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# EVLA Feeds CDR

## Feed Radomes



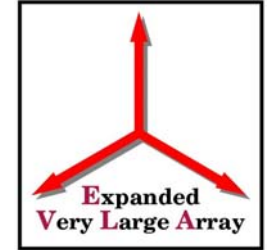
# Radome Windows



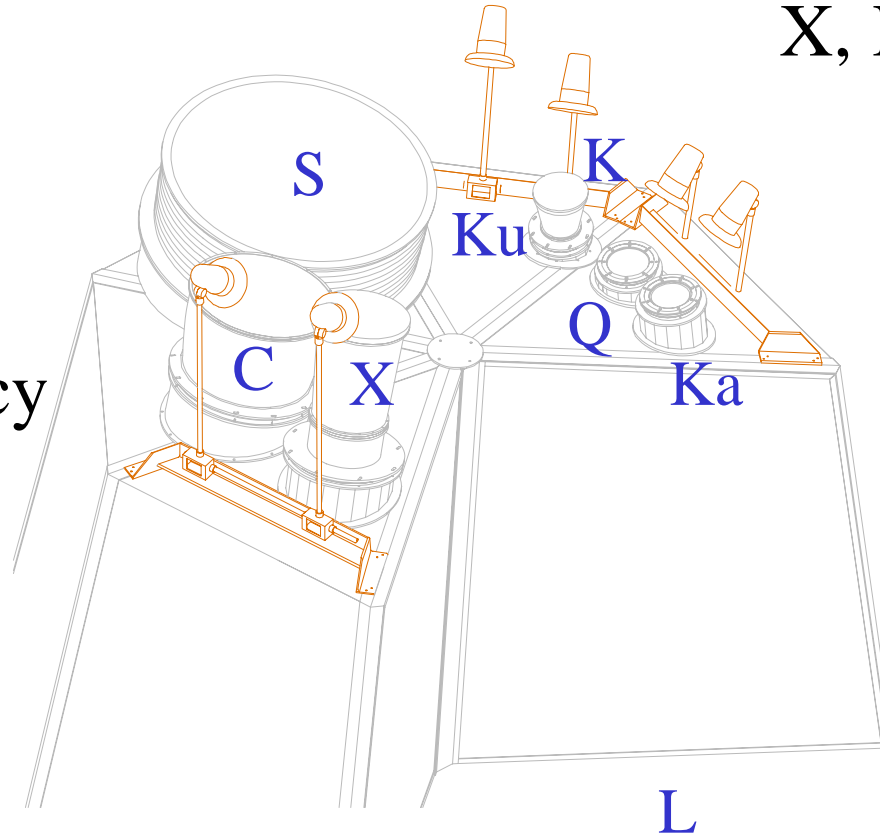
- All of the feeds will require a radome (or weather window) to provide environmental protection.
- These radomes must:
  - be low loss
  - be non-absorbent,
  - have good UV characteristics
  - provide a moisture seal
  - protect against insect/bird/rodent access
- All but the Ka & Q-Band receivers have their feeds protruding through the Feed Cone roof.



# Feedcone View of Radomes (excluding L-Band)



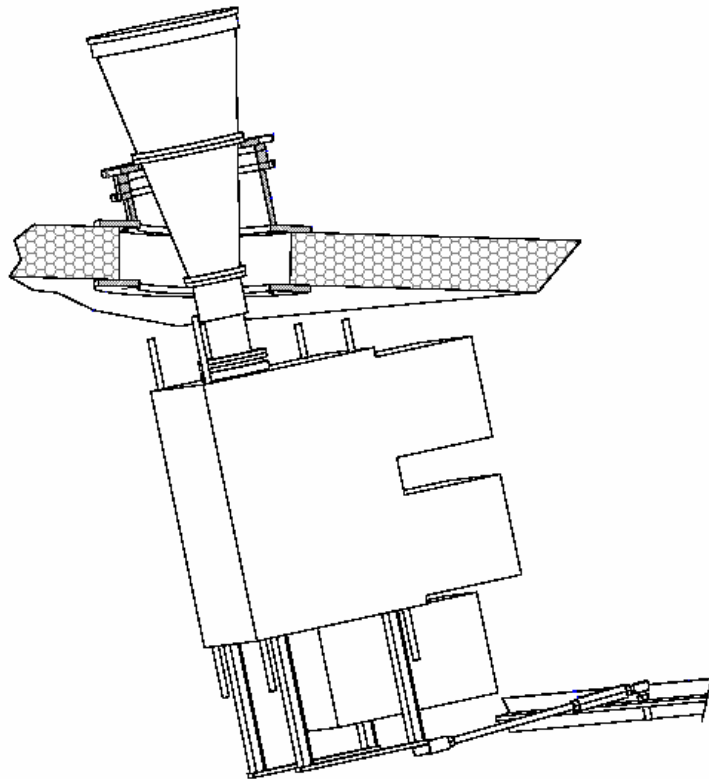
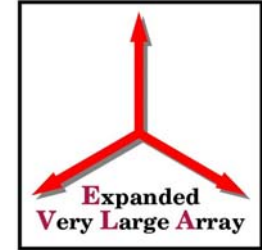
L, S & C  
Radomes  
will use a  
Stronger,  
Low Frequency  
Radome  
Material



