

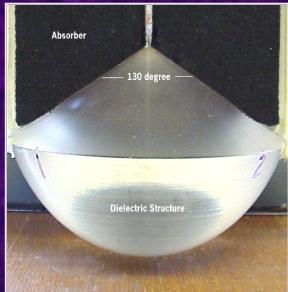
UWB Dielectric Antenna Development

Chi-Chih Chen

TEL: (614) 292-3403, FAX: (614) 292-7297, E-mail: Chen.118@osu.edu

<http://esl.eng.ohio-state.edu/topics/gpr/gpr.html>

DIELECTRIC HORN ANTENNA



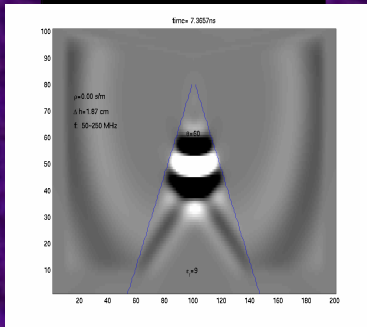
This novel broadband dielectric horn antenna design provides dual-linear polarizations and symmetric E- and H-plane patterns. It contains a solid dielectric cone fed by a broadband wave launcher from the tip where the radiation center is located. Its radiation beam width has a simple relationship with the cone angle. The undesired lateral waves are controlled by applying microwave absorber external to

FEATURES:

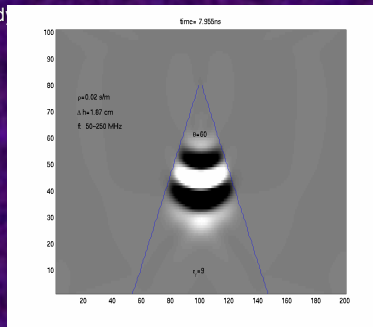
- Ultra-Wide Bandwidth
- Dual-Polarization Capability
- Wide Range of Beamwidth 50°~120°
- Symmetric or Asymmetric Pattern

APPLICATIONS:

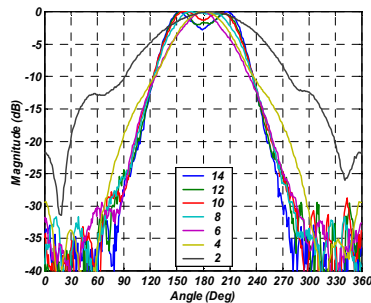
- Antenna
- Reflector Feed



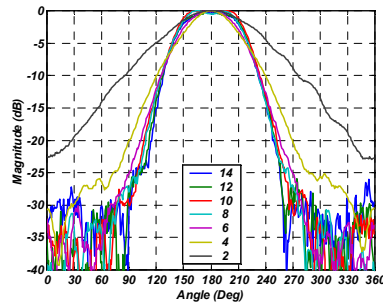
Existence of Undesired Lateral Waves w/o External Absorber



Lateral Waves Reduced w/ External Absorber

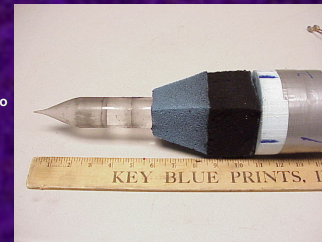


Measured E-Plane Patterns

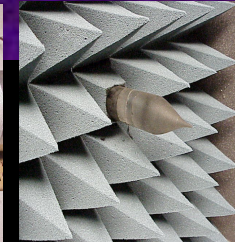


Measured H-Plane Patterns

DIELECTRIC ROD ANTENNA



5~18 GHz Dual-Polarized Prototype



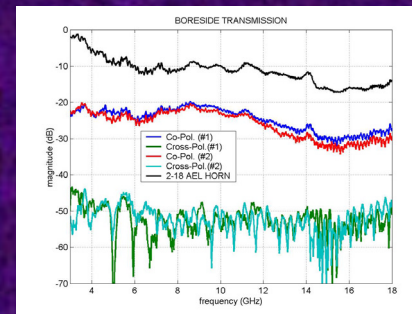
Near-Field Range Probe

FEATURES:

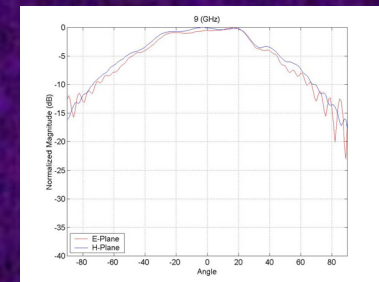
- End-fire radiation
- Broad Beamwidth (UWB)
- Narrow Beamwidth
- Dual-Polarization Capability
- Symmetric or Asymmetric Pattern
- Low Radar Cross Section

APPLICATIONS:

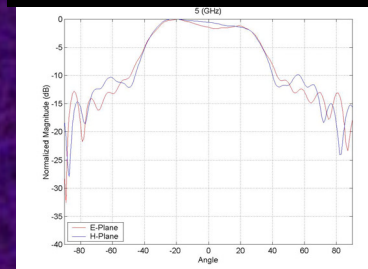
- Small Aperture High-Gain Antenna
- Low Observable Satellite Antenna
- Low Interaction Field Probe
- Reflector Feed



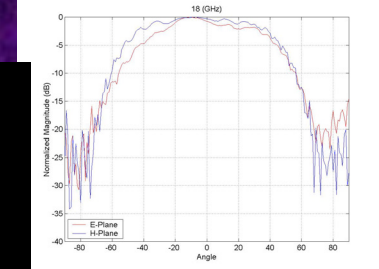
Bore-side Transmission Characteristics



Measured Radiation Pattern at 8 GHz



Measured Radiation Pattern at 5 GHz



Measured Radiation Pattern at 18 GHz