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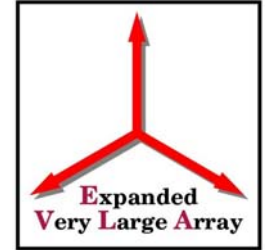
# Antennas & Feeds

## Mechanical Design

Feed Cone  
Feed Mounting  
Horn Fabrication



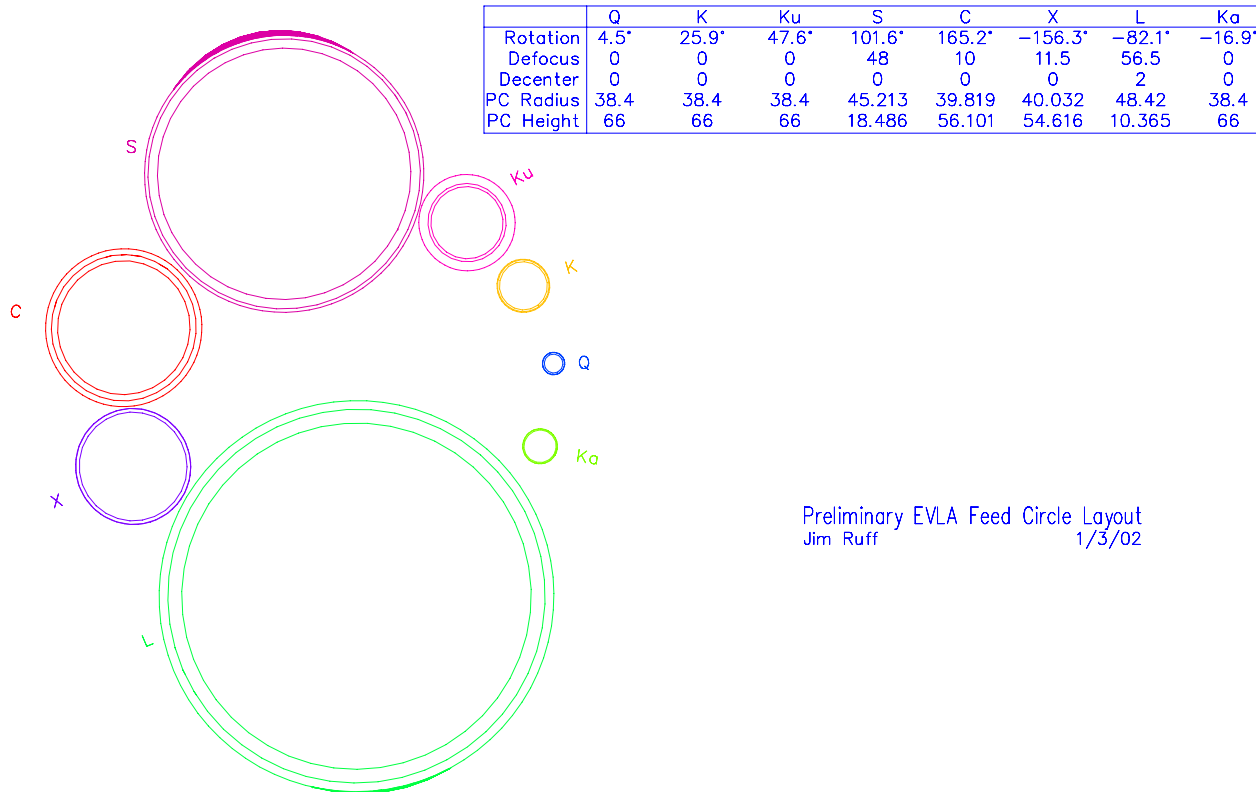
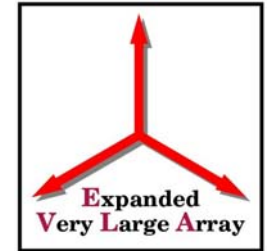
# Feed Cone



- Why?
  - More Frequencies
  - RFI Containment
  - Reduced clutter at antenna vertex
- How?
  - Similar to existing K/Q segments
  - Monolithic

