup1 from Analysis tab of project manger and add Frequency Sweep > Provide the start, end and step size as 3, 7 and 0.01 GHz



ANSYS Electronics Desktop - Dipole_Demo1 - HFSSDesign1 - 3D Modeler - [Dipole_Demo1 - HFSSDesign1 - Modeler]

File Edit View Project Draw Modeler HFSS Tools Window Help

Project Manager

Dipole_Demo1*

HFSSDesign1 (DrivenModel)*

3D Components

Model

Boundaries

Excitations

Port1

Hybrid Regions

Mesh Operations

Analysis

Optimize

Result

Port F1

Field C

Radiat

Definitions

Properties

Name Value

Enabled ☒

Passes 12

Percent R... 30

Solution Fr... 5

Delta S 0.02

Basis Order First...

Max Refin... 100...

Use Max... ☐

Use ABC... ☐

Solver Type Itera...

IE Solver... Auto

HFSS

Message Manager

Dipole_Demo1 [C:/Users/oxd3613/Desktop/HFSS/]

HFSSDesign1 [DrivenModel]

Solve inside for object Cylinder1 is unset, due to material assignment change. (11:36:17 PM Oct 10, 2017)

Solve inside for object Cylinder1_1 is unset, due to material assignment change. (11:36:17 PM Oct 10, 2017)

Add a new frequency sweep to this setup.

Windows Taskbar: Type here to search, 10/11/2017, 12:22 AM

Save and Validation

Save the project > HFSS > Validation Check

Validation Check: Dipole_Demo1 - HFSSDesign1

✓ HFSSDesign1

Validation Check completed.

- ✓ Design Settings
- ✓ 3D Model
- ✓ Boundaries and Excitations
- ✓ Mesh Operations
- ✓ Analysis Setup
- ✓ Optimetrics
- ✓ Radiation

Buttons: Abort, Close

HFSS Properties Panel:

Name	Value	Unit	Evaluated Value
Name	Set...		
Enabled	<input checked="" type="checkbox"/>		
Passes	12		
Percent R...	30		
Solution Fr...	5	GHz	
Delta S	0.02		
Basis Order	First...		
Max Refin...	100...		
Use Max ...	<input type="checkbox"/>		
Use ABC ...	<input type="checkbox"/>		
Solver Type	Itera...		
IE Solver ...	Auto		

Message Manager:

- Dipole_Demo1 (C:/Users/sxd9613/Desktop/HFSS/)
- HFSSDesign1 (DriverModel)
- 'Solve inside' for object 'Cylinder1' is unset, due to material assignment change. (11:36:17 PM Oct 10, 2017)
- 'Solve inside' for object 'Cylinder1_1' is unset, due to material assignment change. (11:36:17 PM Oct 10, 2017)

Perform validation check on design setup.

Windows Taskbar: 10/11/2017 12:27 AM

Run Simulation

HFSS > Analyze All

The screenshot displays the ANSYS Electronics Desktop interface. The top menu bar shows 'HFSS' > 'Analyze All' selected. The left sidebar shows the 'Project Manager' tree with 'Dipole_Demo1*' and 'HFSSDesign1 (DrivenModal)*' expanded. The 'Properties' panel on the left shows the 'HFSS' properties, including 'Name', 'Enabled', 'Passes', 'Percent R...', 'Solution Fr...', 'Delta S', 'Basis Order', 'Max Refin...', 'Use Max...', 'Use ABC...', 'Solver Type', and 'IE Solver...'. The main 3D view shows a dipole antenna model within a red wireframe box. The bottom status bar shows the 'Message Manager' with several messages indicating successful simulation completion.

ANSYS Electronics Desktop - Dipole_Demo1 - HFSSDesign1 - 3D Modeler - SOLVED - [Dipole_Demo1 - HFSSDesign1 - Modeler]

File Edit View Project Draw Modeler HFSS Tools Window Help

Project Manager

Dipole_Demo1*

HFSSDesign1 (DrivenModal)*

3D Components

Model

Boundaries

Excitations

Port1

Hybrid Regions

Mesh Operations

Analysis

Setup1

Optimetrics

Results

Port Field Display

Field Overlays

Radiation

Definitions

Properties

Name	Value	Unit	Evaluated Value
Name	Set...		
Enabled	<input checked="" type="checkbox"/>		
Passes	12		
Percent R...	30		
Solution Fr...	5	GHz	
Delta S	0.02		
Basis Order	First...		
Max Refin...	100...		
Use Max...	<input type="checkbox"/>		
Use ABC...	<input type="checkbox"/>		
Solver Type	Itera...		
IE Solver...	Auto		

HFSS

Message Manager

Normal completion of simulation on server: Local Machine, (12:28:44 AM Oct 11, 2017)

Solution Setup1: Sweep, interpolating sweep converged and passive within tolerance at all sampling frequencies. (12:29:16 AM Oct 11, 2017)

Normal completion of simulation on server: Local Machine, (12:29:16 AM Oct 11, 2017)

Solution Setup1: Sweep, interpolating sweep converged and passive within tolerance at all sampling frequencies. (12:29:24 AM Oct 11, 2017)

