

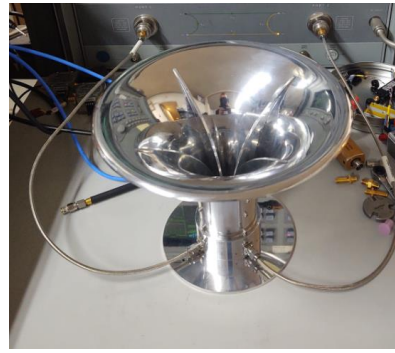
Arecibo 12m Antenna Cryogenic Wideband Front-End

Project Update 06/03/2022

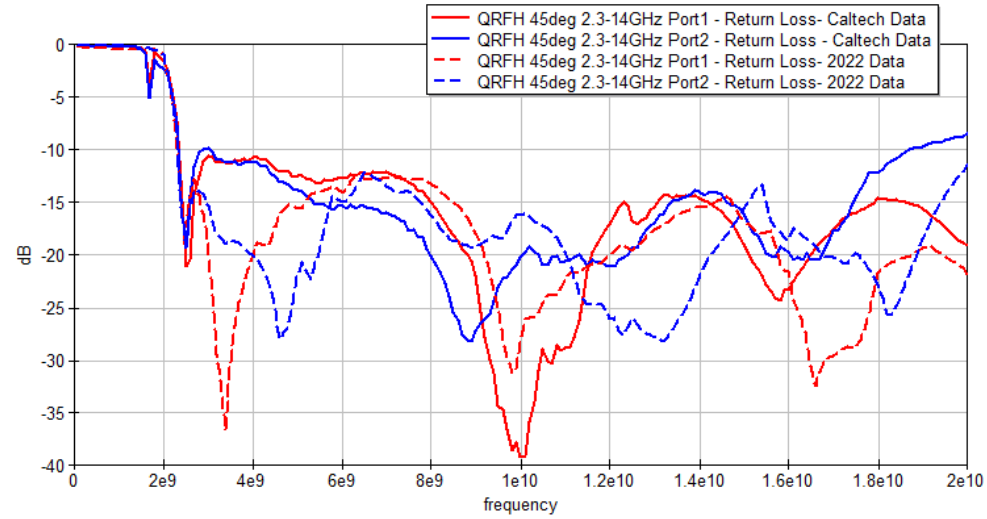
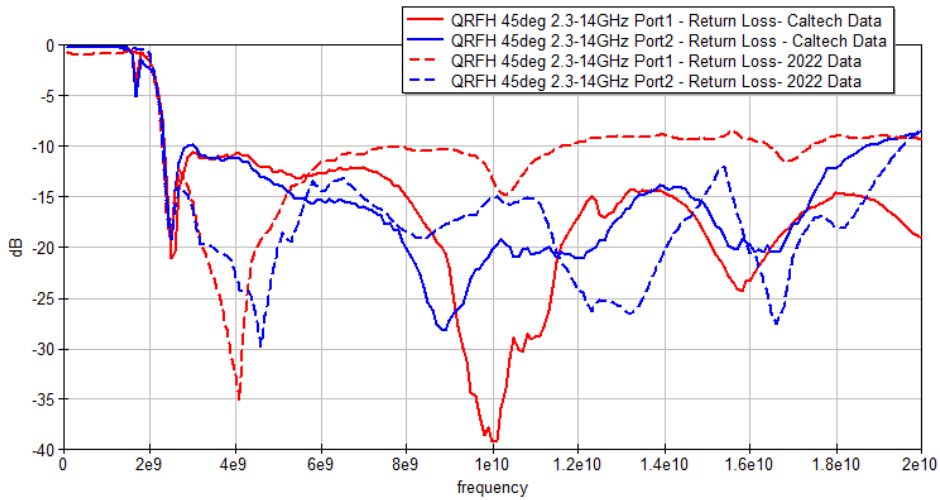
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