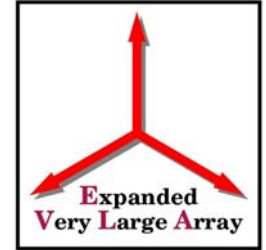


# Feed Circle

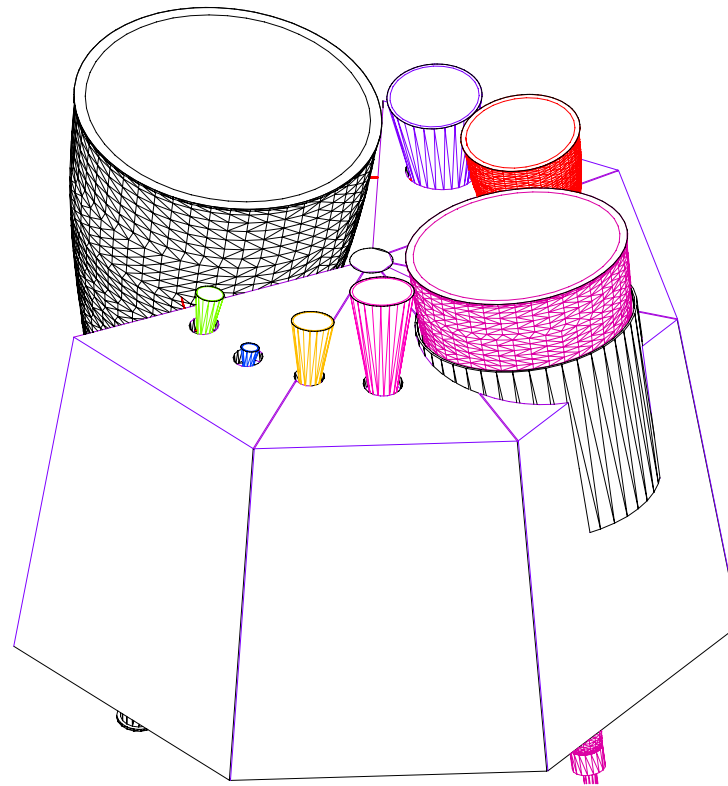




# EVLA Feed Cone

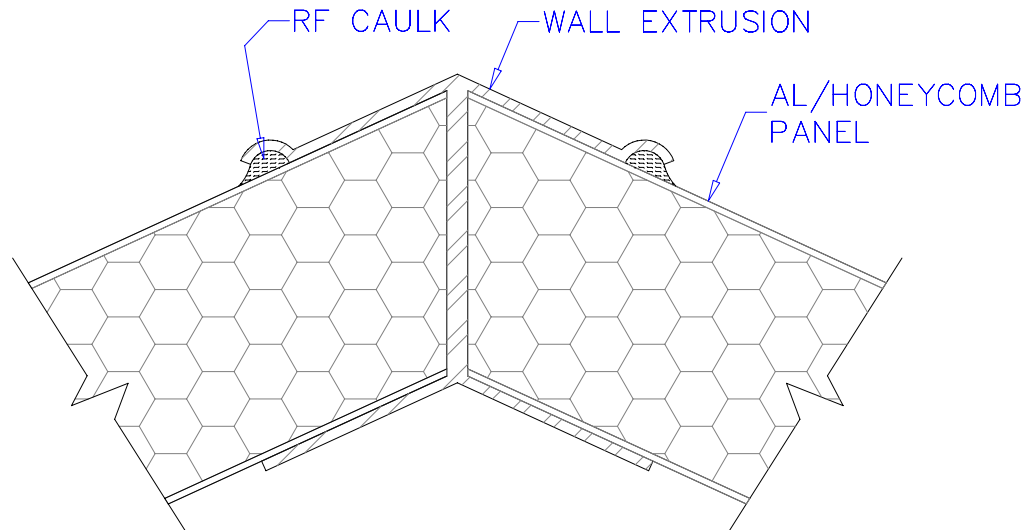
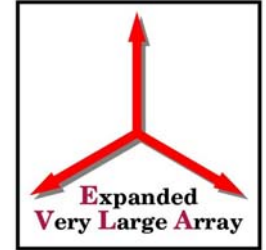


The L-Band horn is not contained in the feed cone.





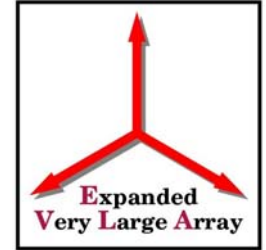
# Feed Cone



SECTION THROUGH WALL PANEL JOINT  
(ROOF SIMILAR)