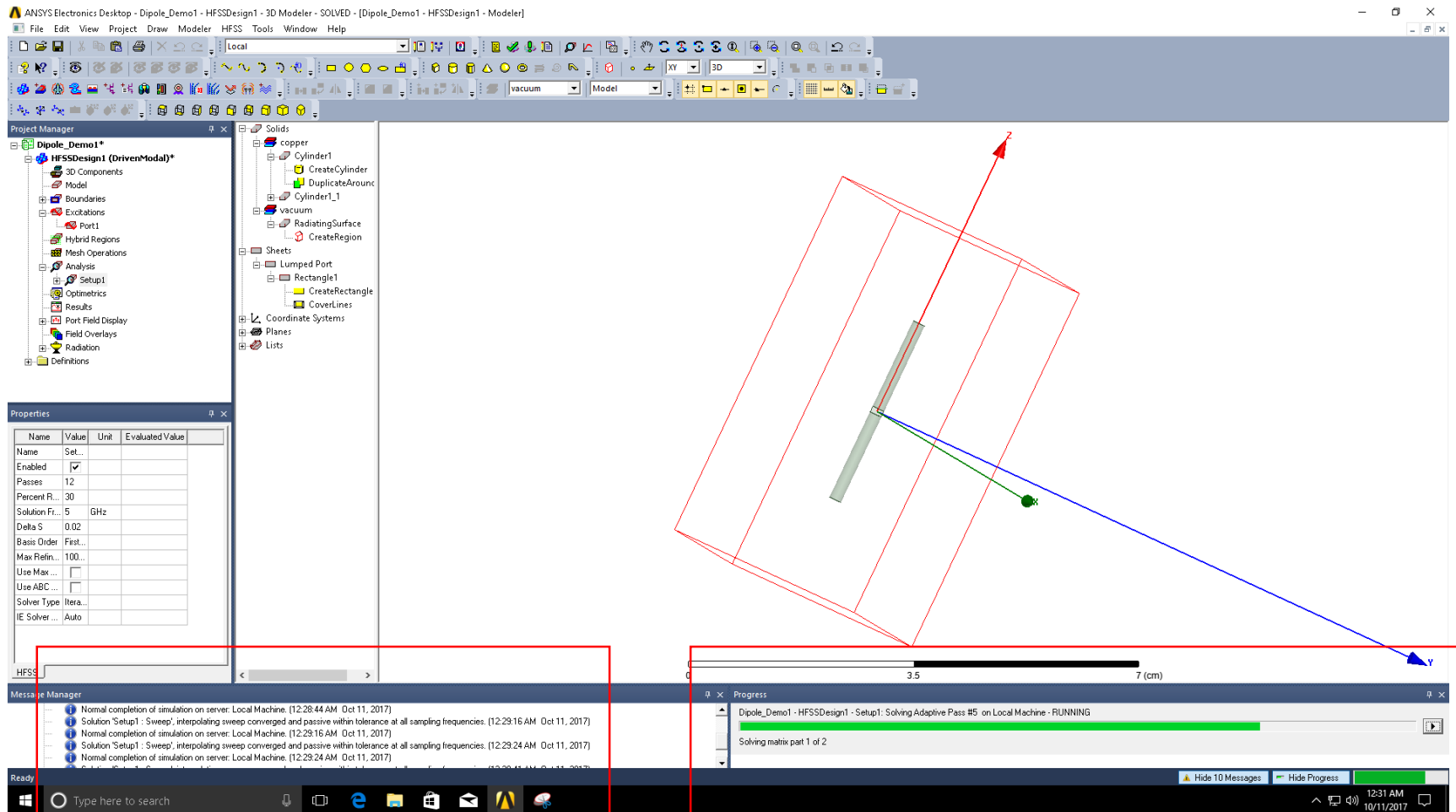
Normal completion of simulation on server: Local Machine, (12:29:24 AM Oct 11, 2017)

Simulate all optimetrics and solution setups.

