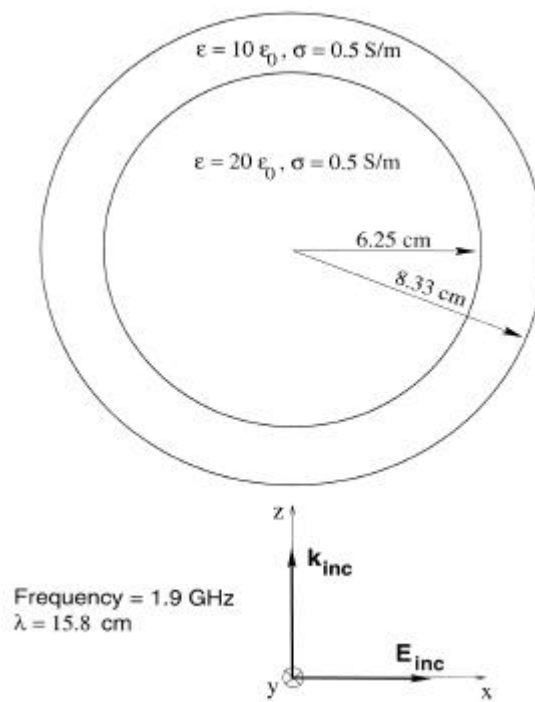


Validation Exercise: Layered Lossy Dielectric Sphere

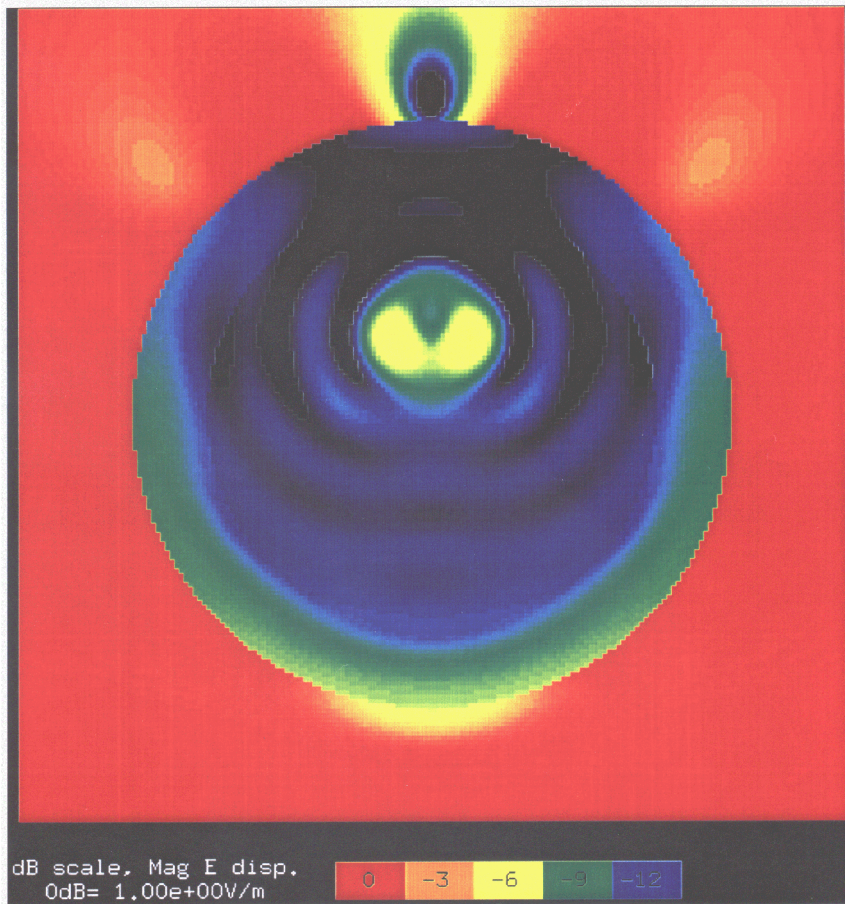
- Inner radius: 6.25 cm, outer radius: 8.33 cm
- Frequency: 1.9 GHz, $\lambda = 15.8$ cm
- 1.28 mm FDTD cells, about 6×10^6 cells total, 4000 time steps
- Outer spherical shell: relative permittivity of 10, $\sigma = 0.5$ S/m
- Inner sphere: relative permittivity of 20, $\sigma = 0.5$ S/m
- Plane wave excitation
- FDTD results are compared to exact modal solution

Validation Exercise: Layered Lossy Dielectric Sphere



Validation Exercise: Lossy Dielectric Sphere

Modal Solution for E-Field Magnitude



Validation Exercise: Lossy Dielectric Sphere

FDTD Solution for E-Field Magnitude