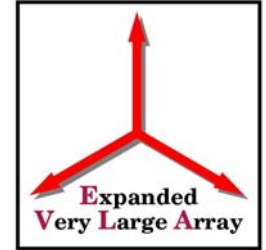
# Feed Cone



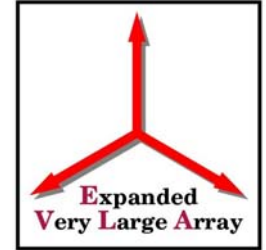
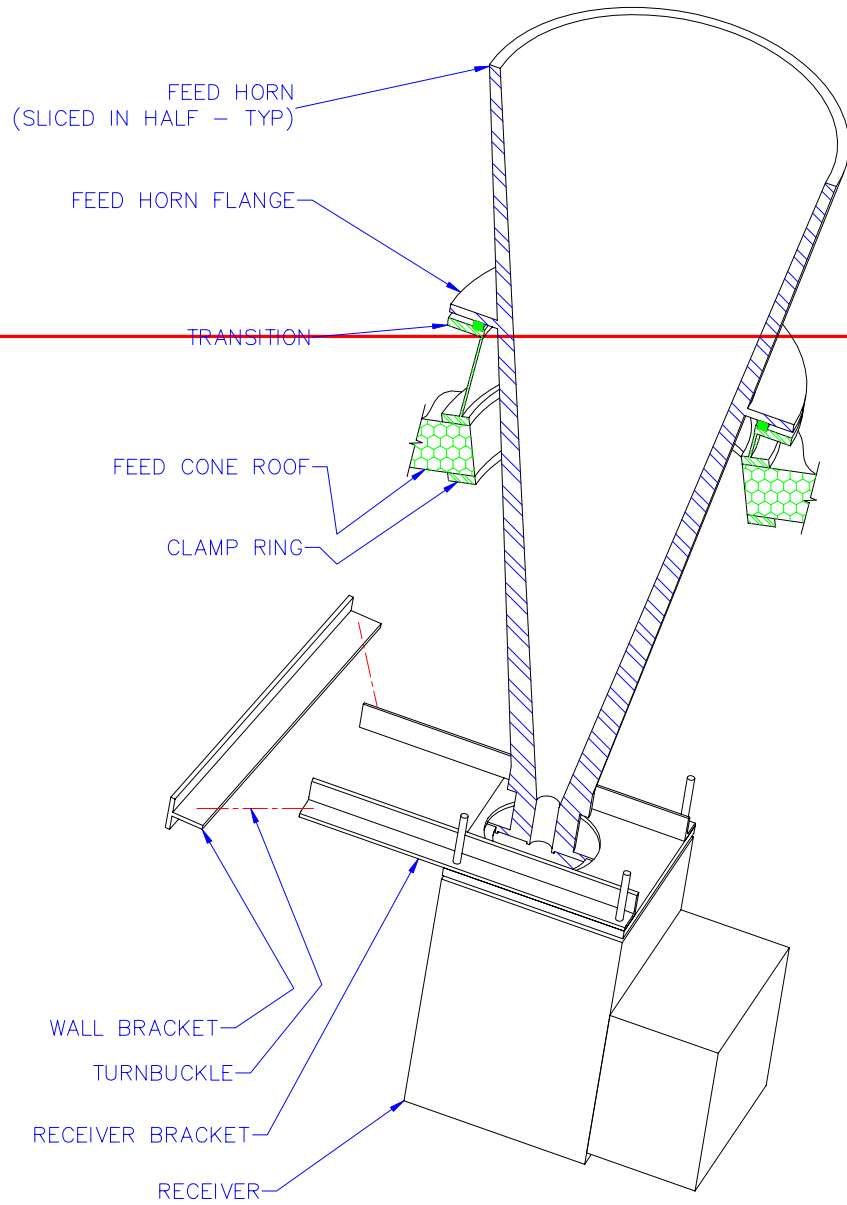
- Unresolved Questions
  - Aluminum or Polycarbonate core?
    - Aluminum cores are stiffer
    - Polycarbonate cores are better thermally
  - Service Access
    - Receiver heights vary greatly
    - Space will be at a premium