Hide 8 Messages Hide Progress

12:29 AM 10/11/2017

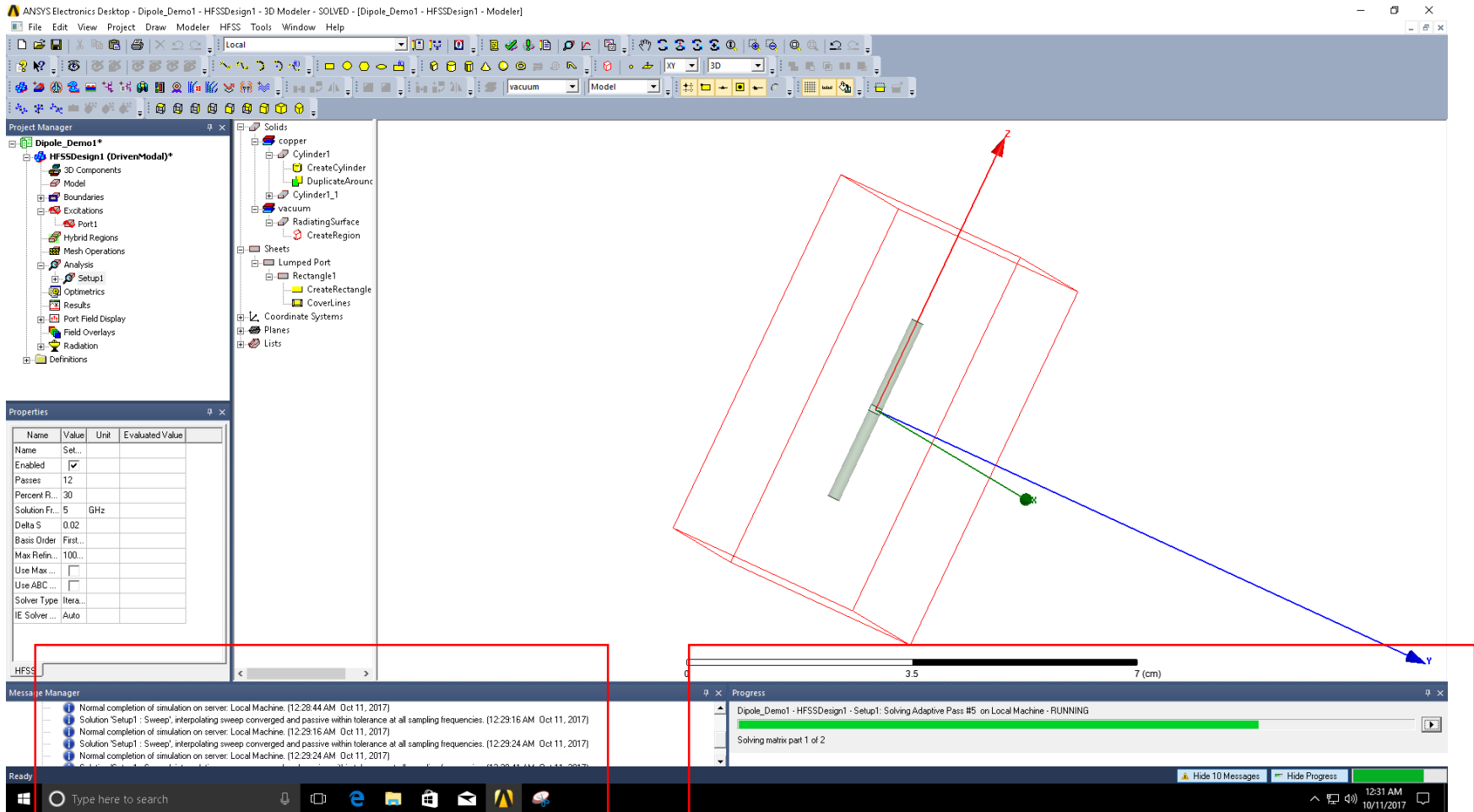
Simulation in Progress



Notifications

Progress Bar

Simulation in Progress



The screenshot displays the ANSYS Electronics Desktop interface for a simulation titled "Dipole_Demo1". The main window shows a 3D model of a dipole antenna structure within a rectangular simulation box. The interface is divided into several panels:

- Project Manager:** Shows the hierarchy of the simulation setup, including "HFSSDesign1 (DrivenModal)*", "Model", "Boundaries", "Excitations", "Port1", "Hybrid Regions", "Mesh Operations", "Analysis", "Setup1", "Optimetrics", "Results", "Port Field Display", "Field Overlays", "Radiation", and "Definitions".
- Properties:** A table showing simulation parameters.
- Message Manager:** Displays a list of messages indicating the simulation progress.
- Progress:** A progress bar showing the current status of the simulation.

Properties Panel:

Name	Value	Unit	Evaluated Value
Name	Set...		
Enabled	<input checked="" type="checkbox"/>		
Passes	12		
Percent R...	30		
Solution Fr...	5	GHz	
Delta S	0.02		
Basis Order	First...		
Max Refin...	100...		
Use Max...	<input type="checkbox"/>		
Use ABC...	<input type="checkbox"/>		
Solver Type	Itera...		
IE Solver ...	Auto		

Message Manager:

- Normal completion of simulation on server: Local Machine. (12:28:44 AM Oct 11, 2017)
- Solution 'Setup1 : Sweep', interpolating sweep converged and passive within tolerance at all sampling frequencies. (12:29:16 AM Oct 11, 2017)
- Normal completion of simulation on server: Local Machine. (12:29:16 AM Oct 11, 2017)
- Solution 'Setup1 : Sweep', interpolating sweep converged and passive within tolerance at all sampling frequencies. (12:29:24 AM Oct 11, 2017)
- Normal completion of simulation on server: Local Machine. (12:29:24 AM Oct 11, 2017)

Progress:

Dipole_Demo1 - HFSSDesign1 - Setup1: Solving Adaptive Pass #5 on Local Machine - RUNNING

