

Simulation d'antennes

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Captronic 4 février 2011

UMR
6164



- Les différents types de simulation
 - Simulation circuits (modèles électriques)
 - Expression analytique
 - Simulation en 2 ou 2,5 D
 - Simulation en 3D

Le choix se fait par la rapidité et la précision que l'on désire

La taille des antennes ou réseau d'antennes à traiter

- Simulation circuit
 - Quelques secondes
 - Possibilité de faire de la synthèse

Exemple :

Un répartiteur de puissance pour
l'alimentation d'un réseau

Ansoft Designer - repartiteur - Circuit1 - SchematicEditor - [repartiteur - Circuit1 - Schematic]

File Edit View Project Draw Schematic Circuit Tools Window Help

Project Manager

repartiteur

Project Layout Components Search

Properties

Name	Value	Unit	Evaluated Value

Param Values General Symbol

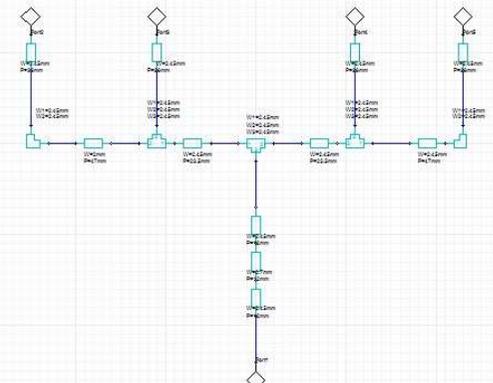
1 New Page

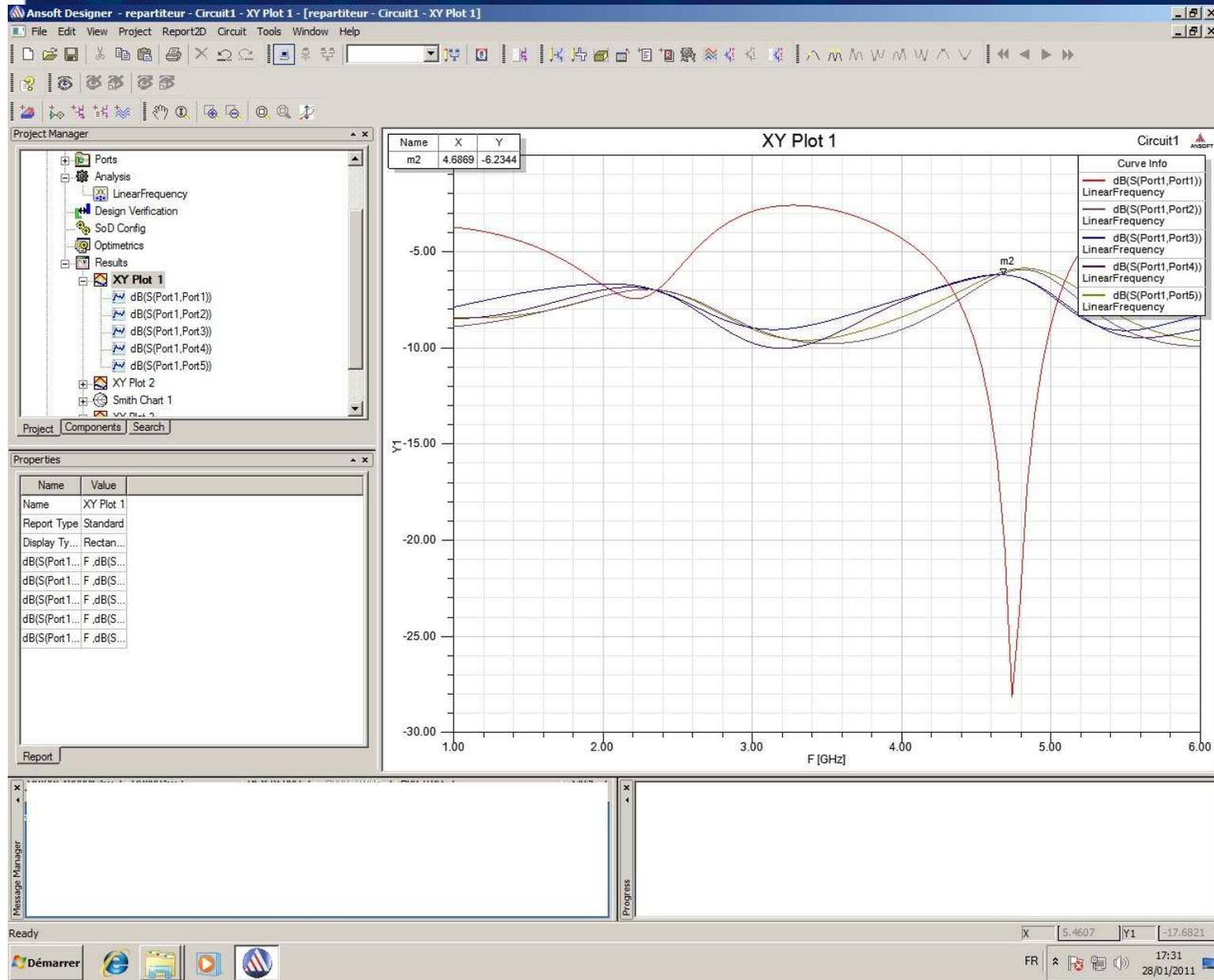
Message Manager

Progress

X: 3248ml, Y: 3054ml

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- Simulation en 2D et 2,5 D

Quelques minutes

On maille les métalisations

Les plans de masse sont souvent infinis

Les logiciels les plus connus

Momentum

Ansoft designer

Ansoft Designer - microstrip_filter_in_box - box_park - Layout - [microstrip_filter_in_box - box_park - Layout]

