

# Tianlai/ BAORadio Antenna Working Group

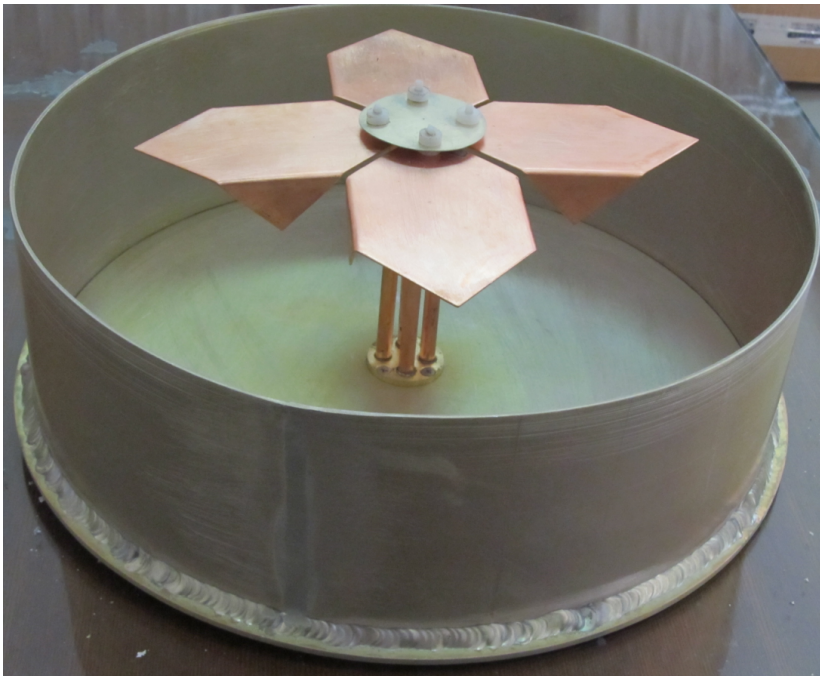
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Juyong Zhang	Hangzhou
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Catherine Steffel	

# Feeds/Antennas

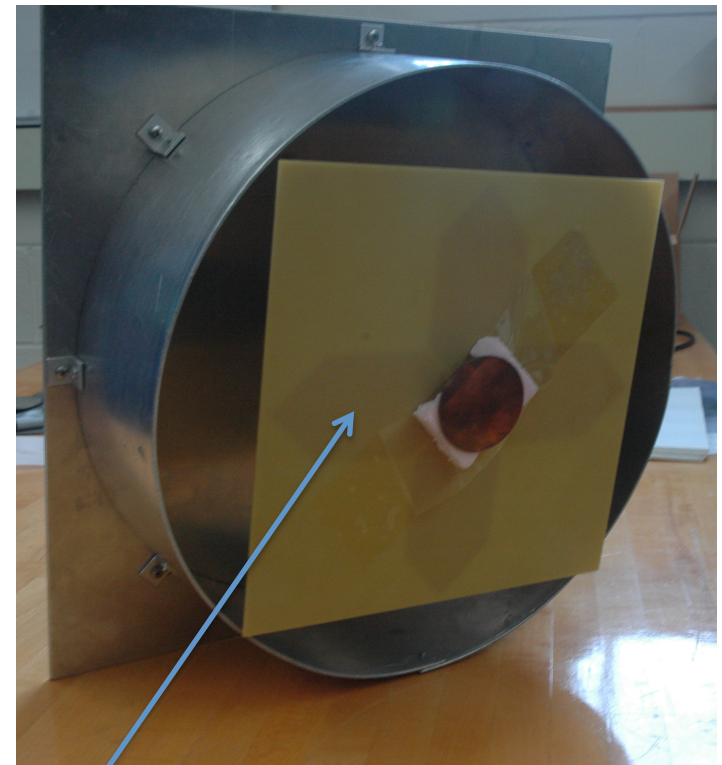
1. Cylinder and Dish antennas designed
2. Remaining simulations
  - a. cross-coupling between cylinder feeds
  - b. cross-polarization
  - c. provide realistic simulated patterns to simulators
3. Tspill computed
4. Feed spacing?
5. Anticipate beam pattern measurements
  - a. Dishes
  - b. Cylinders
  - c. Bright sources
    - i. Sun
    - ii. Cas A
    - iii. Tau A (polarized)
    - iv. Satellites?
6. Holography using dishes to check cylinders?
7. Other

