



DESIGN OF ANTENNAS



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SSR

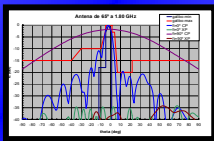
LINEAR ARRAYS

- Base station antennas for mobile systems applications: GSM, UMTS, DECT, 3.5 GHz
- Companies collaborations: Sistemas Radiantes Moyano, RYMSA, SIEMENS.

UMTS



Crosspolar +/-45°
Sectorial 65° antenna



GSM 1800 MHz



Vertical pol. °
Sectorial 65° & 90°
antennas

DECT (3.5 GHz)



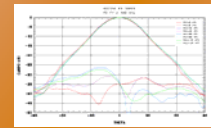
Vertical pol.
Sectorial 65°, 90° &
omnidirectional antennas

← **Cosecant function in elevation radiation pattern**

REFLECTOR AND HORN ANTENNAS

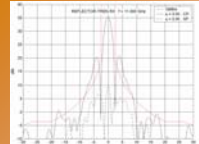
Yebes radiotelescope feeder

- S and X band horn with dielectric sub-reflector system
- 1.8 m Parabolic reflector
- Interferometer application

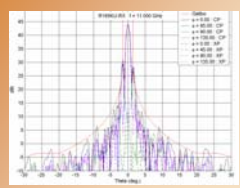


Terrestrial and on-board stations for AVE communication service

- Ku band (11 – 14 GHz)
- Corrugate horn with splash sub-reflector



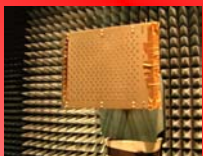
Military communication systems



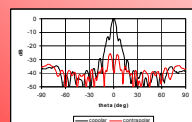
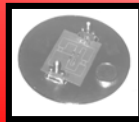
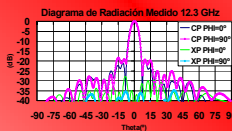
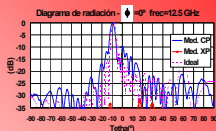
PLANAR AND CONFORMAL ARRAYS

- Parallel plate designs: DBS systems applications

Patch Designs



Slots Designs



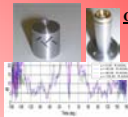
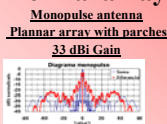
- Radar and On-board antennas: S band antennas for radar and on-board signal identification systems



✓ Naval and terrestrial antennas for RADAR system (1.2 GHz) ⇒ INDRA

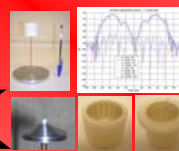
✓ Monopulse system azimuthal pattern. Electronical beam tilt elevation pattern (+/-40°)

- Planar and conformal arrays in Millimeter band (37 GHz):



Cylindrical conformal array
Slots orthogonal pairs
Circular Pol.

Monopole and conformal reflector
Polarizer with printed strips



COLLABORATION WITH COMPANIES

- Base station antennas for mobile systems:

S.R. F. Moyano,
RYMSA, SIEMENS

- DBS systems:

Televés, ESA

- Radar, onboard and millimeter wave systems:

INDRA

- Space satellite communications:

EADS-CASA, INTA,
INSA

- Radioastronomy

OAN. Centro
Astronómico de
Yebes