# Feed Mounting



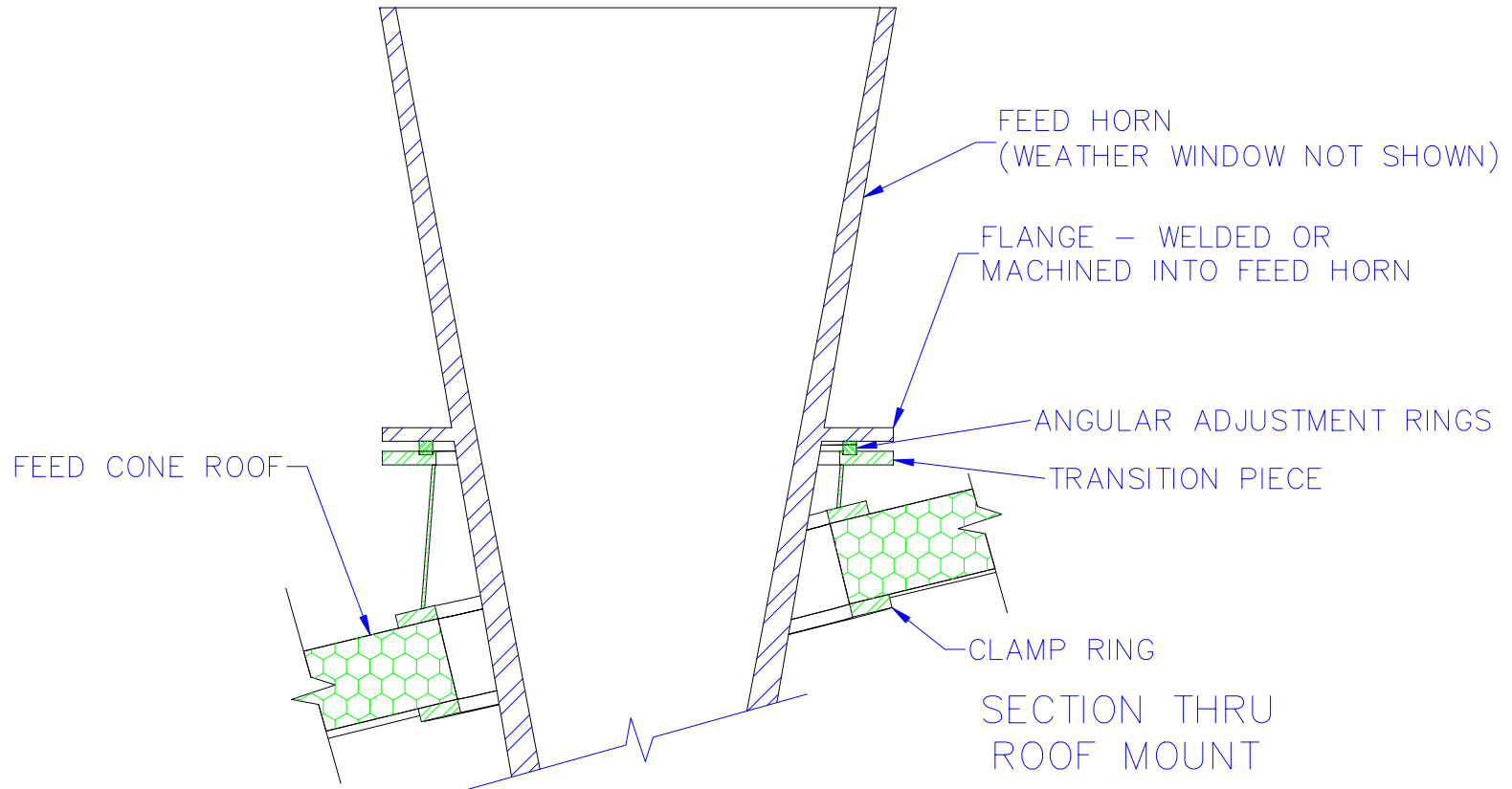
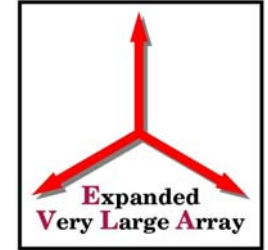
- Features:
  - Based on VLA X-Band
  - Continuous metal-to-metal for RFI containment
  - Simple horn installation and alignment
  - Convenient receiver swapping
- Which Bands?
  - S? C X Ku K? Ka? Q?