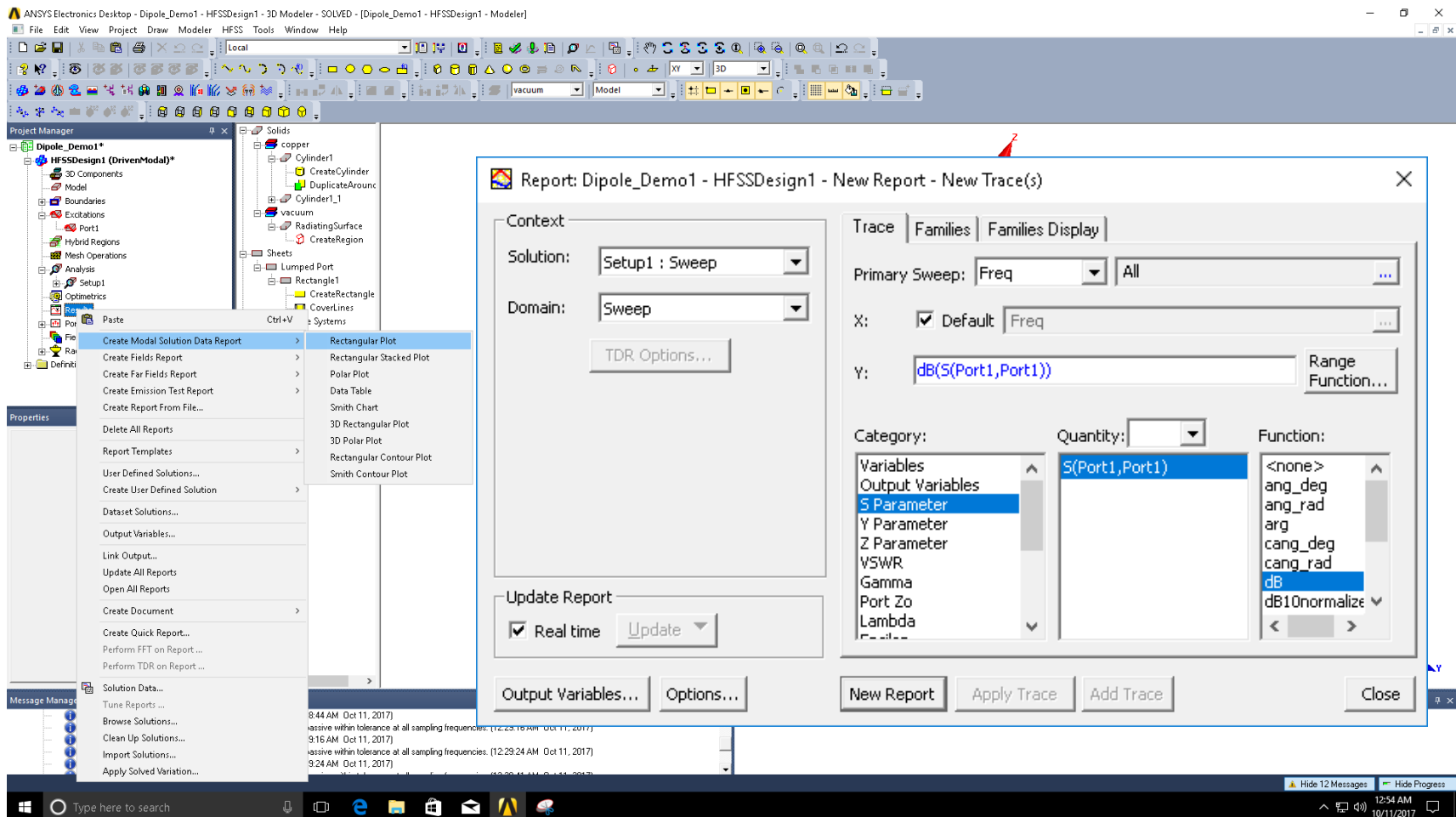
Solving matrix part 1 of 2

Notifications

Progress Bar

View Results (log magnitude)

Results (right click) > Create Modal Solution Data Report > Rectangular Plot
S parameter > S(Port1, Port1) > dB > New Report