File Edit View Project Draw Layout EMDesign Tools Window Help

Measures Half Grit <DefaultAnnotationS box_park

Project Manager

- microstrip_filter_in_box*
 - box_park*
 - Cavities
 - Vias
 - Boundaries
 - Excitations
 - Analysis
 - Design Verification
 - Optimetrics
 - Results
 - XY Plot 1
 - dB(S(Port1.Port1))
 - dB(S(Port1.Port2))
 - Field Overlays
 - Notes

Project Components Search Layout

Properties

Name	Value	Unit	Evaluated Value

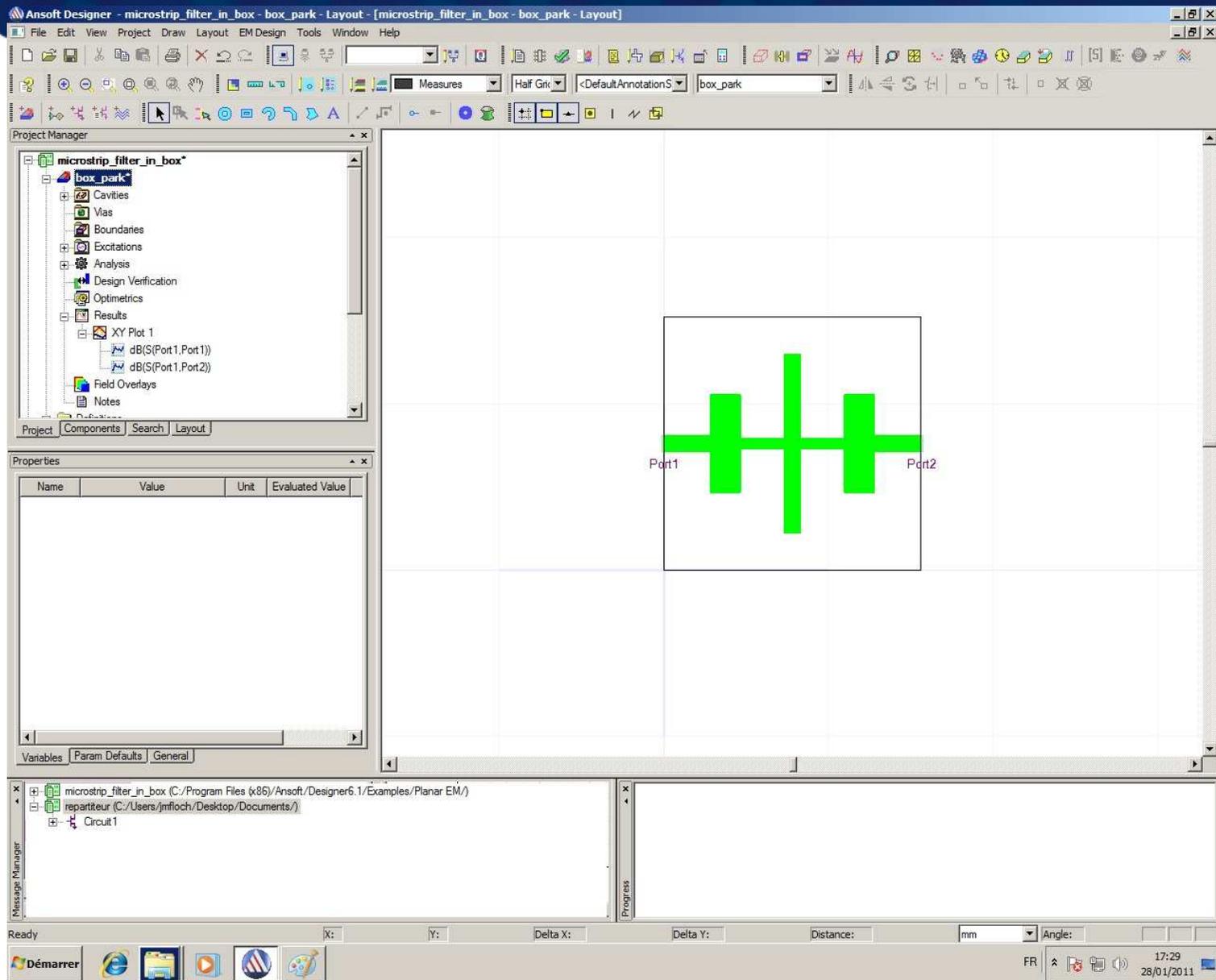
Variables Param Defaults General

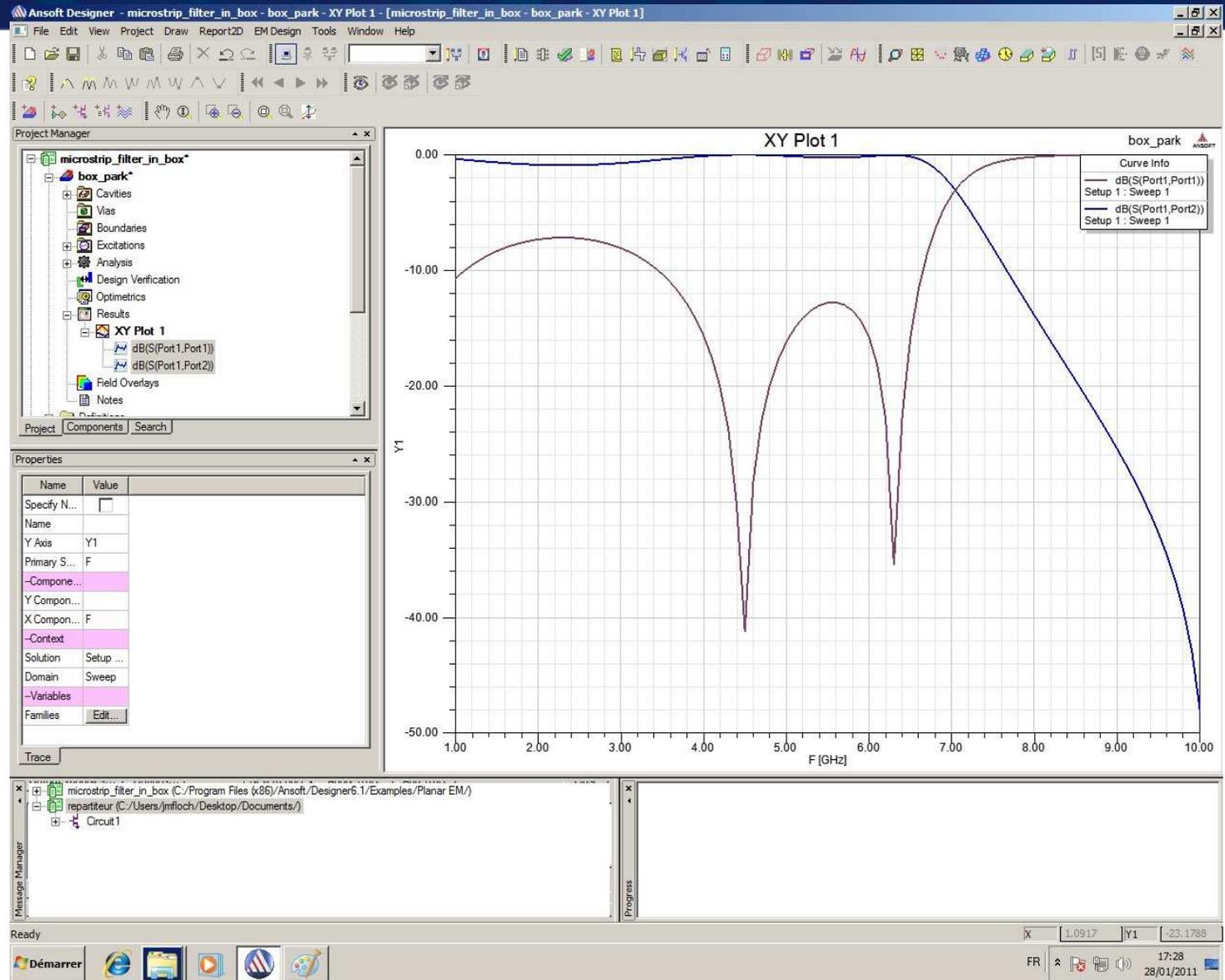
Message Manager

- microstrip_filter_in_box (C:/Program Files (x86)/Ansoft/Designer6.1/Examples/Planar EM/)
- repartiteur (C:/Users/jnfiloch/Desktop/Documents/)
- Circuit1

Ready X: Y: Delta X: Delta Y: Distance: mm Angle:

Démarrer 17:29 28/01/2011





Ansoft Designer - patch_antenna_probe_fed - juan - Layout3D Editor - [patch_antenna_probe_fed - juan - Layout3D]

File Edit View Project Draw Edit3D EM Design Tools Window Help

Project Manager

- Sweep 1
 - Design Verification
 - Optimetrics
 - Results
 - XY Plot 1
 - dB(S(probe1.probe1))
 - 3D Rectangular Plot 1
 - dB(Ex)
 - dB(Ex)_1
 - Radiation Pattern 1
 - dB(GainInput)
 - Field Overlays
 - Setup 1:Last Adaptive:Currents 3
 - Notes
 - Definitions