X, Ku, K, Ka & Q  
Radomes  
will use a  
Low-Loss  
High  
Frequency  
Radome  
Material



# “K-Band” Style Mount



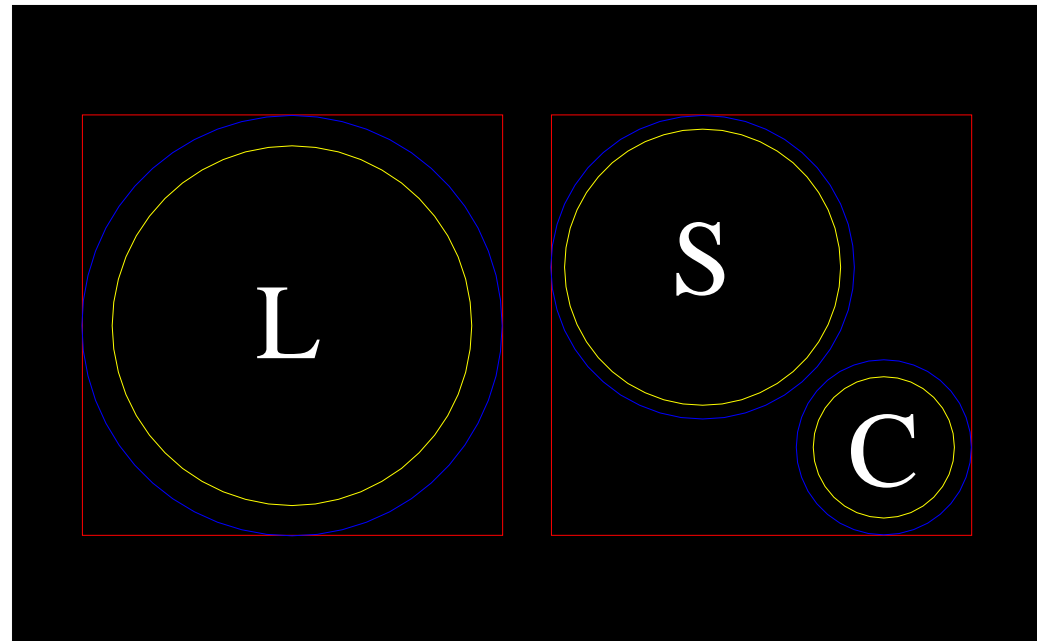
- K, Ku, X, C, S (& even L) use similar style of mounting
- Feed is mounted to the Feed Cone and the Receiver is then mounted to the Feed
- Radome membrane covers the mouth of the feed
- Esscolam 10 for L, S & C
- Gore RA7906 for X, Ku & K



