

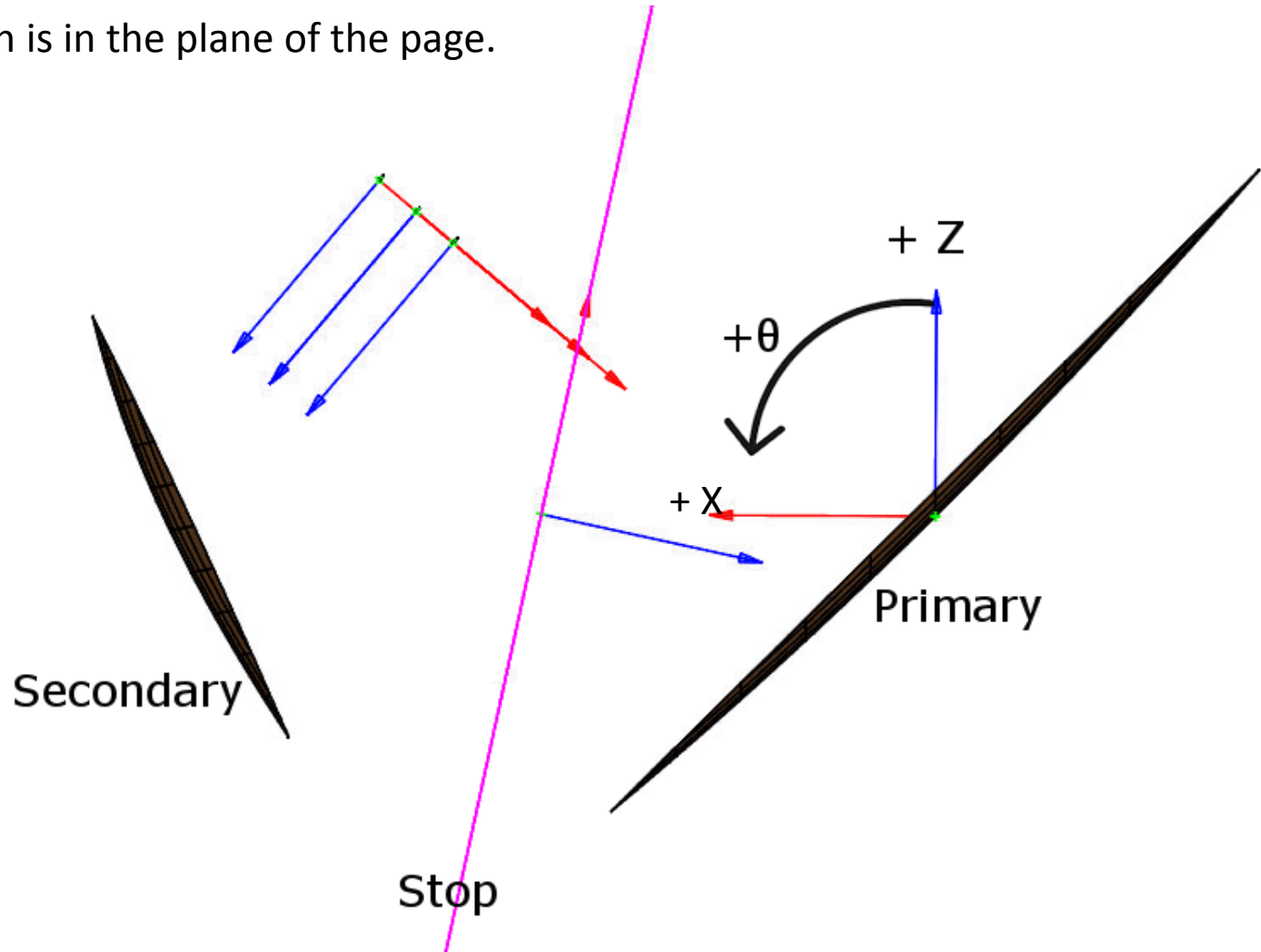
# GRASP update

February 28, 2018

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# Coordinates

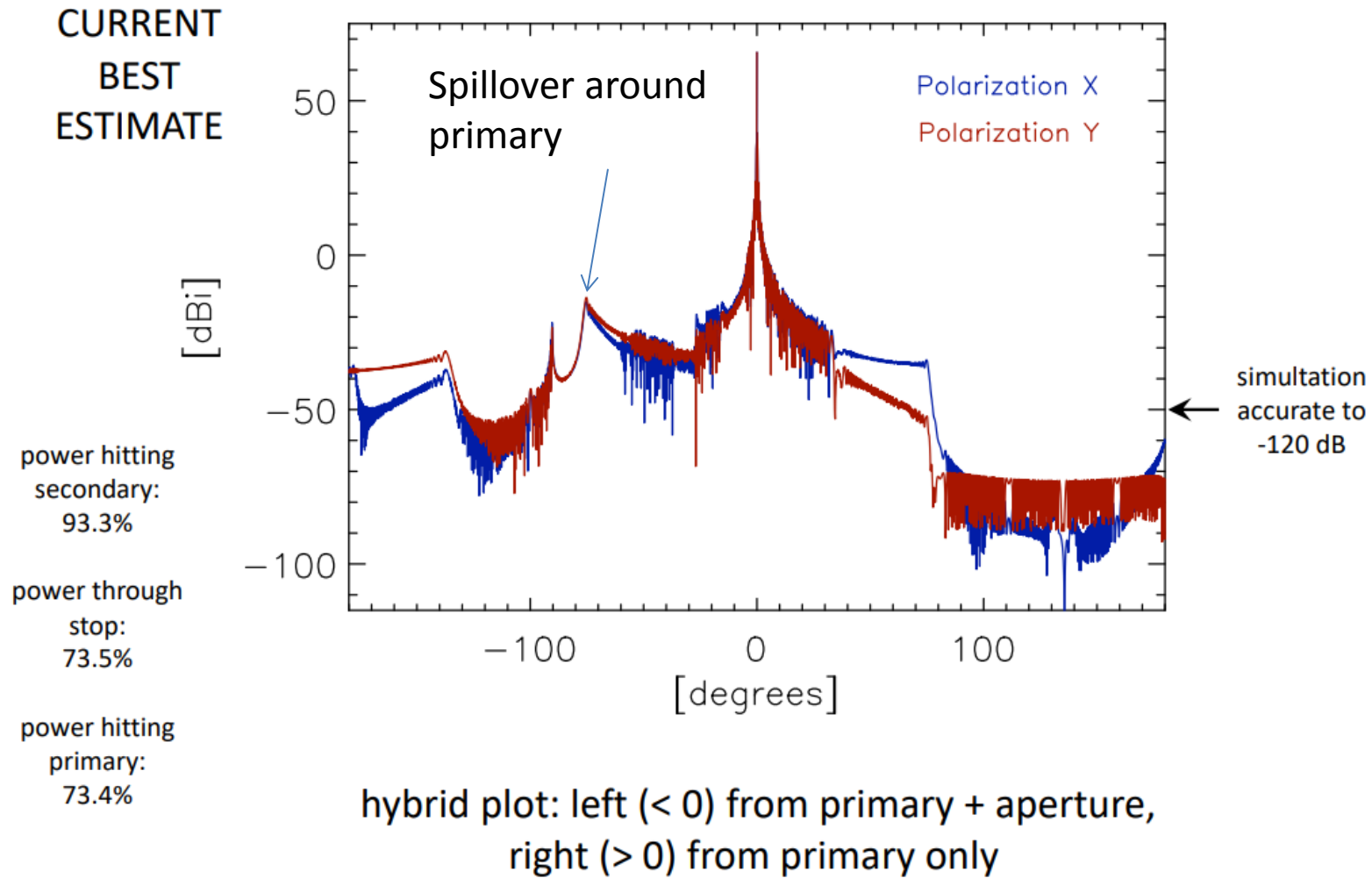
- All beam maps / cuts are in polar coordinates centered on the primary mirror.
- Phi is 0 at negative X axis and positive toward Y ( + Y is out of the page.)
- X polarization is in the plane of the page.