# Feed tests

Copy of CETC 54 feed, made at UW



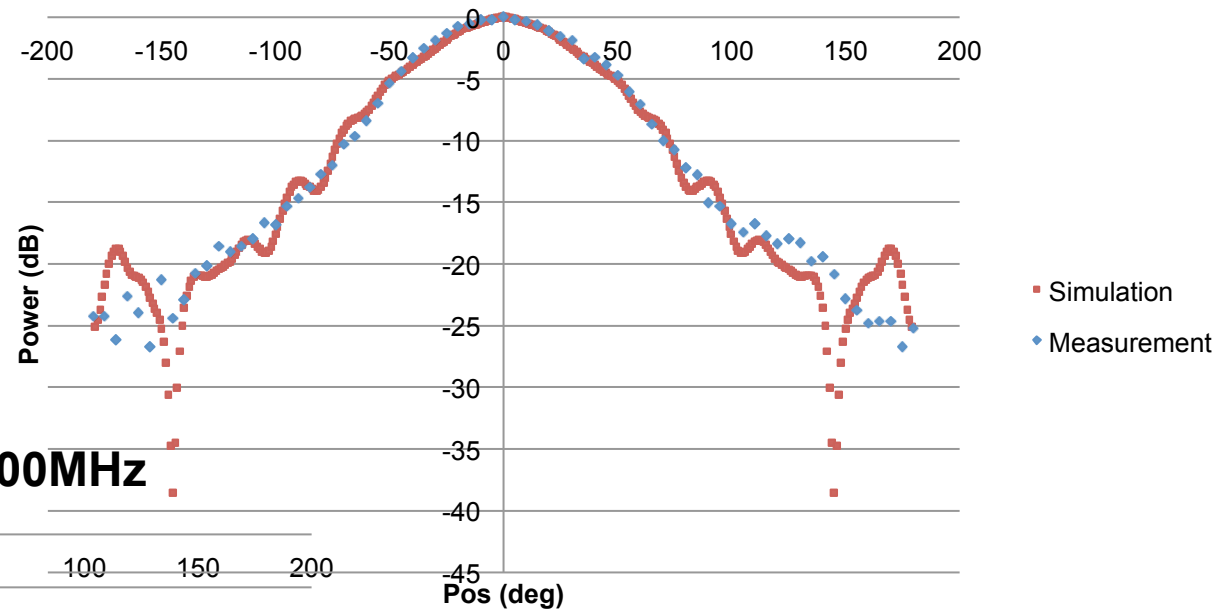
Prototype of feed made by CETC 54, used for Xinglong measurements



