

MODELING OF METALLIC STRUCTURES

1. Metallic structures can be modeled by combining different types of wires and wire grids:

Wires

- Straight wire
- Circular arc
- Circular loop
- Helix
- Quadratic wire
- Archimedean spiral
- Logarithmic spiral

Wire grids

- Plate
- Disc
- Flat ring
- Cone
- Truncated cone
- Cylinder
- Sphere
- Paraboloid

2. All kinds of curved wires can be modeled by means of arced and quadratic segments.

3. Wire grids can be defined using either curved or straight wire segments. Curved segments represent the exact curvature of discs, rings, cones, cylinders, spheres, and parabolic surfaces. Wire grids can be used to model grids and approximate conductive surfaces.

4. All wires can be loaded or excited at any position.

5. The structure can also have finite conductivities (skin effect).

6. Electrical connections of different wires and connections of several wires at one point are possible.
7. Metallic wires in either dielectric or magnetic media can be analyzed.
8. The structures can be placed in free space as well as over a perfectly conducting ground plane. The effect of a real ground on the near and far fields radiated from the structure can also be computed.
9. The wire cross-section can either be Circular, Square, Flat, Elliptical or Rectangular.
10. The geometry modeling can be performed in suitable unit systems (μm , cm, mm, m, in, ft). Different unit systems can also be chosen for inductance (pH, nH, μH , mH, H) and capacitance (pF, nF, μF , mF, F).