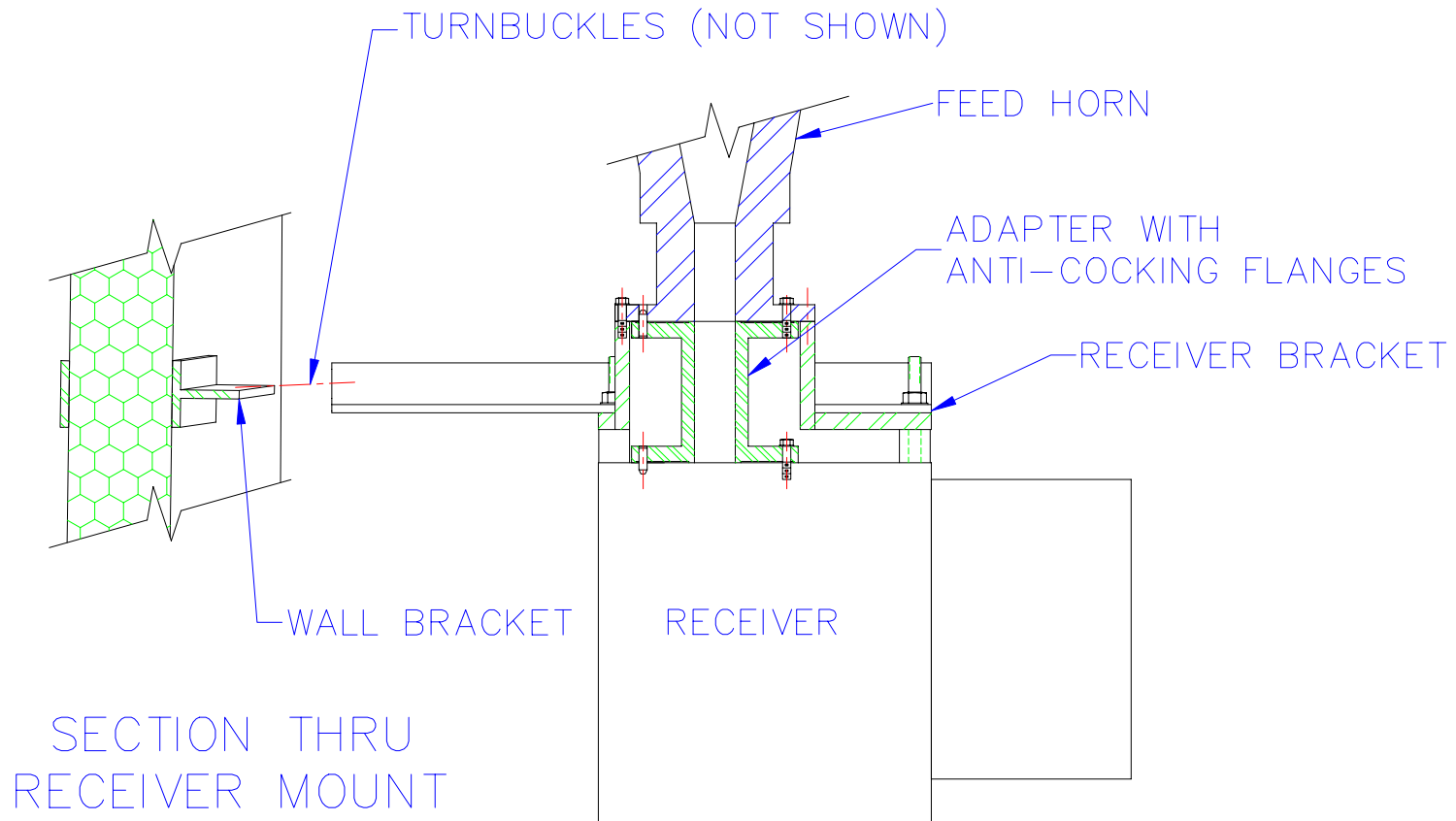
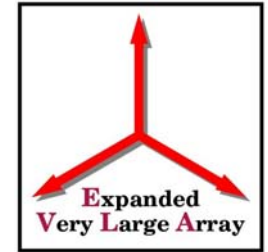