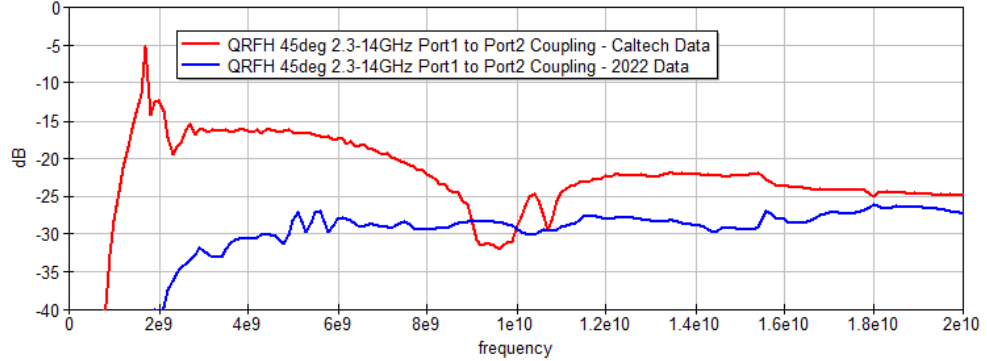
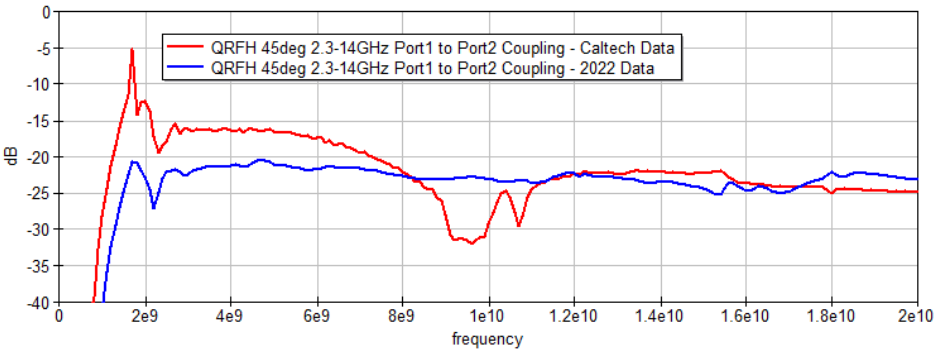




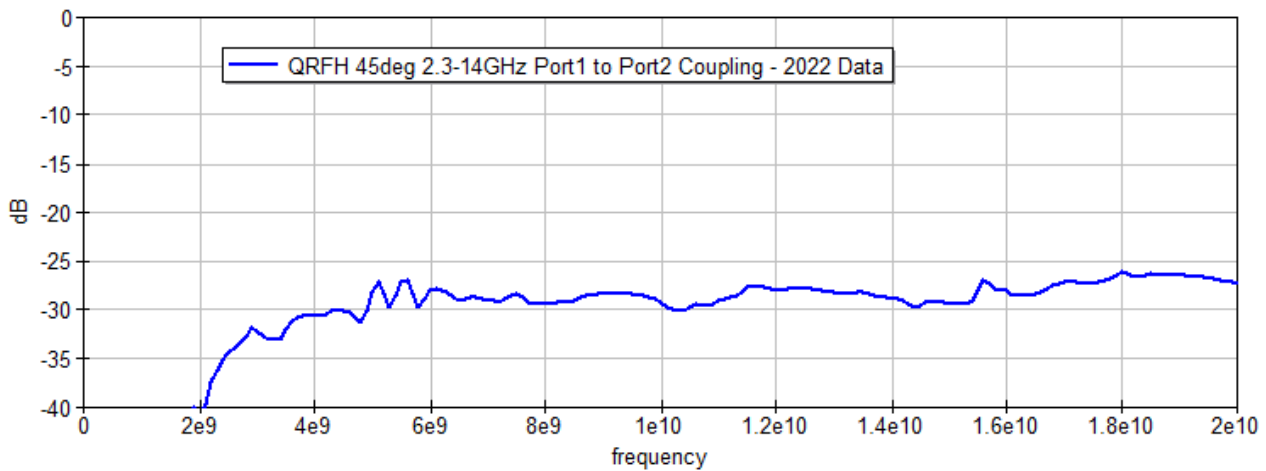
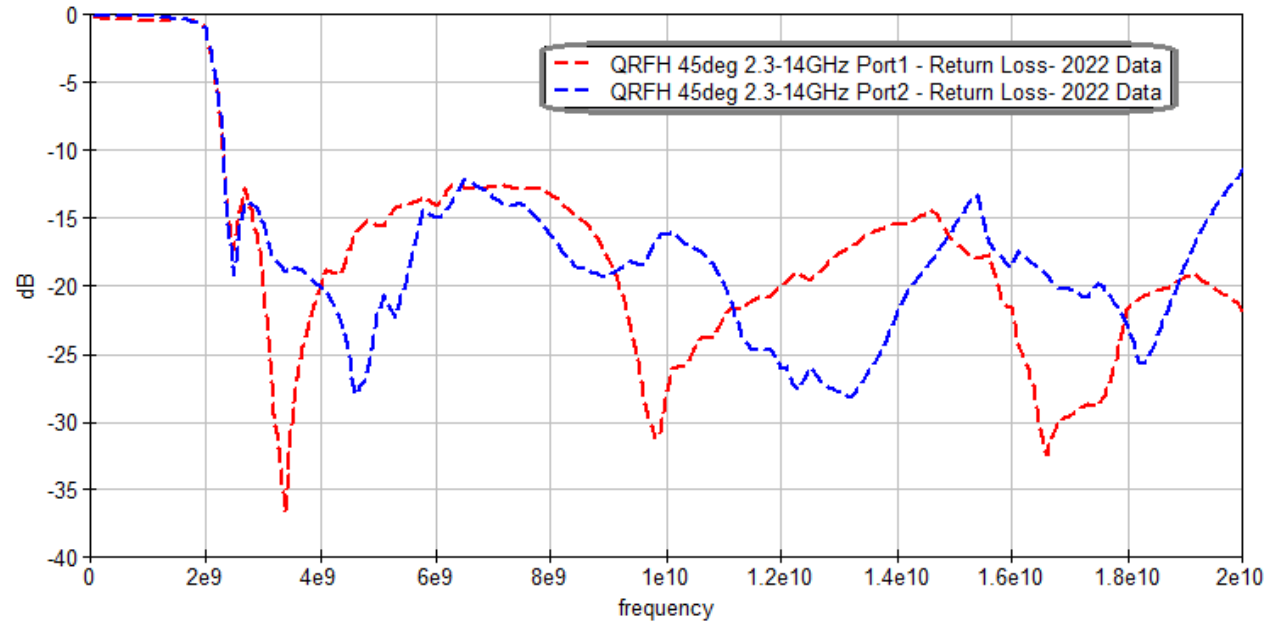