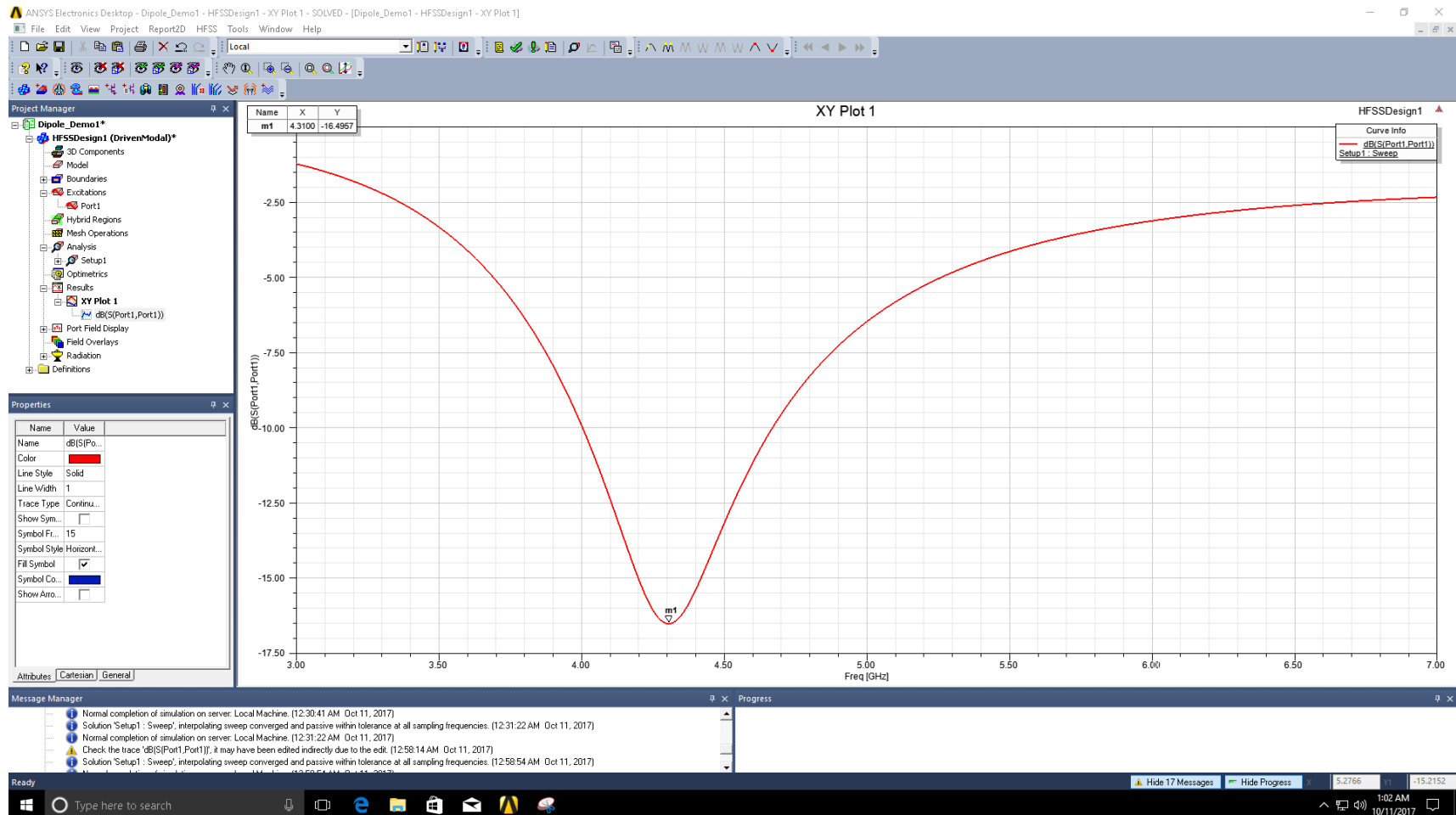


The screenshot shows the ANSYS Electronics Desktop interface. The 'Project Manager' tree on the left shows the 'HFSSDesign1' project. A right-click context menu is open over the 'Port1' component, with the path 'Create Modal Solution Data Report > Rectangular Plot' highlighted. The 'Report: Dipole_Demo1 - HFSSDesign1 - New Report - New Trace(s)' dialog box is open in the foreground. The 'Context' tab is selected, showing 'Solution: Setup1 : Sweep' and 'Domain: Sweep'. The 'Trace' tab is also visible. The 'Primary Sweep' is set to 'Freq'. The 'X' axis is 'Default' and 'Freq'. The 'Y' axis is 'dB(S(Port1,Port1))'. The 'Category' list on the left includes 'Variables', 'Output Variables', 'S Parameter', 'Y Parameter', 'Z Parameter', 'VSWR', 'Gamma', 'Port Zo', and 'Lambda'. The 'Quantity' list in the center shows 'S(Port1,Port1)'. The 'Function' list on the right includes '<none>', 'ang_deg', 'ang_rad', 'arg', 'cang_deg', 'cang_rad', 'dB', and 'dB10normalize'. The 'dB' function is selected. The 'Update Report' section has 'Real time' checked and an 'Update' button. At the bottom, there are buttons for 'Output Variables...', 'Options...', 'New Report', 'Apply Trace', 'Add Trace', and 'Close'.

View Results (log magnitude)