# Summary

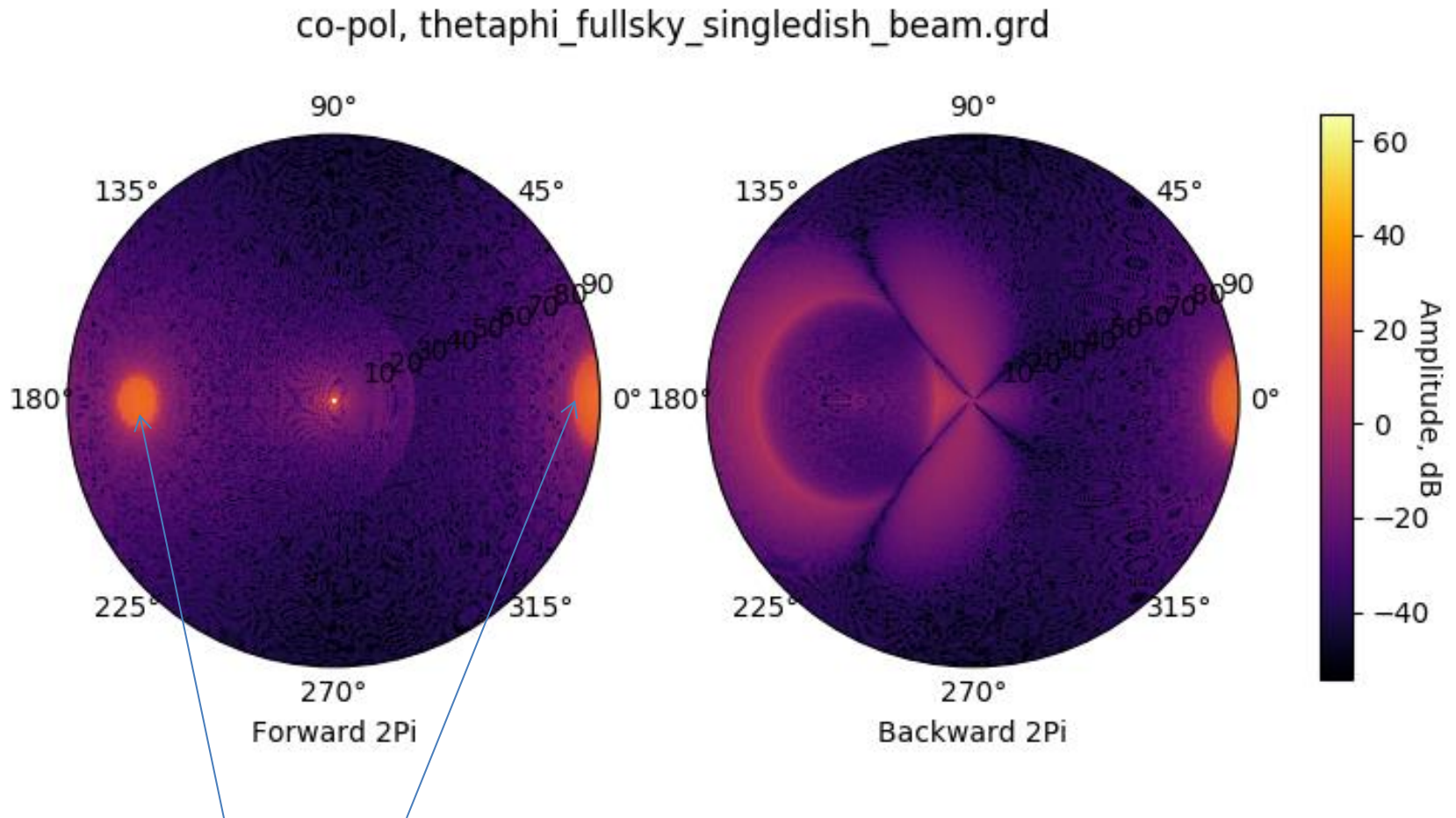
- Far sidelobes cuts from Brad. 0.1 deg resolution
- I have made 4 pi maps at 1 deg resolution.
- Both have some issues we haven't fixed / don't fully understand.
- Communicating with Julian on file formats to integrate beams in his simulations.
  - Can do a simplified beam now, just to test pipeline.
- Working with Maura Sandri (did GRASP work for Planck) to understand issues in simulation.
- Next step:
  - Simulating toy models to understand the proper calculations for the aperture stop
  - Limit area of the sky analyzed. Sidelobes behind secondary don't reflect reality because there will be baffles and a satellite blocking those paths to the sky. These additional structures are not included.