Project Components Search Layout

Properties

Name	Value	Unit	Evaluated Value
Overlay	Setup 1:Last Ad...		
Frequency	1.76	GHz	

EM Design

Message Manager

- Unable to create frame for drawing Setup 1:Last Adaptive:Currents --juan for variation (5:49:40 janv. 28, 2011)
- Unable to create frame for drawing Setup 1:Last Adaptive:Currents --juan for variation (5:49:40 janv. 28, 2011)
- Unable to create frame for drawing Setup 1:Last Adaptive:Currents --juan for variation (5:49:40 janv. 28, 2011)
- Unable to create frame for drawing Setup 1:Last Adaptive:Currents --juan for variation (5:49:40 janv. 28, 2011)

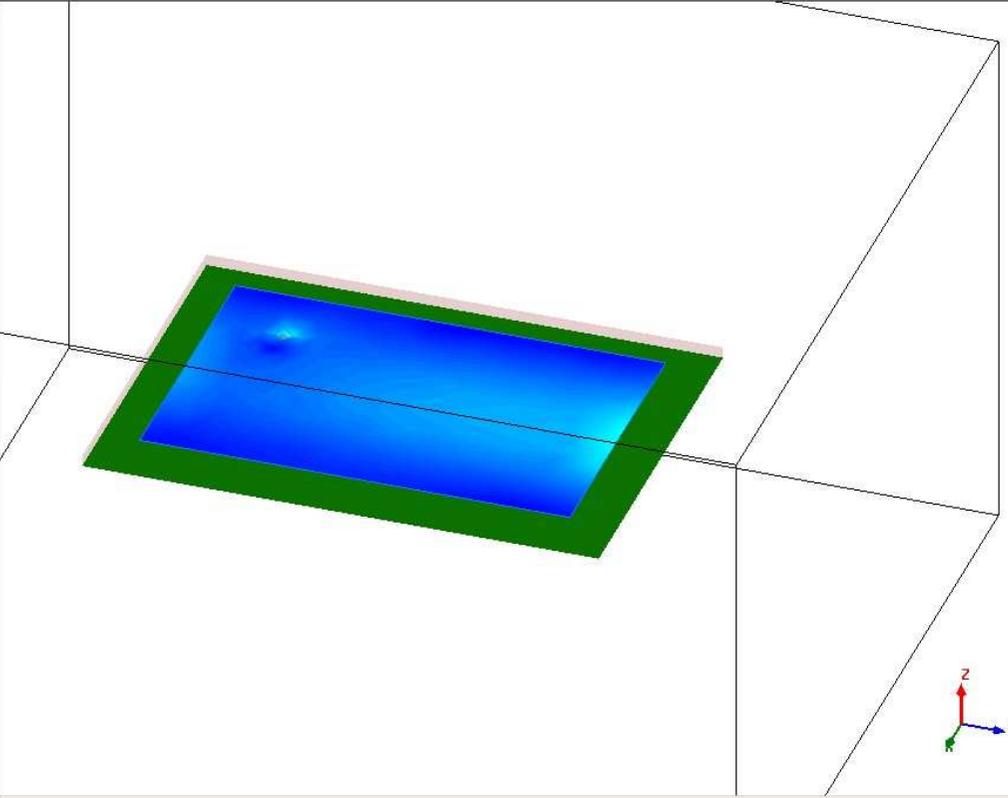
Progress

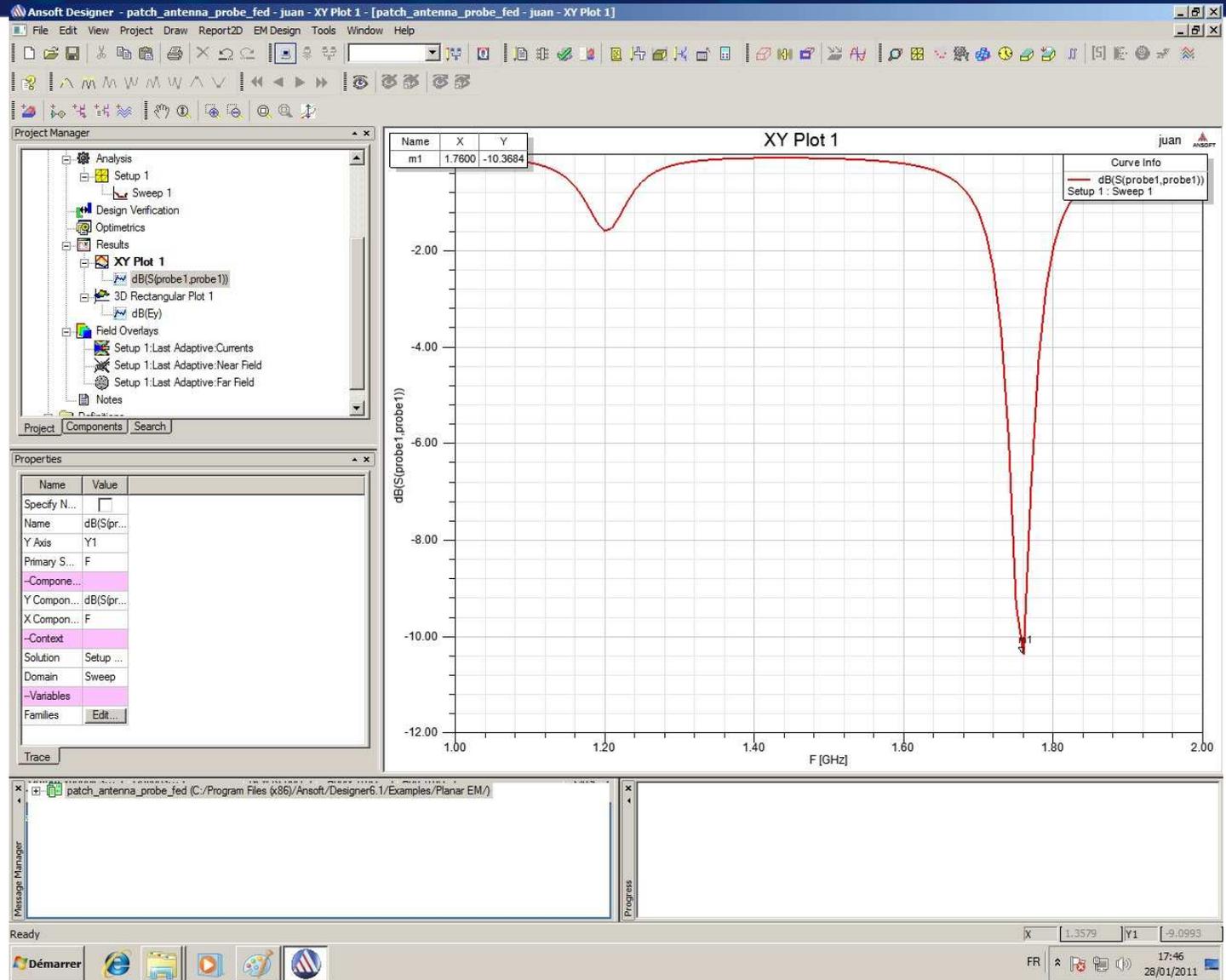
Ready

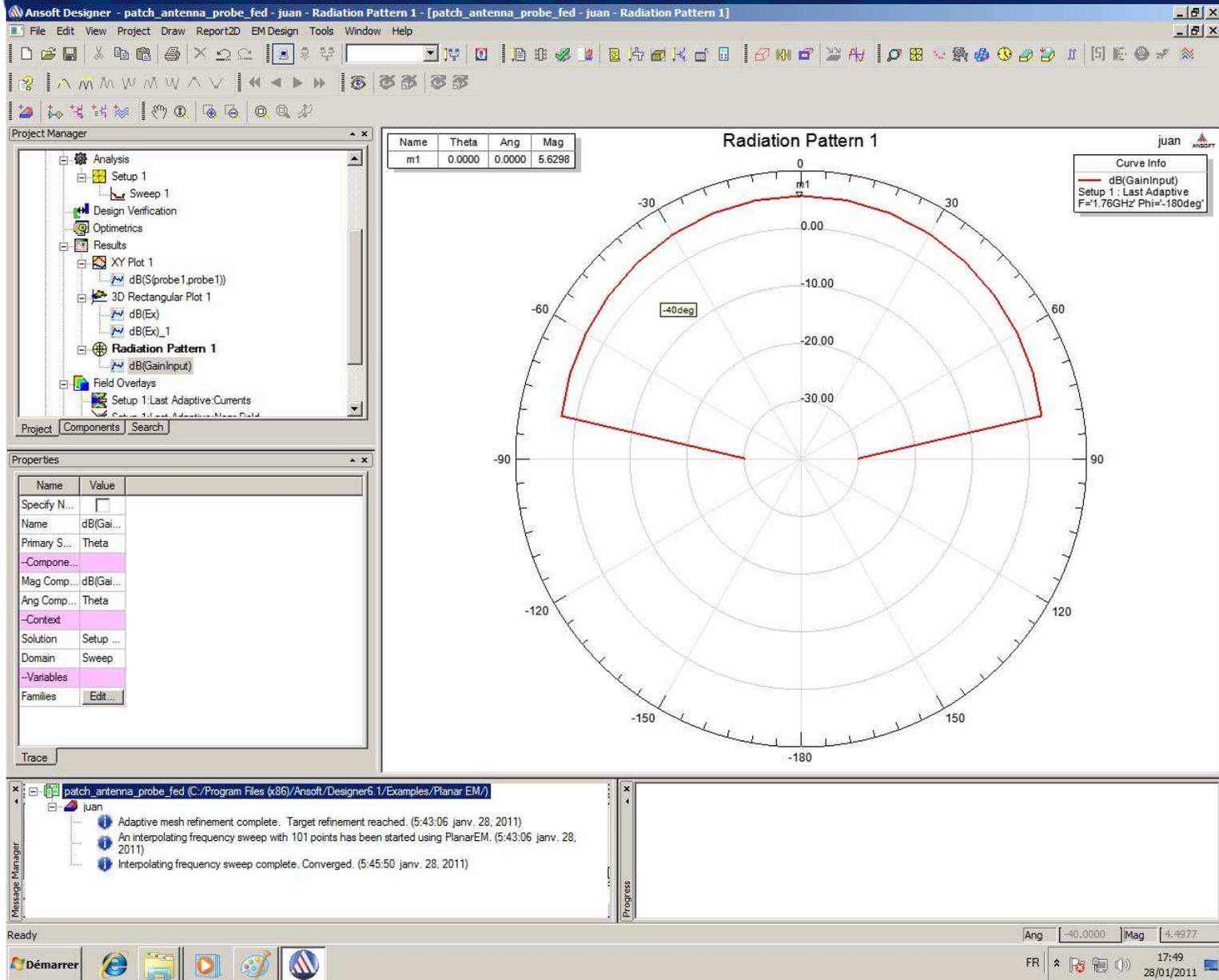
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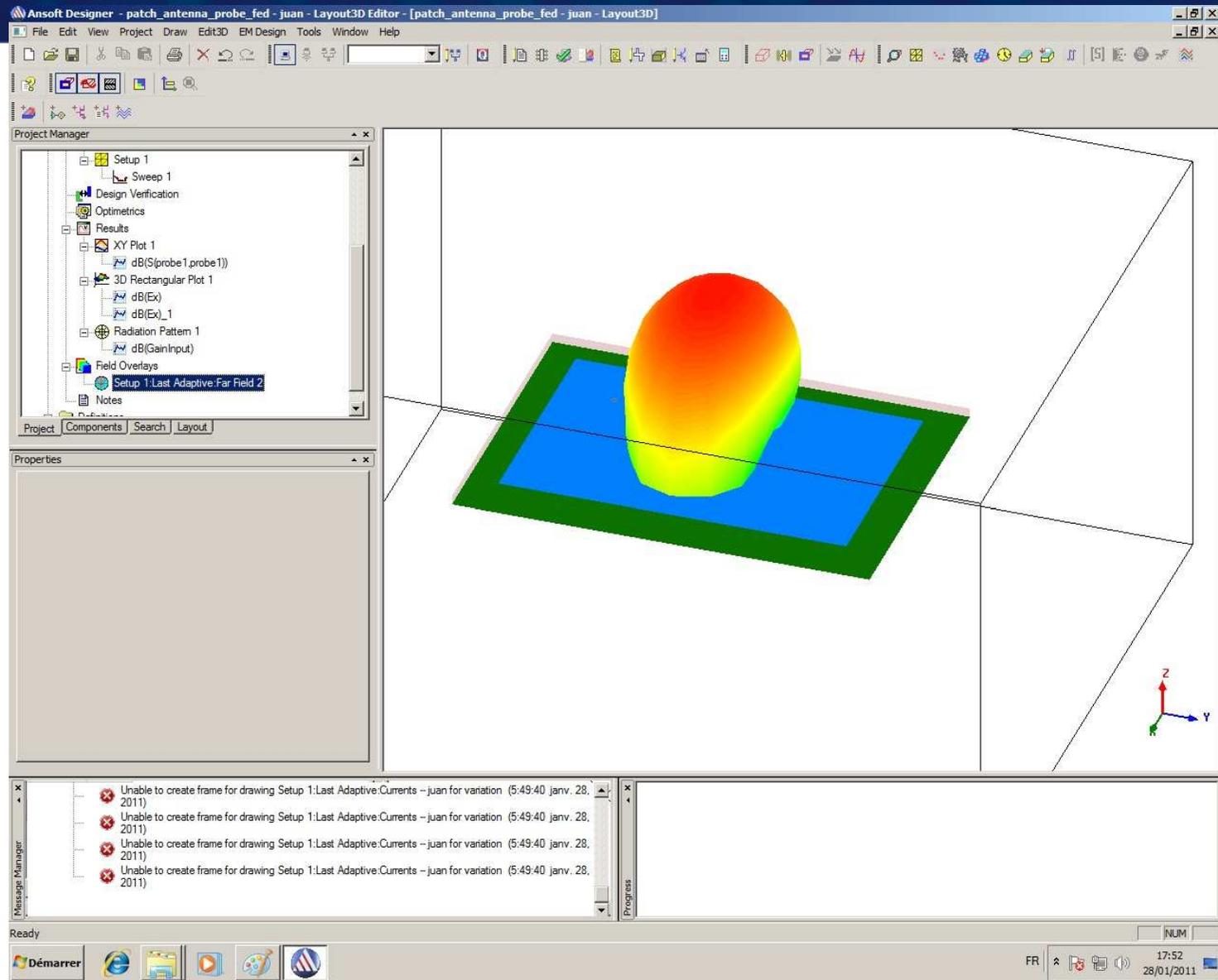
Démarrer