# Radomes for Low Frequency Bands

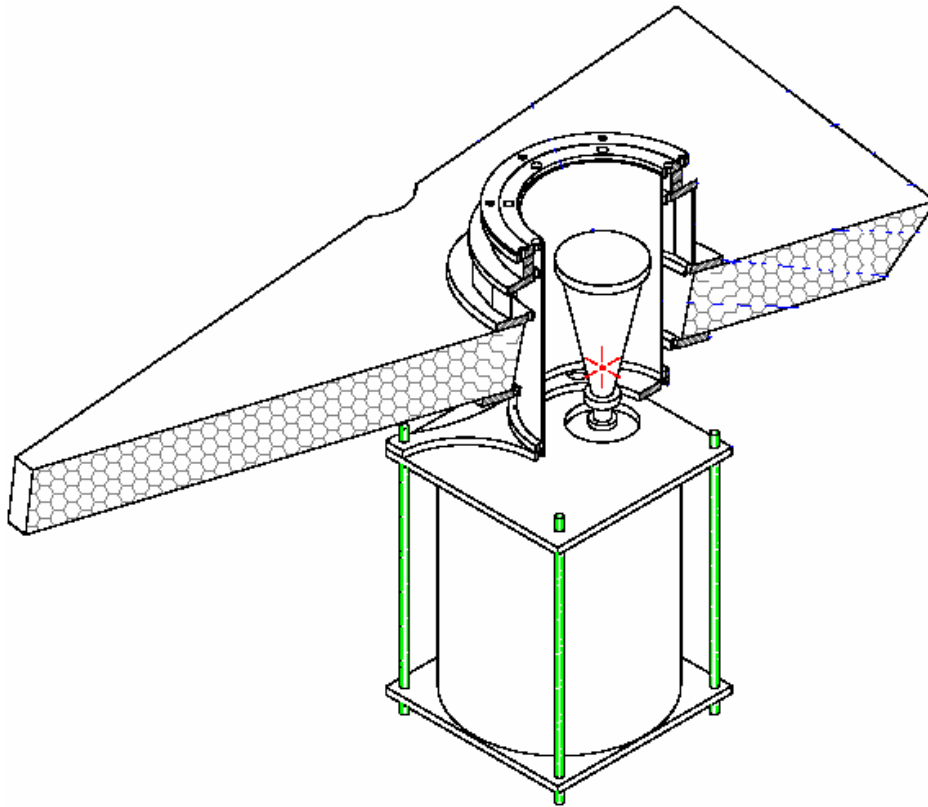
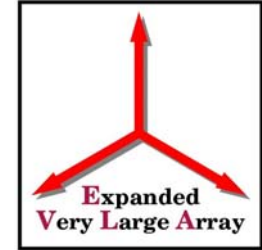


- Esscolam 10 will be used on L, S & C-Band Feeds
- 72" by 72" sheets





# “Q-Band” Style Mount

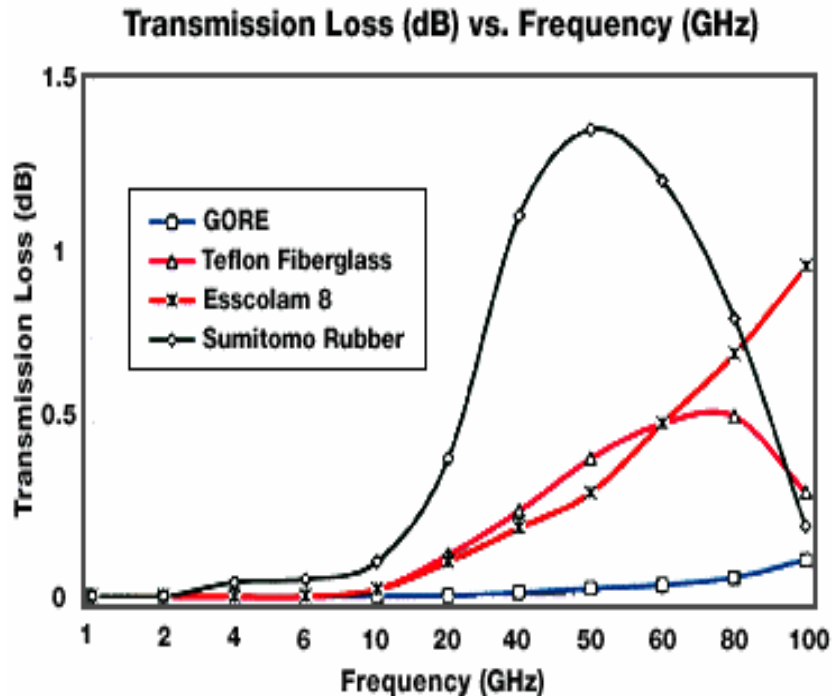
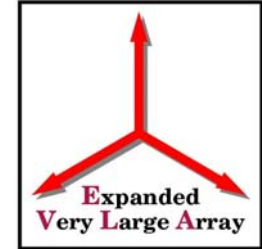


- Q & Ka use similar style of mounting
- Feed is considered to be part of the Receiver
- Rx bolted to Feed Tower
- Air-tight seal formed between Rx and Tower
- Radome membrane covers the top of the Feed Tower
- Gore RA7906