# Far Side Lobes, Center Feed, 150 GHz



# 4 pi beams

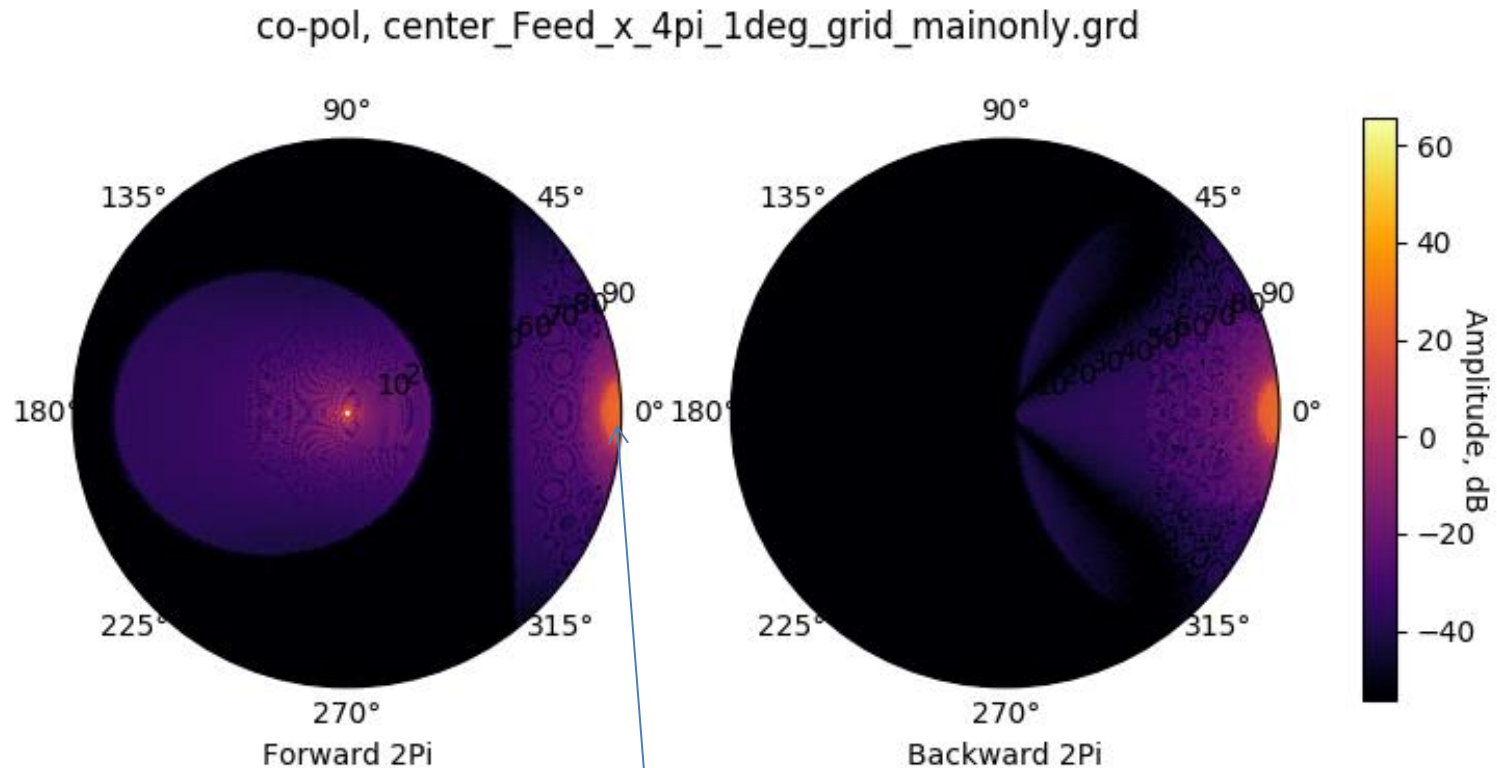
- Example only! Structure that doesn't make sense is present.
- All elements included.
- Main beam is at center of left hand plot.