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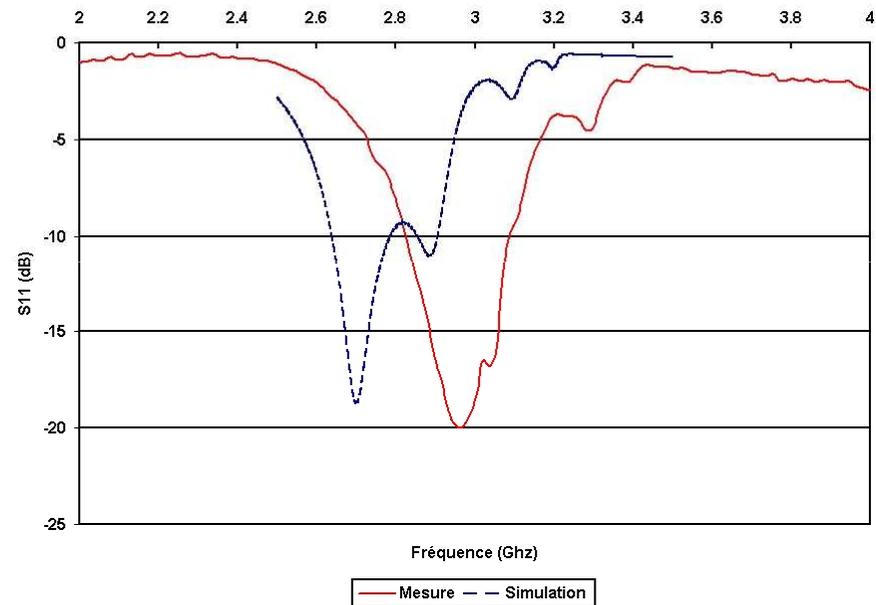




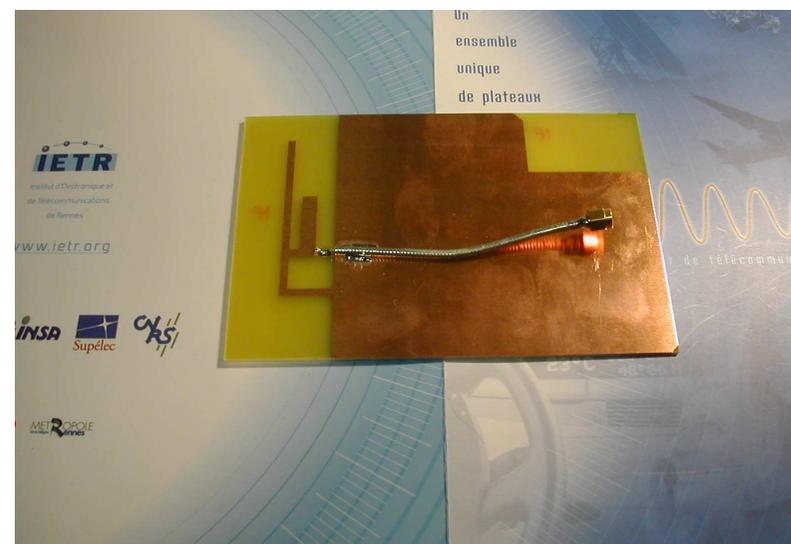
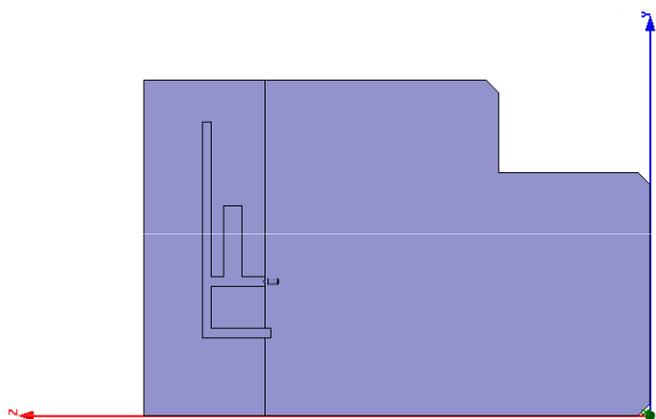


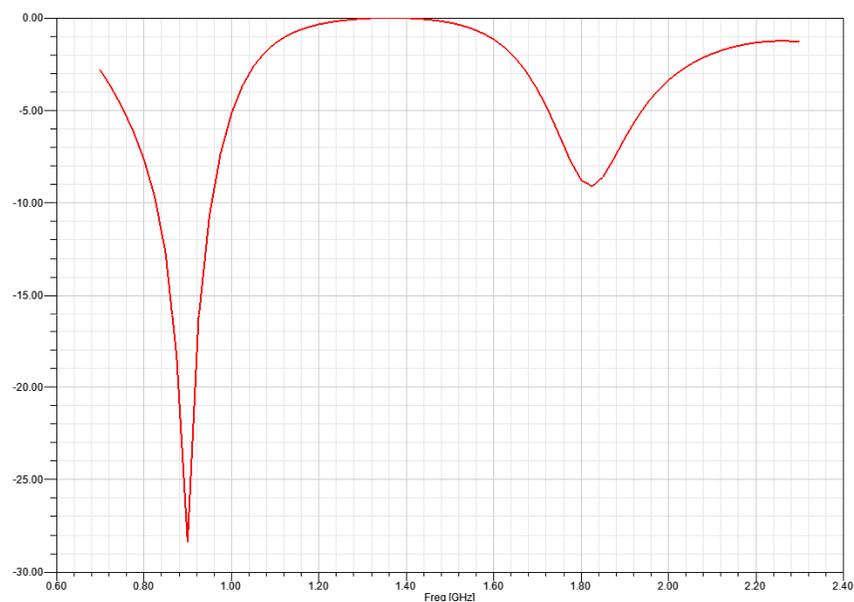


- Simulation en 3D
 - Plusieurs minutes à plusieurs heures
 - Une grande précision
 - On tient compte de l'environnement de l'antenne
 - Les logiciels les plus utilisés
HFSS et CST



