Fabrication and Mass Production
Plans for Laminated Feeds

L-Band
S-Band
Lamination vs Machining

- To Laminate or Not to Laminate, that is the question
- Cost effectiveness for large feeds
- Weight Reduction
- Proven effective with VLBA L-Band
Laminated Feed Assembly Overview

• Cut the rings and bands
• Assemble the rings and bands on a Christmas Tree
• Laminate the assembly
• Apply surface finish to the inside of the feed after lamination
Rings

- Made of 6061T6 Aluminum Sheet
- Cut at the VLA site by a custom build ring machine
- Grooved on the edges to accept the bands
Bands

- Bands are made of 5053H34 Aluminum Strap
- Cut to length and welded at the VLA site
Rings and Bands Interface
Christmas Tree

- Feed assembly jig
- Centers rings and bands
- Applies pressure during lamination
- Rotates during the laminating process
The Christmas Tree
Christmas Tree
Laminated Horns

VLBA L-BAND HORN CONSTRUCTION

PROPOSED EVLA LAMINATED HORN CONSTRUCTION
Before and After
Laminated Feeds to Date

- VLBA L-Band Feeds
- GBT - 2 Laminated Feeds (S and L Band)
- EVLA - 2 L-Band Feeds
- EVLA - 2 C-Bands Feeds
- Currently Laminating 3rd L-Band
The Lamination Experience

• C-Band has a break even point between lamination vs machining from c-cast material
• L-Band feeds are easier to handle when laminated in two pieces
• Developed good techniques and tools
Questions?