Non physical. Errors  
relating to aperture stop

# 4 pi beams

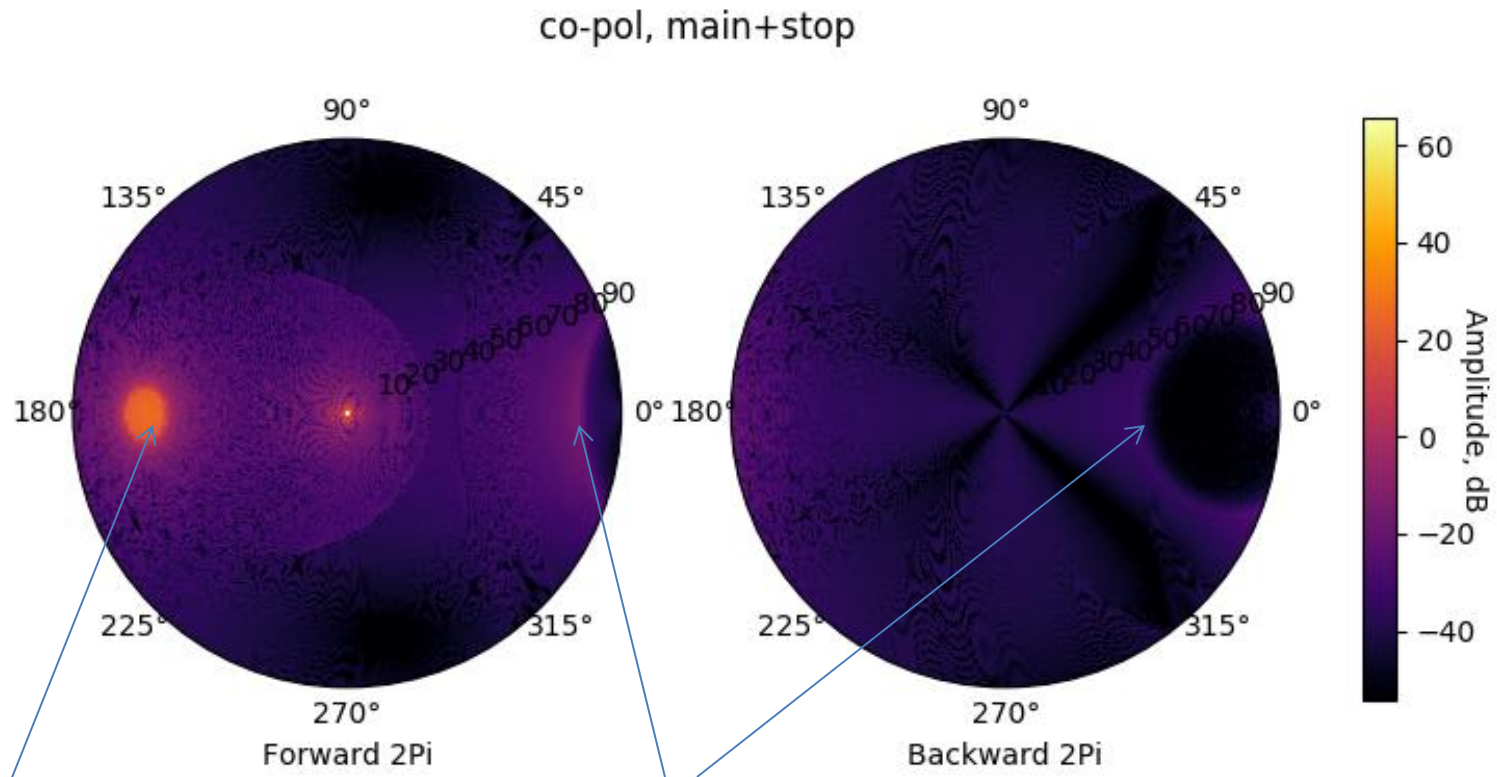
- Example only! Structure that doesn't make sense is present.
- Primary mirror only



Non physical.  
Emission from back  
of primary

# 4 pi beams

- This is closest to what I believe is correct.
- Example only! Structure that doesn't make sense is present.
- Primary mirror and stop only