# Feed Mounting



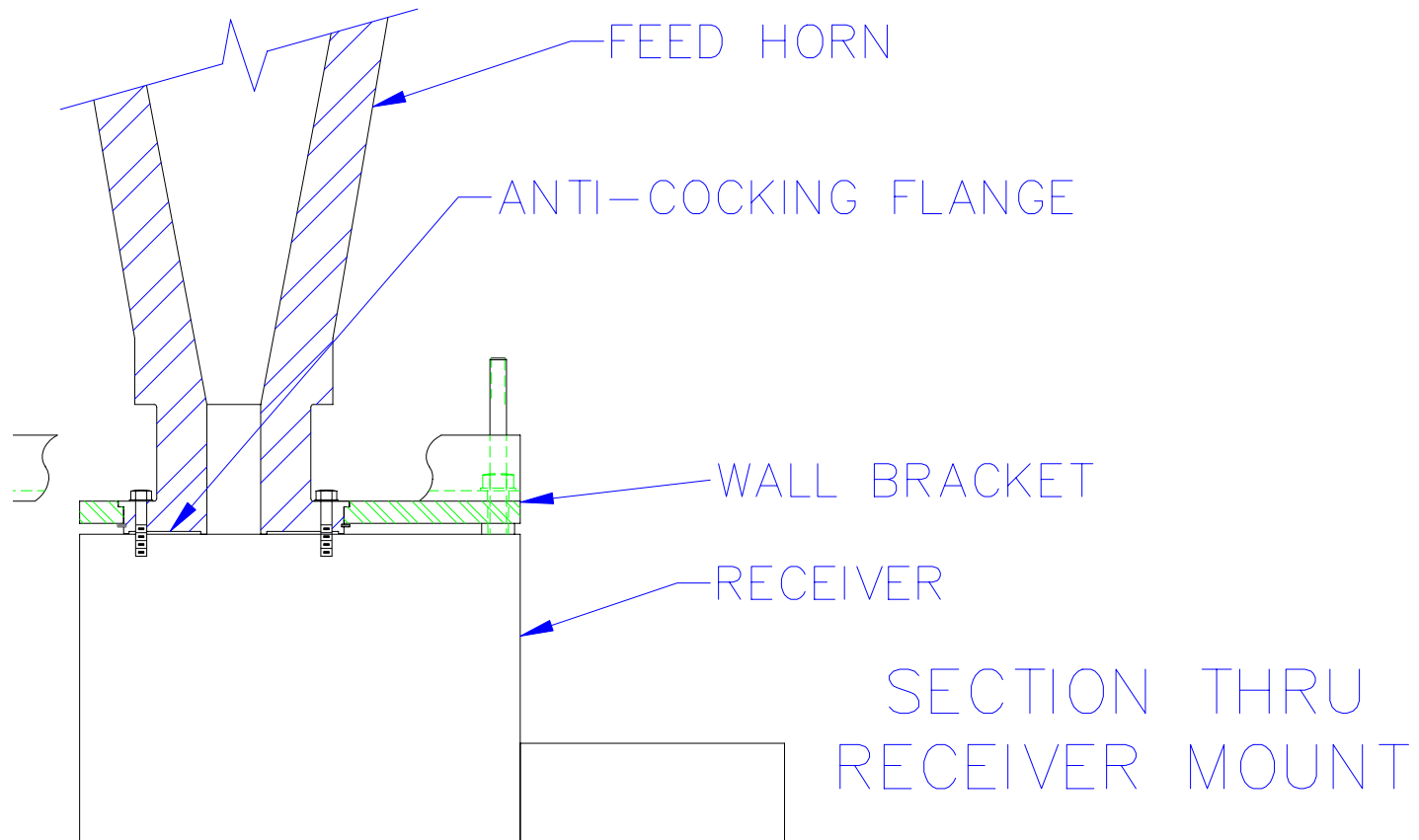
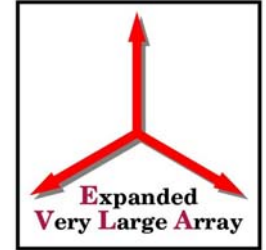


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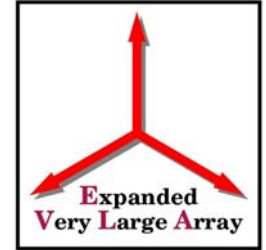


# Feed Mounting





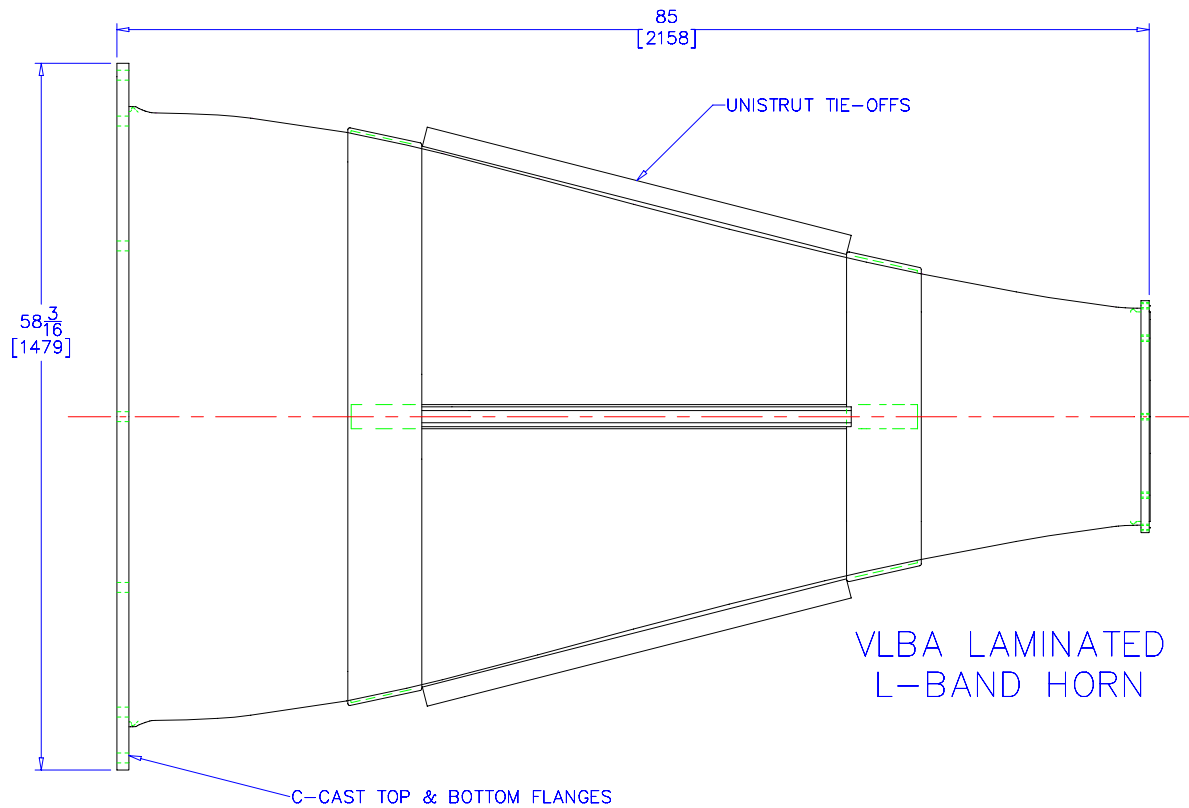
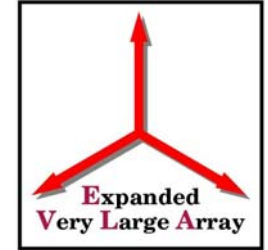
# Horn Fabrication