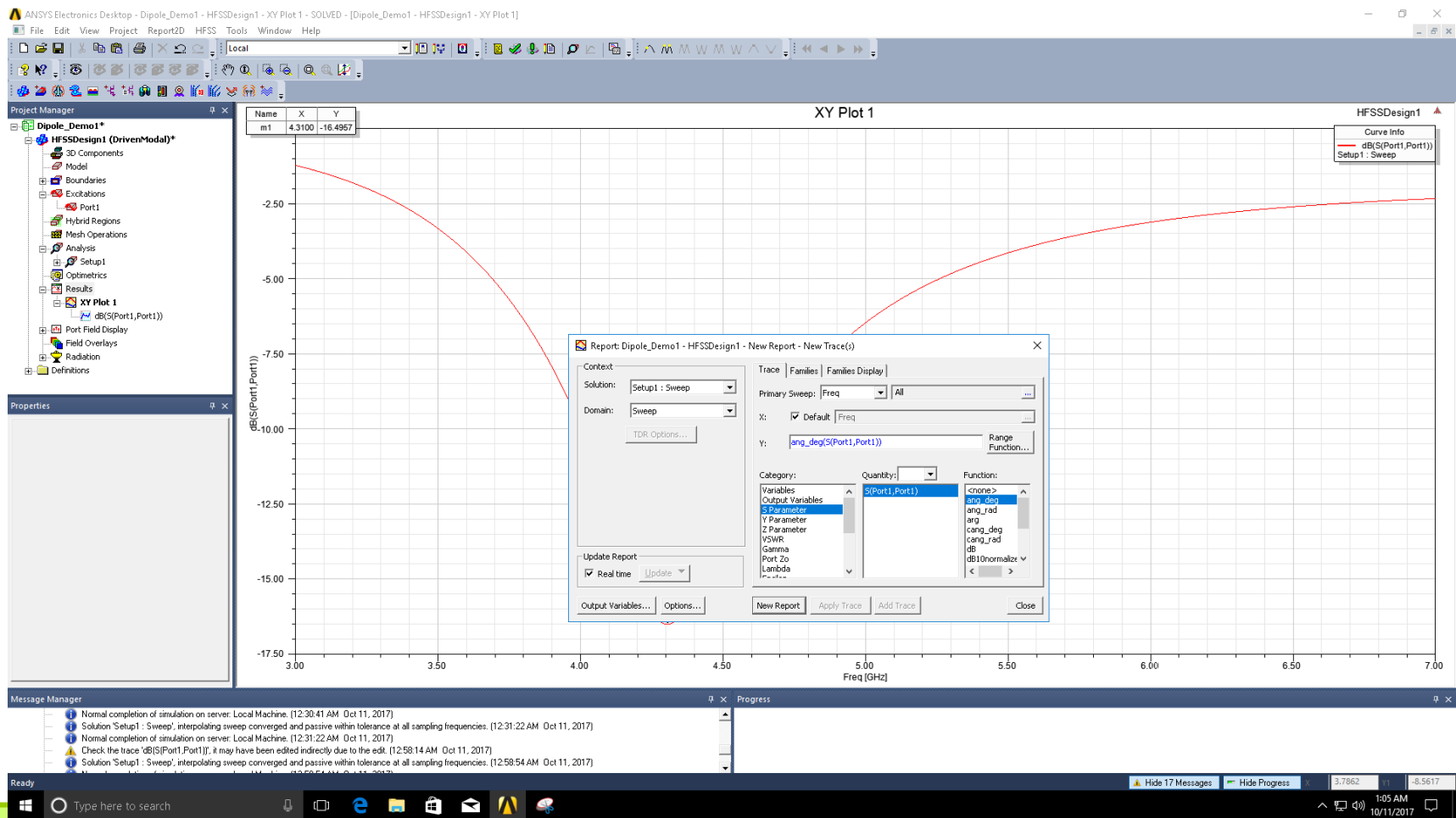
Antenna Resonates at 4.31 GHz

$$|S_{11}| = -16.5 \text{ dB}$$

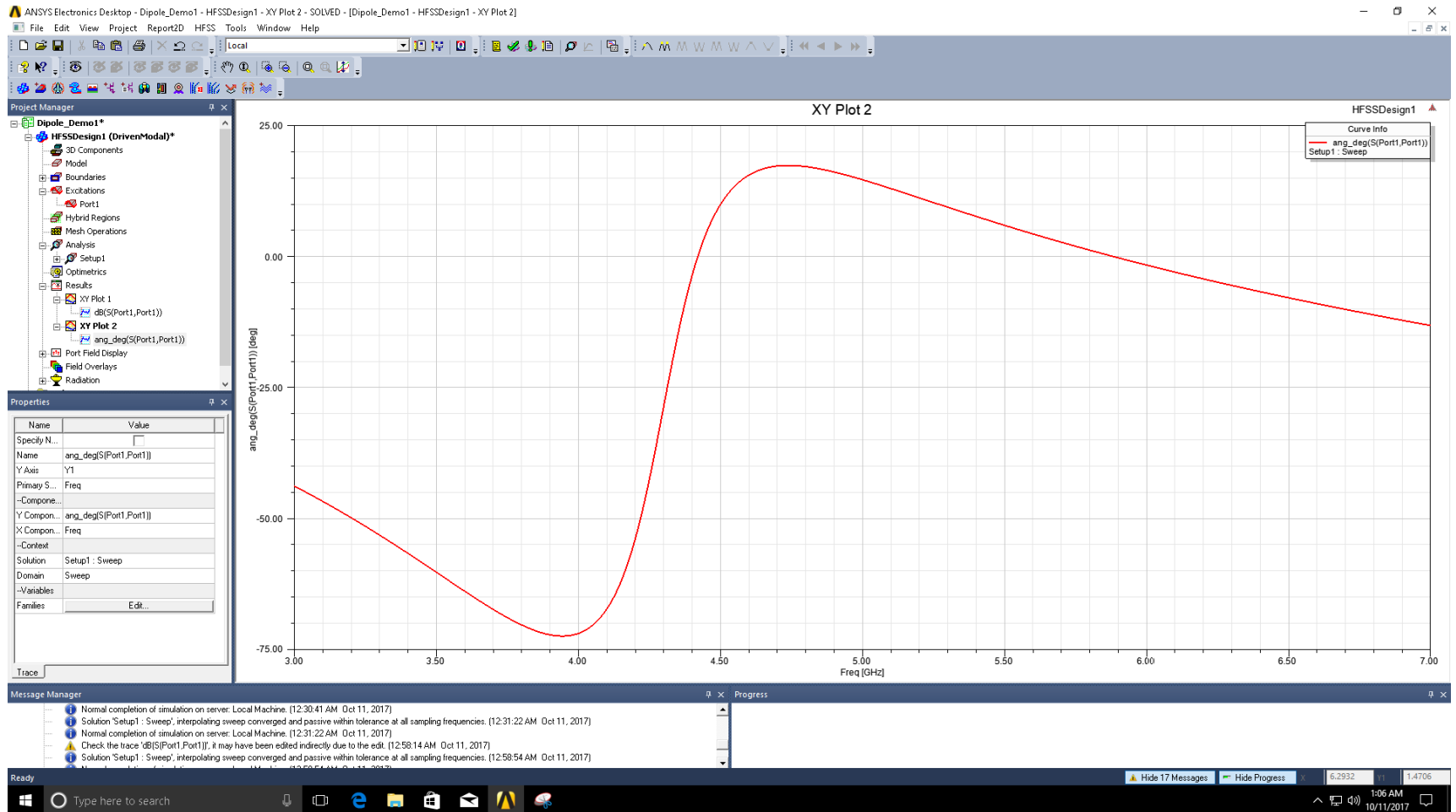


View Results (phase)

Results (right click) > Create Modal Solution Data Report > Rectangular Plot
S parameter > S(Port1, Port1) > and_deg > New Report