# Radome Materials

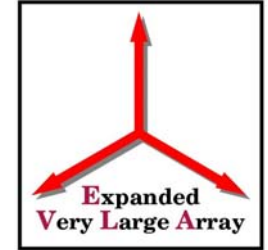
## Esscolam vs. Gore-tex



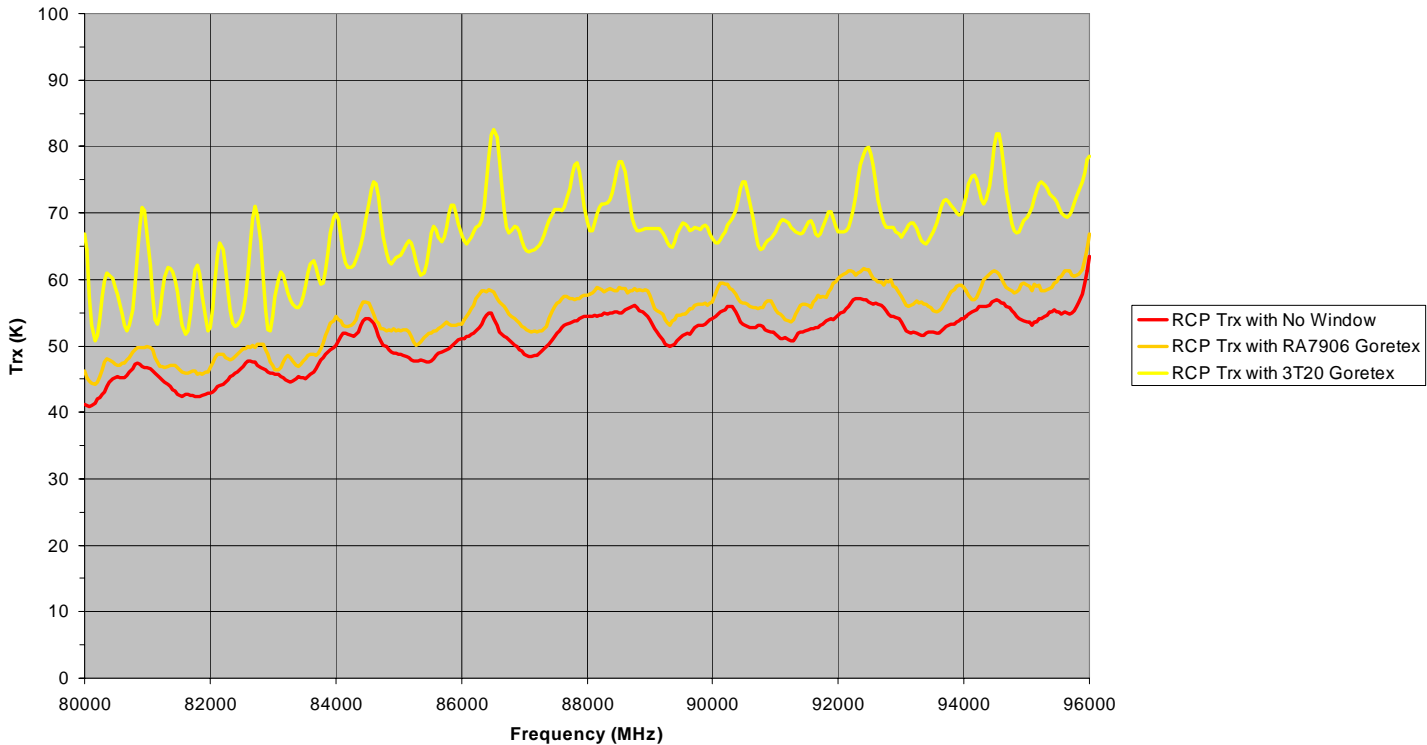
- Esscolam 10
  - Loss similar to Esscolam 8
  - Thickness 0.024”
  - 72” wide sheets
  - OK below 8 GHz
- Gore RA7906
  - Thickness 0.012”
  - 45” wide sheets
  - Best above 8 GHz



# Radome Windows at W-Band Gore RA7906 vs. Gore 3T20



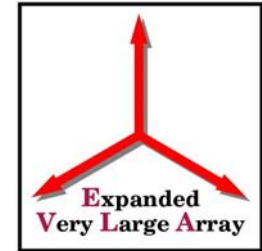
W#8 : Effect of Goretex Windows  
SNA Swept LO1 Data  
W08-RCP-Old&New-Goretex-Window-28-Sept-2004.xls  
28 Sept 2004