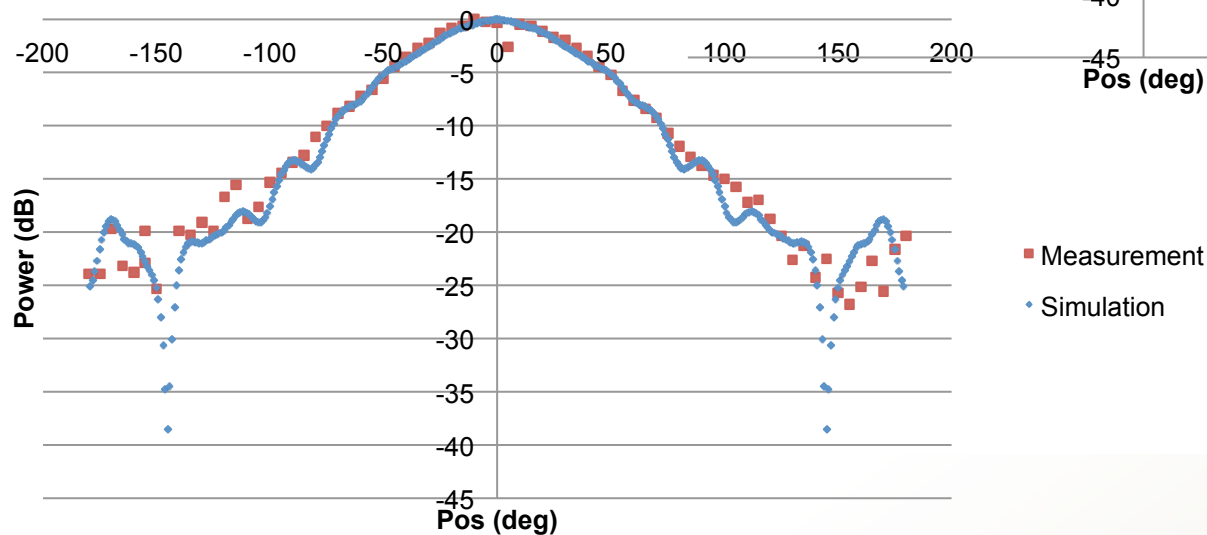
Metallized on back of PCB, no folded 'tabs'

# Coffee-can feed simulations & measurements at UW

## Eplane\_900MHz



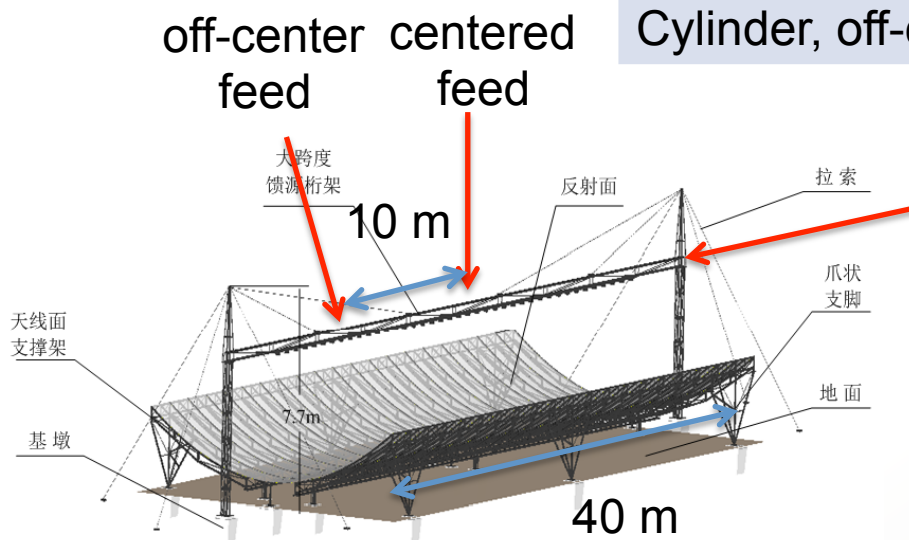
## Hplane\_900MHz



$$T_{\text{spill}}: T_{\text{sys}} = T_{\text{receiver}} + T_{\text{spill}} + T_{\text{sky}}$$

- Computed using simulated antenna patterns
- Assume emission from ground is 293 K
- Original coffee can feed used in all cases

Configuration	Tspill (K)
6 m dish	22.5
Cylinder, centered feed, unblocked	9.76
Cylinder, centered feed, blocked	11.51
Cylinder, off-center feed, unblocked	12.61
Cylinder, off-center feed, blocked	15.05



assume 0.6 m wide conducting 'blockage'