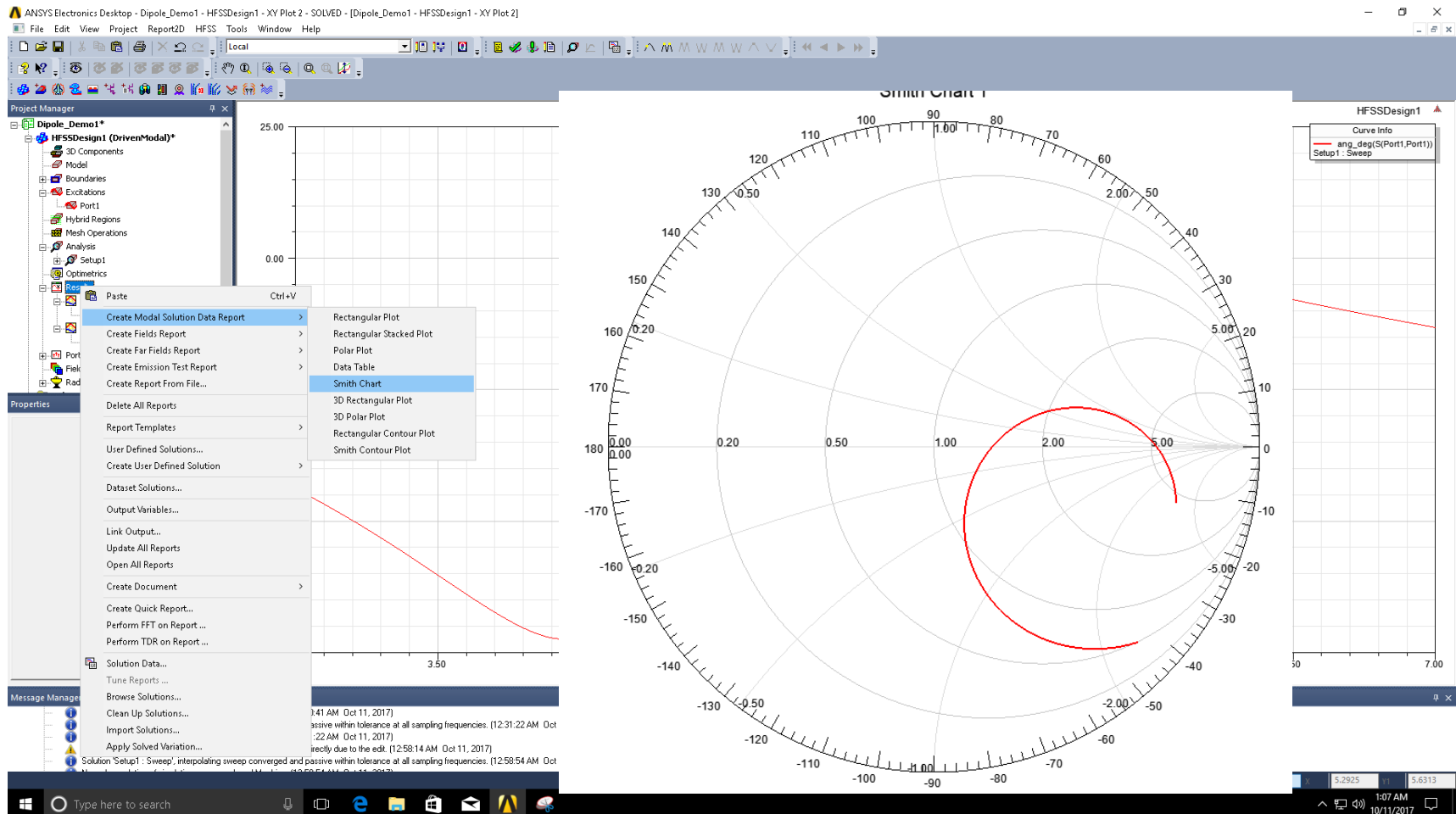


View Results (phase)



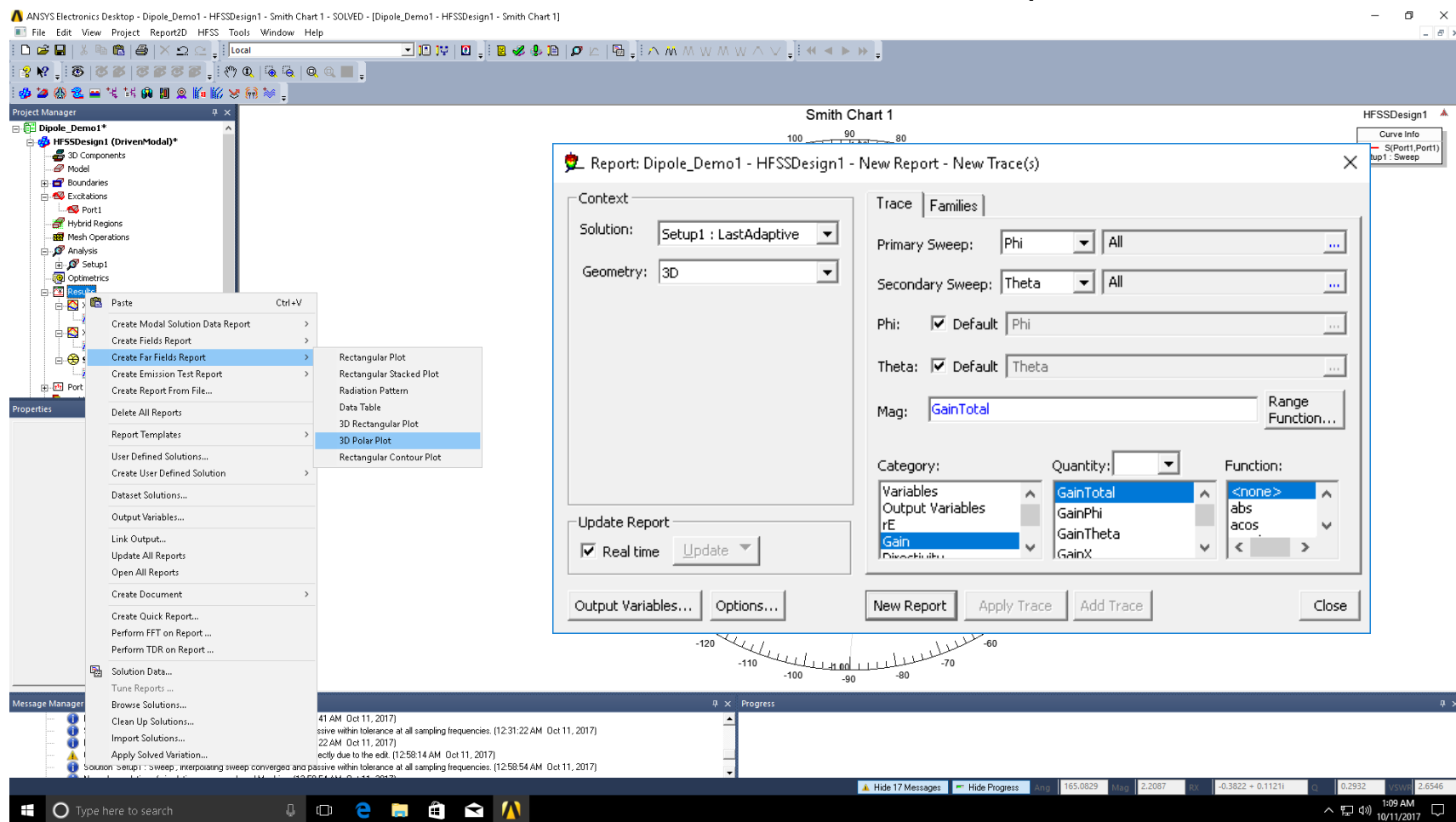
View Results (smith chart)