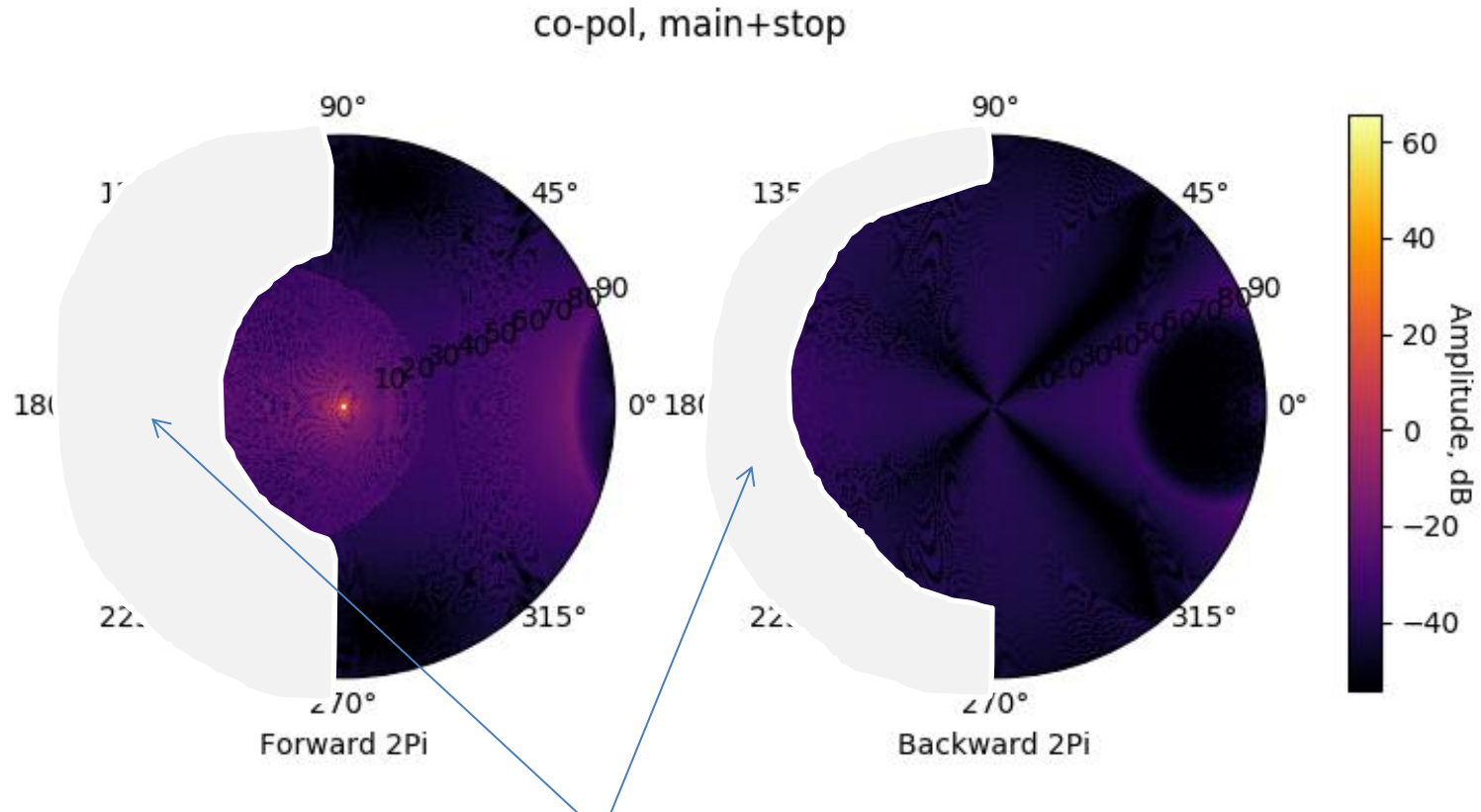


Non physical.  
Emission from back  
of stop.

Spillover around  
primary.

# 4 pi beams

- This is closest to what I believe is correct.
- Example only! Structure that doesn't make sense is present.
- Primary mirror and stop only



Extremely rough estimate of areas with sky view blocked by satellite body and sun shields