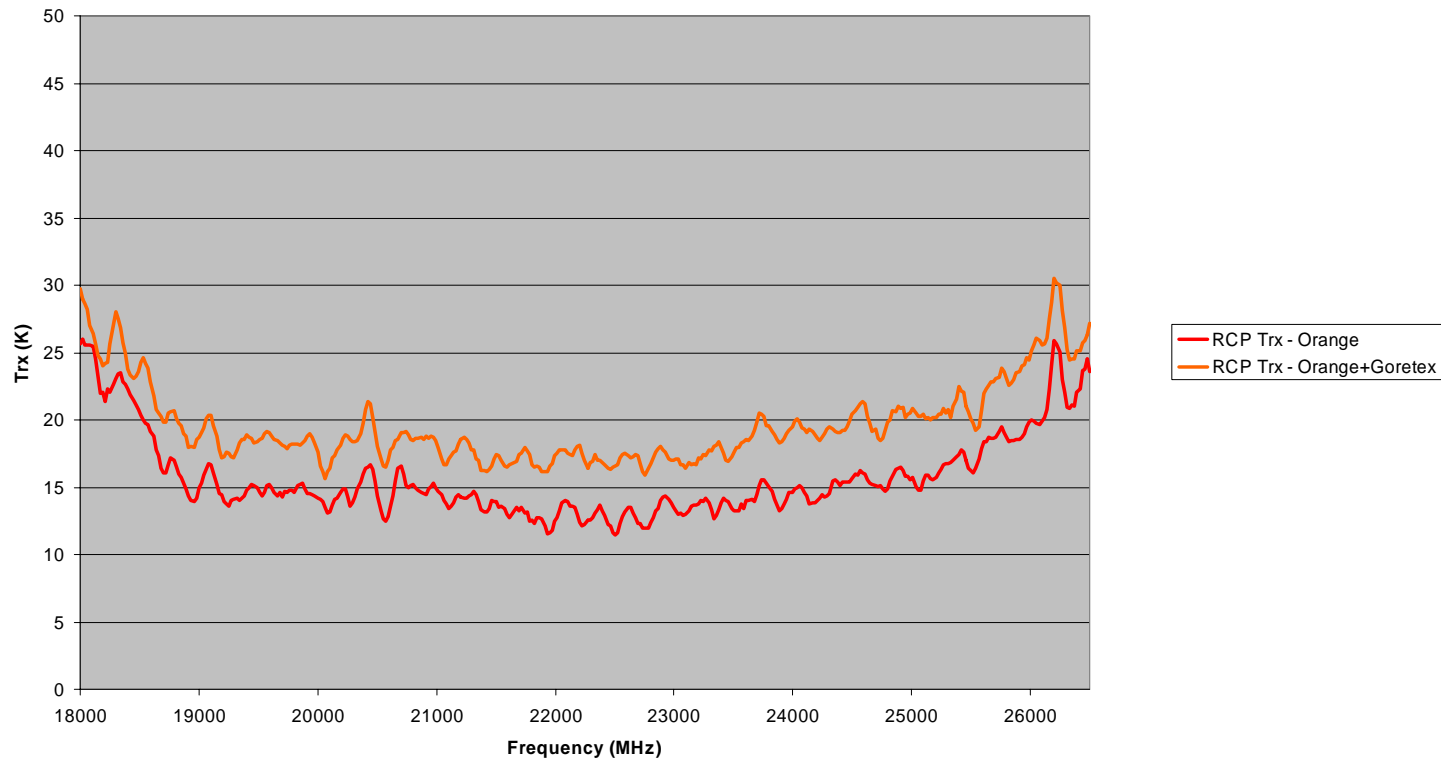


# Radome Windows at K-Band Gore 3T20



**K#28 With Cryo Isolators**  
**Test Feed with Orange Mylar vs. Orange Mylar + Goretex 3T20**  
**15 July 2004**

K28-Trx-Test-Feed-Orange-and-Goretex-Elev-Loads-18-26-Cryo-Iso.xls





# Radomes for High Frequency Bands



- Originally purchased 8m of 3T20 (\$3200)
- Now obvious that RA7906 is preferred
- Reuse existing K & Q RA7906 membranes
- W.L. Gore has agreed to allow us to return the 3T20 and replace it with RA7906
  - incur a 20% restocking fee (\$640)