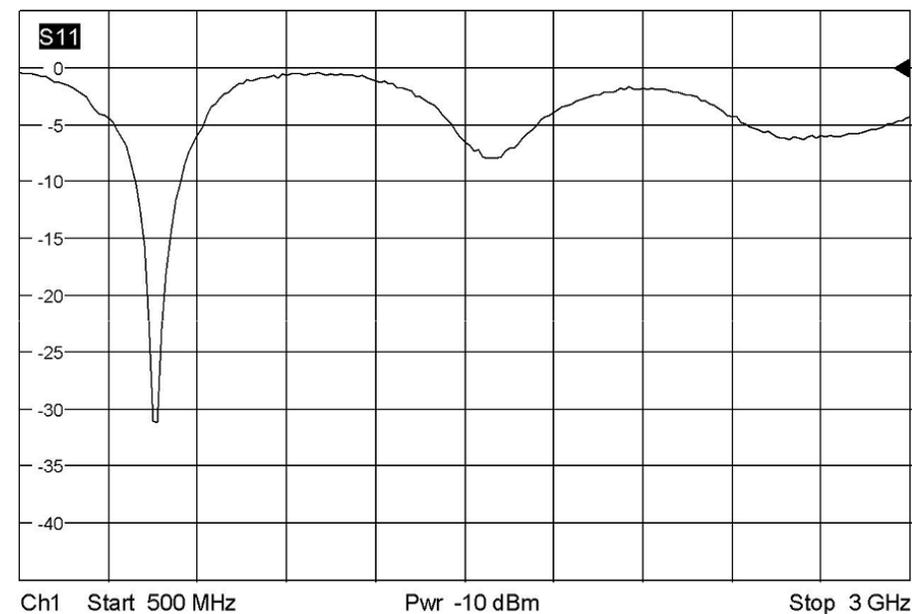
Coefficient de réflexion mesuré et simulé





■ Bandes de l'antenne :

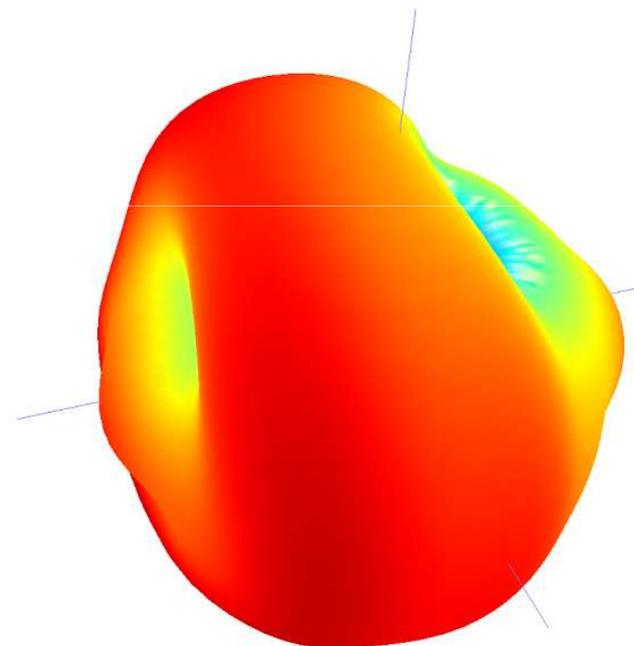
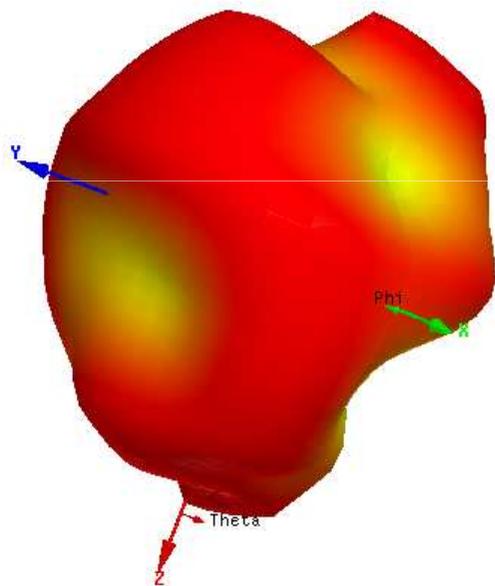
- 775 - 990 MHz
- 1740 – 1920 MHz



■ Bandes de l'antenne :

- 780 - 1000 MHz
- 1730 – 1920 MHz

900 MHz



1850 MHz

