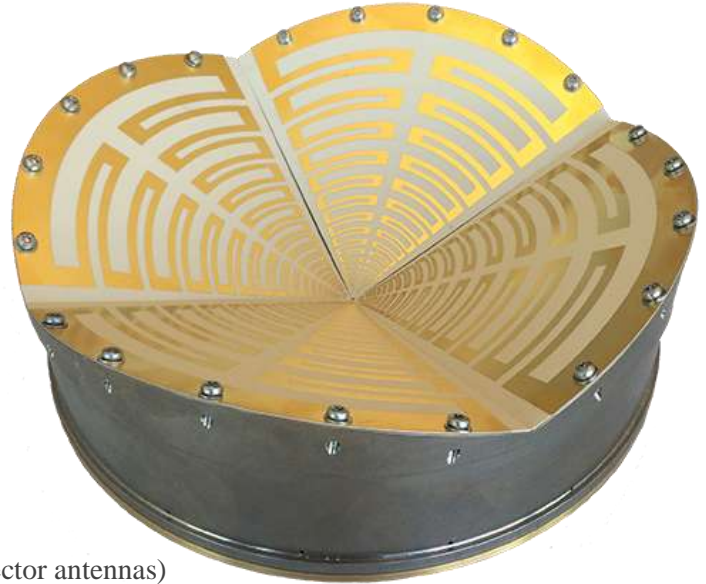


Ultra-Wide Band Feed for Reflector Antenna

This special feed antenna is designed by Professor Per-Simon Kildal from Chalmers University in Sweden. The antenna has a fixed phase center and can coverage over a decade BW. This means that it can operate over an extremely wide band. Its small size makes it easy to fit, move and cool down. The application areas of this antenna span from Radio Astronomy - Cryogenic feed in reflector antennas, to Surveillance (military) and EMC Test chambers. This antenna can be designed for several frequency bands, from 100MHz to 20GHz



APPLICATION AREAS

- Radio Astronomy (e.g. cryogenic feed in reflector antennas)
- Surveillance Systems
- EMC test chambers
- Multi-band observation
- Military
- Wide-band Solar and Weather Observation
- And many more

SUMMARY

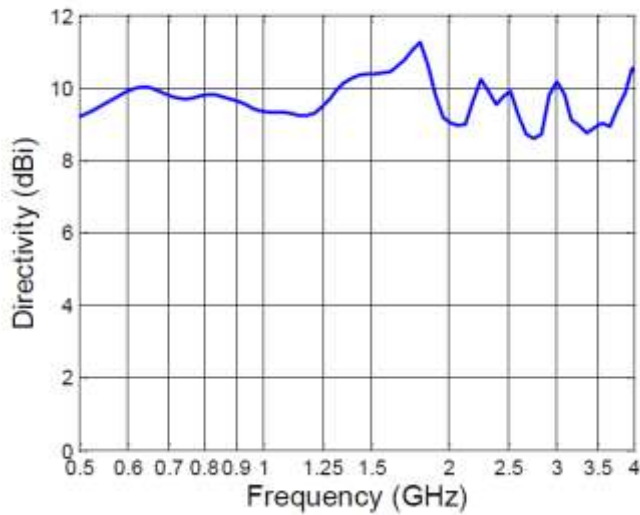
- Can be designed for several frequency bands from 100MHz to 20 GHz
- Ultra Wide Band, typically BW > 10:1
- Compact size
- Fixed phase center
- Nearly constant beam width
- Nearly constant directivity (10-11 dBi over frequency range)
- Single or dual polarization

Example Specification (500 MHz to 4 GHz band)

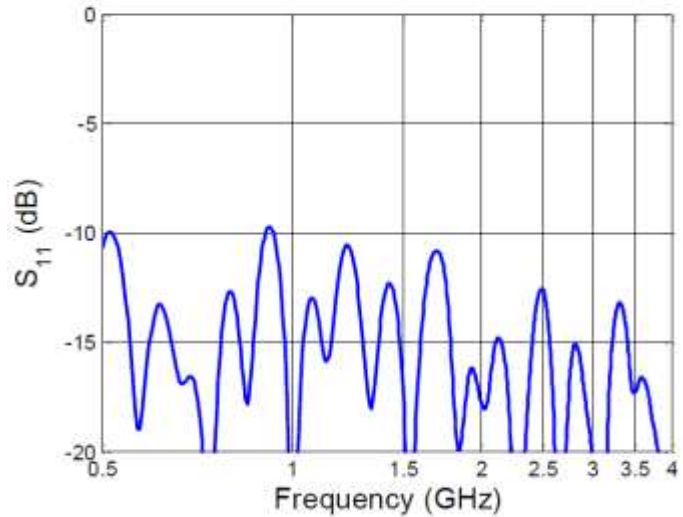
- Size: 40 × 40 × 20 cm
- Frequency range: 0.5 – 4 GHz
- Polarization Single linear
- VSWR: < 2:1
- Directivity: 8.5 – 11 dBi
- Aperture efficiency: 60 – 70 % ($\approx -2\text{dB}$)
(In parabolic reflector with half subtended angle 60°)
- Ohmic loss: 0.25 dB



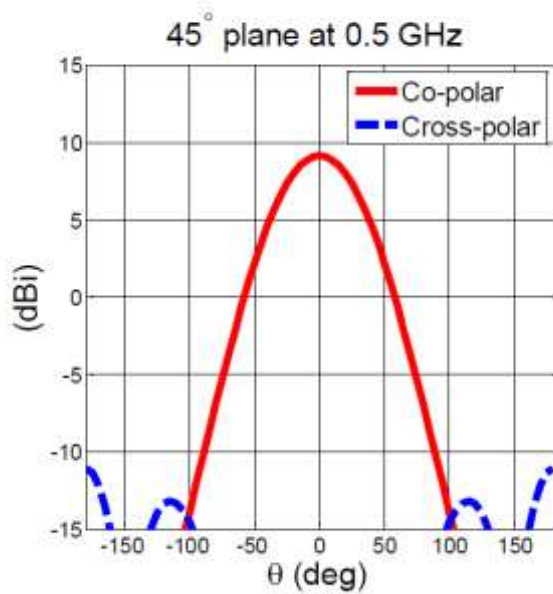
Directivity



Reflection coefficient



Radiation Pattern in 45°-plane



Aperture Efficiency in paraboloid

