



# “Antenna Design 101” (outline)

**377 ohms = free air space theory (physics) vs Rules of Thumb**

**Definitions:** Aperture, Azimuth, Beamwidth, Boresight, Dipole, Directivity, E-plane, Efficiency, Elevation, Far Field, Gain, H-plane, Isotropic Radiator, Near Field, Path Loss, Patterns, Phase Center, Reciprocity, Radiator, Range, and Sidelobes

## Design Considerations

- Required Distance
- Orientation, travel, separation & data transfer

## Environmental Considerations

- Gov’t limitations
- Noise fields
- Metal
- Other transmitters (antennas)

## Materials

- Loop Theory
- Inductance
- Quality Factor (Q)

## Matching Approaches

- Gamma, capacitive, T-matching, Transformers & Baluns

## Coupling between Antennas

- Nulling
- Reflective
- Splitters and couplers
- Complementary
- Orientation (360) Detection

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