- Laminated Horns (L, S and C)
  - Similar to VLBA L-Band horns
  - Reduce weight and simplify construction
  - Tooling

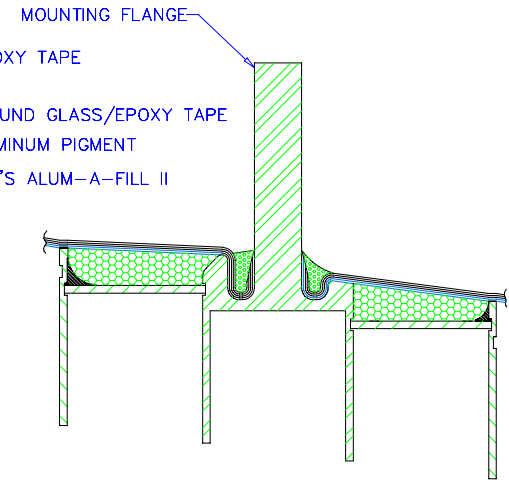
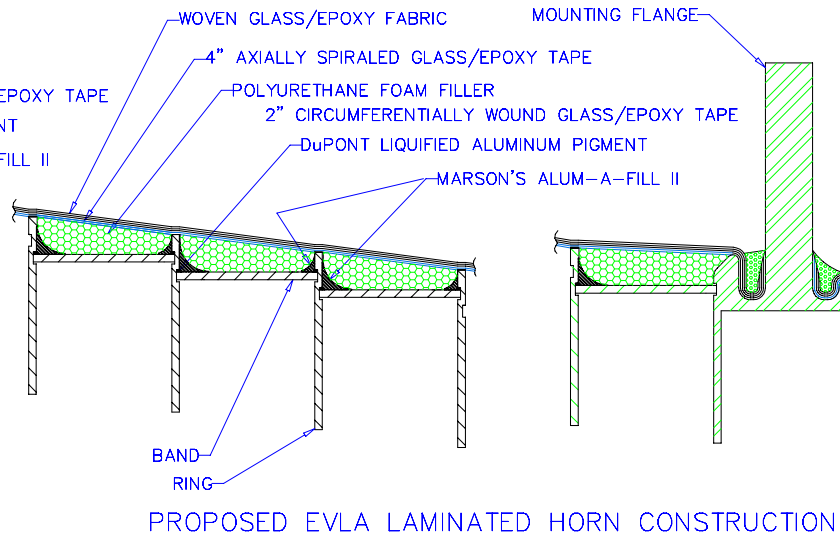
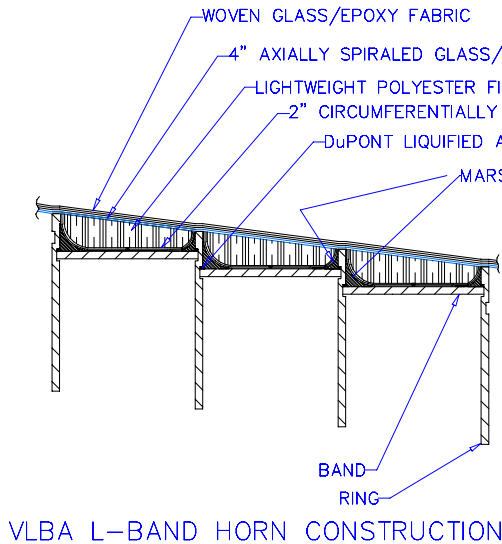
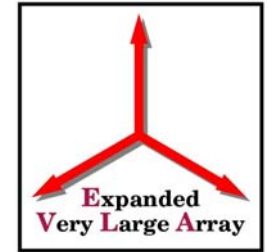