Results (right click) > Create Modal Solution Data Report > Smith Chart



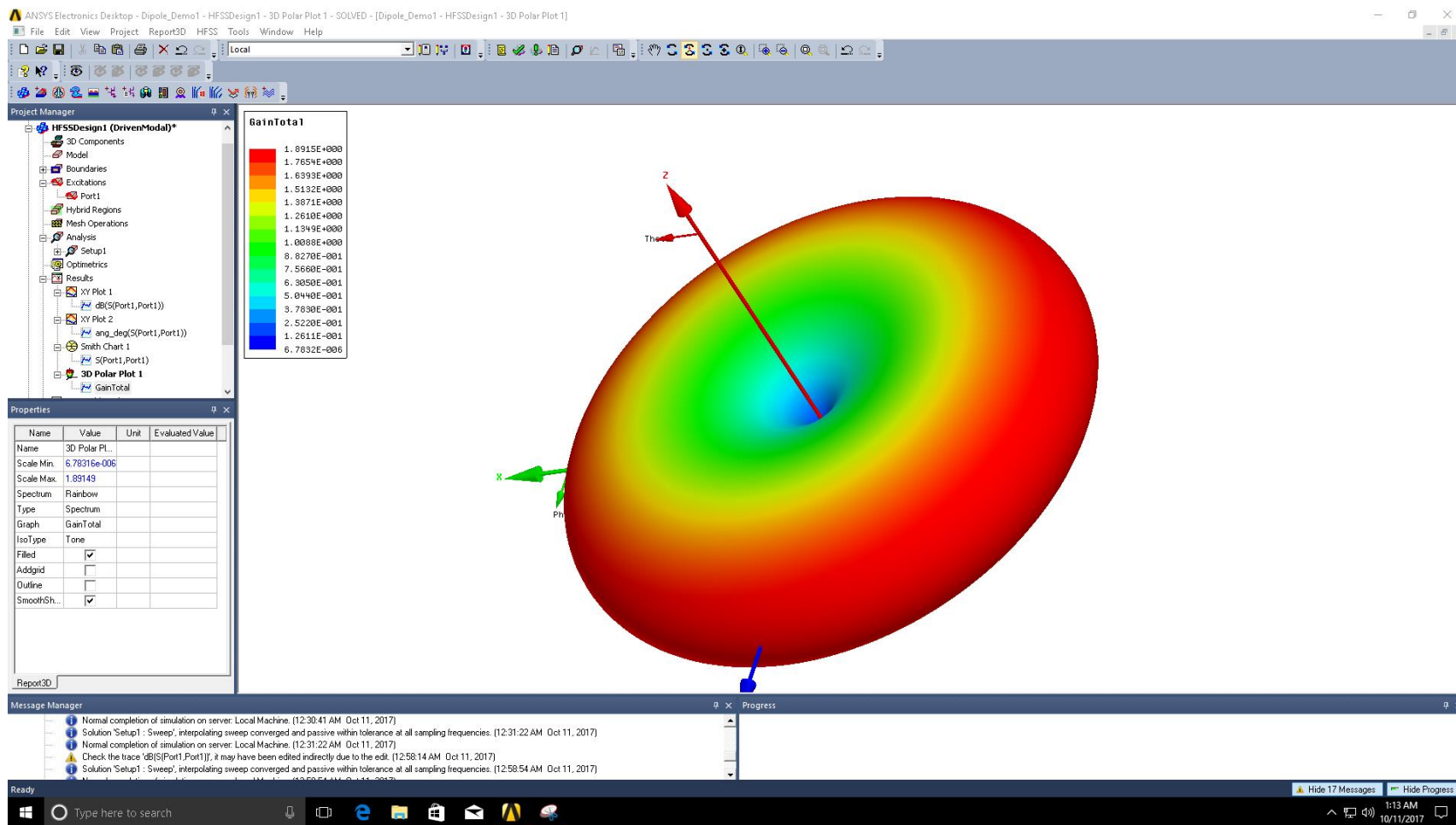
View Results (Far field report)

Results (right click) > Create Far field report > 3D polar plot
Select Gain > Gain Total > New Report



The screenshot displays the ANSYS Electronics Desktop interface. On the left, the Project Manager tree shows the hierarchy for 'Dipole_Demo1' under 'HFSSDesign1 (DrivenModal)*'. A right-click context menu is open over the 'Results' folder, with 'Create Far Fields Report' selected. A secondary menu is visible, showing '3D Polar Plot' as the chosen option. In the center, the 'Report: Dipole_Demo1 - HFSSDesign1 - New Report - New Trace(s)' dialog box is open. The 'Context' tab is active, showing 'Solution: Setup1 : LastAdaptive' and 'Geometry: 3D'. The 'Trace' tab is also visible, showing 'Primary Sweep: Phi' and 'Secondary Sweep: Theta'. The 'Mag' field is set to 'GainTotal'. The 'Category' list includes 'Gain', and the 'Quantity' list includes 'GainTotal'. The 'Function' list includes '<none>', 'abs', and 'acos'. The 'Update Report' section has 'Real time' checked. At the bottom, the 'New Report' button is highlighted. The background shows a 'Smith Chart 1' plot and a 'Progress' bar at the bottom of the window.

View Results (Far field report)



Thank You !

Further Queries

souvik.dubey@mavs.uta.edu

Download link:

<http://www.souvikdubey.com/hfsstutorial.html>