Initial data of feed



Feed data 06/03/2022
 (Might be able to get better isolation)



Feed data 06/03/2022
 (Might be able to get
 better isolation)



2-12GHz feed (Akgiray Paper)

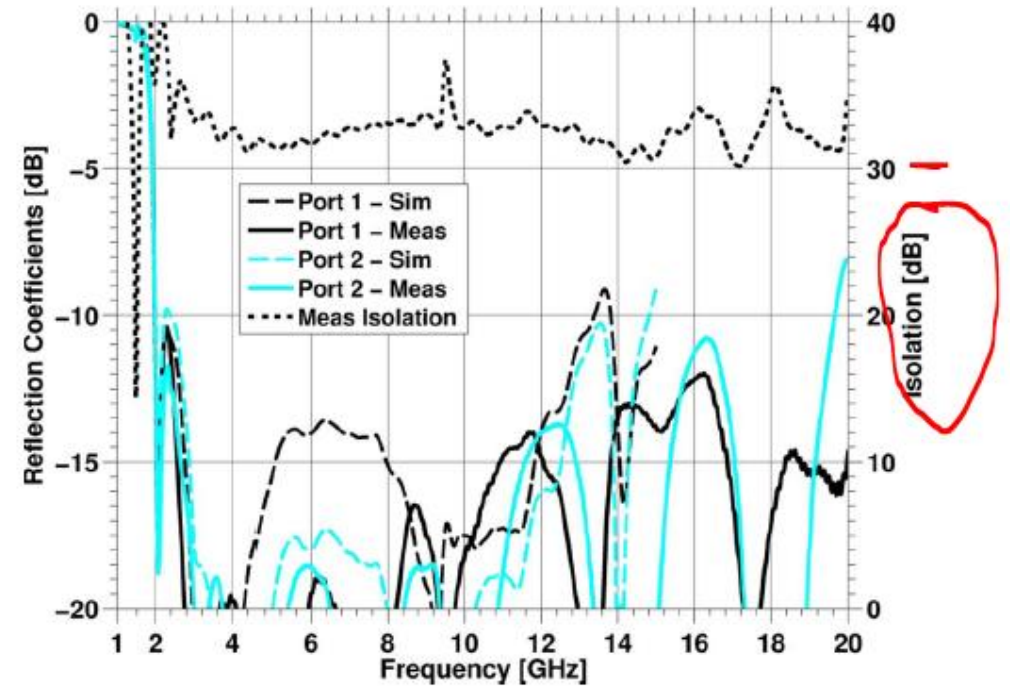
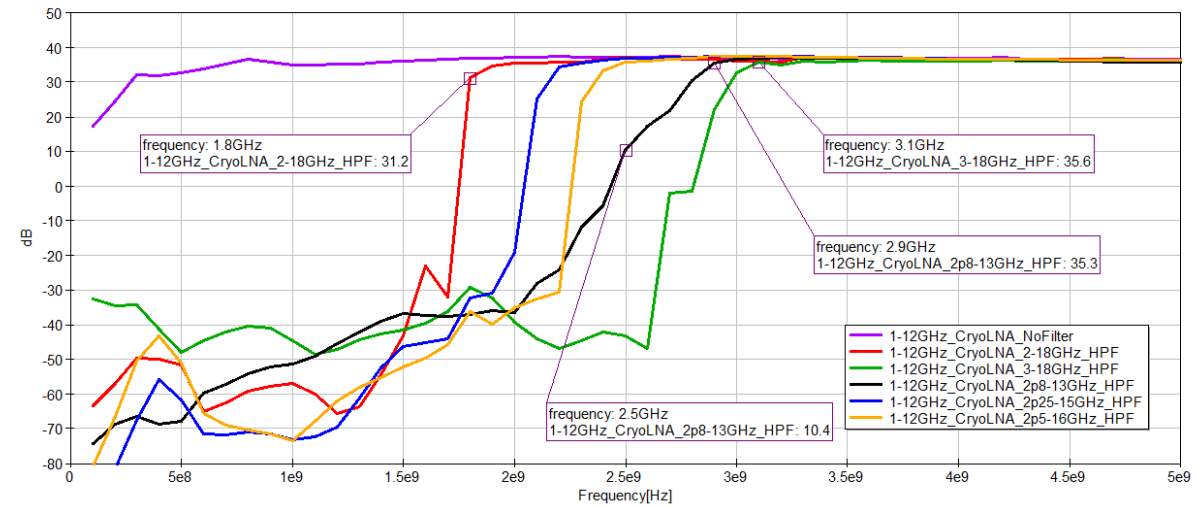