# Laminated Horns



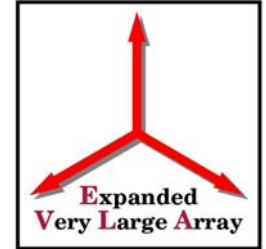


# Laminated Horns





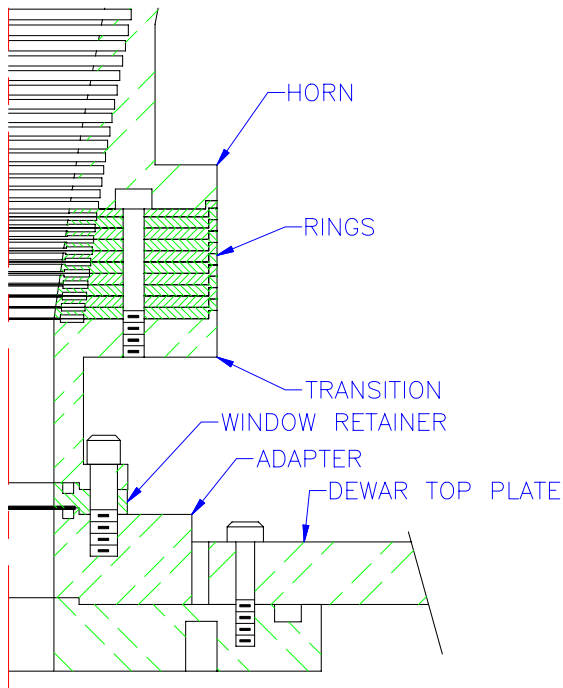
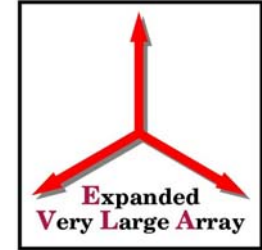
# Ring Loaded Horns



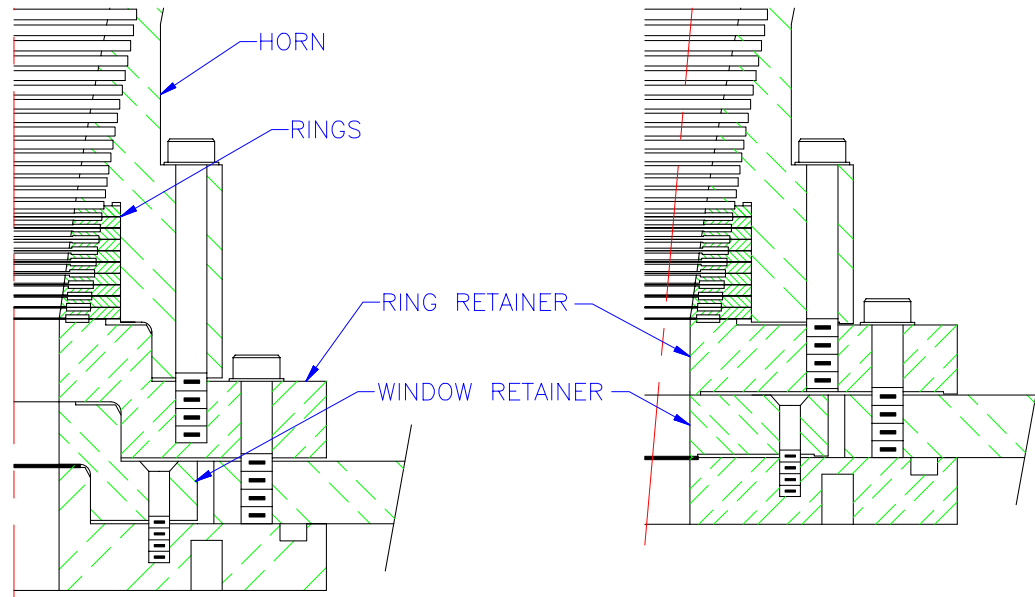
- A Proposal for Ring Loaded Horns
  - Simplify assembly
  - Simplify receiver mounting
  - Improve flange mate-up reliability
  - Reduce manufacturing cost



# Ring Loaded Horns



CURRENT K-BAND DESIGN



REDESIGN WITH  
PILOT BORES

REDESIGN WITH  
ANTI-COCKING FLANGES