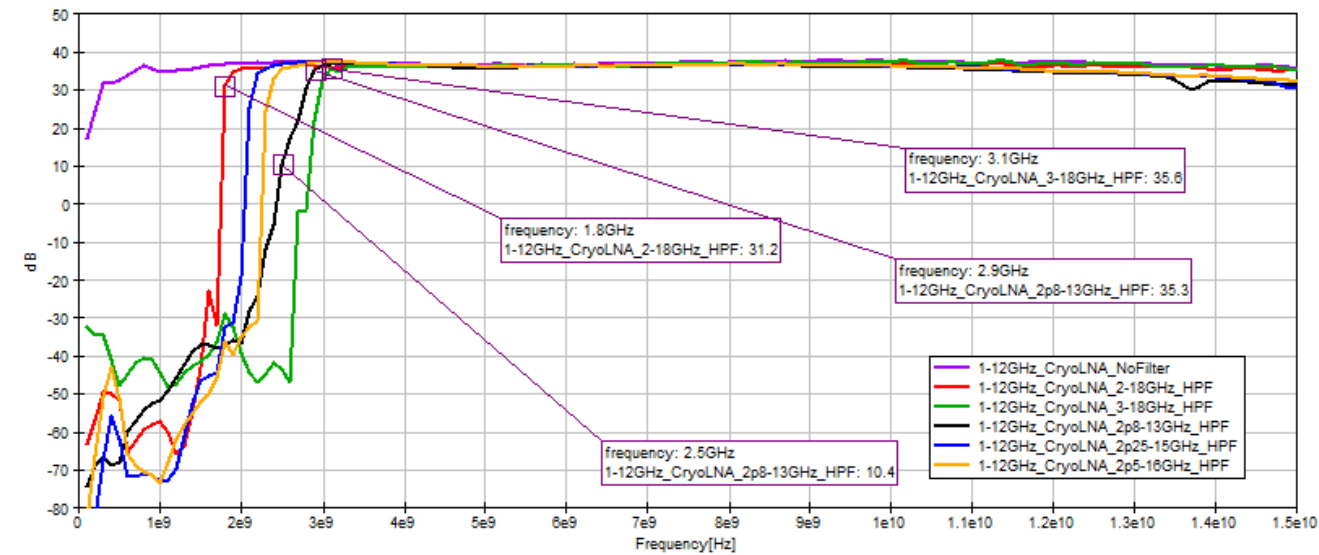
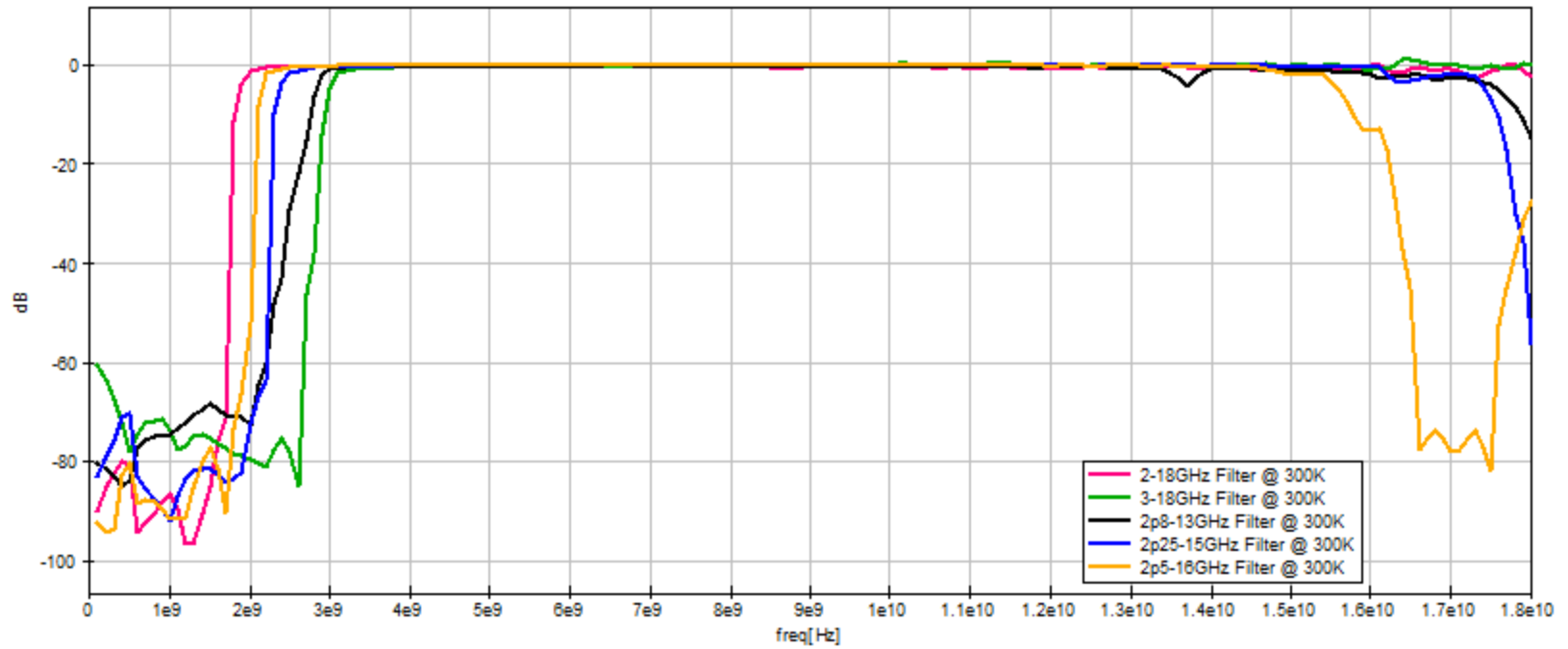


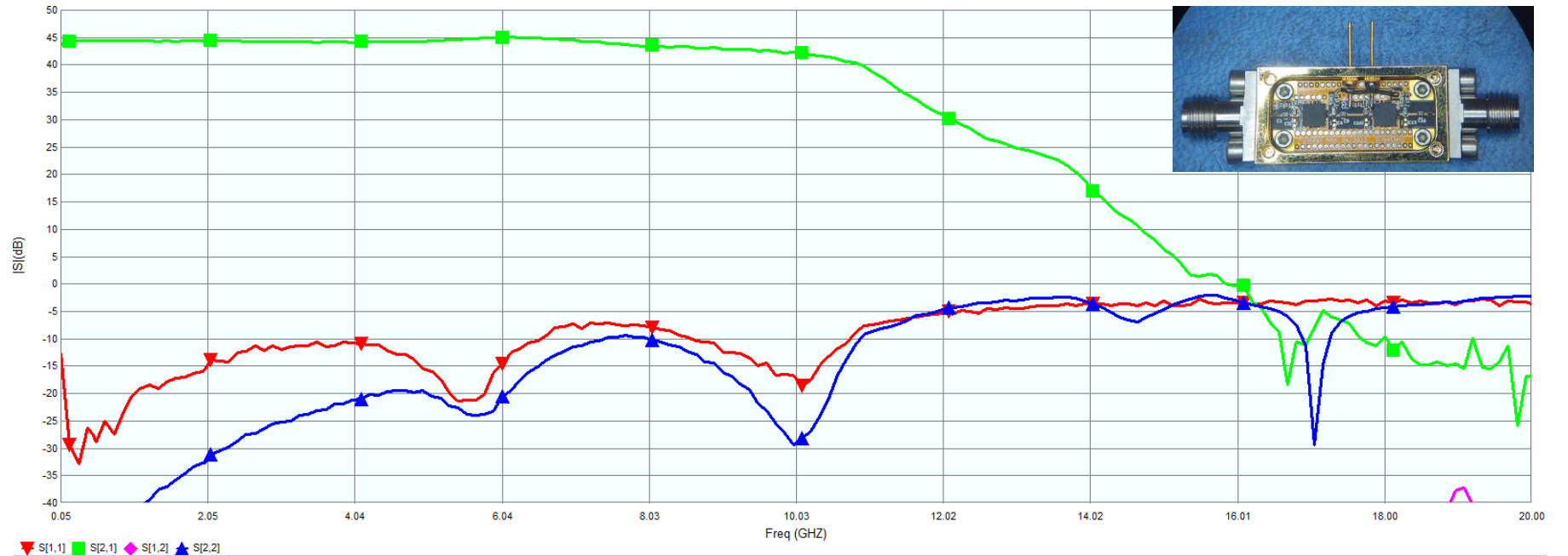
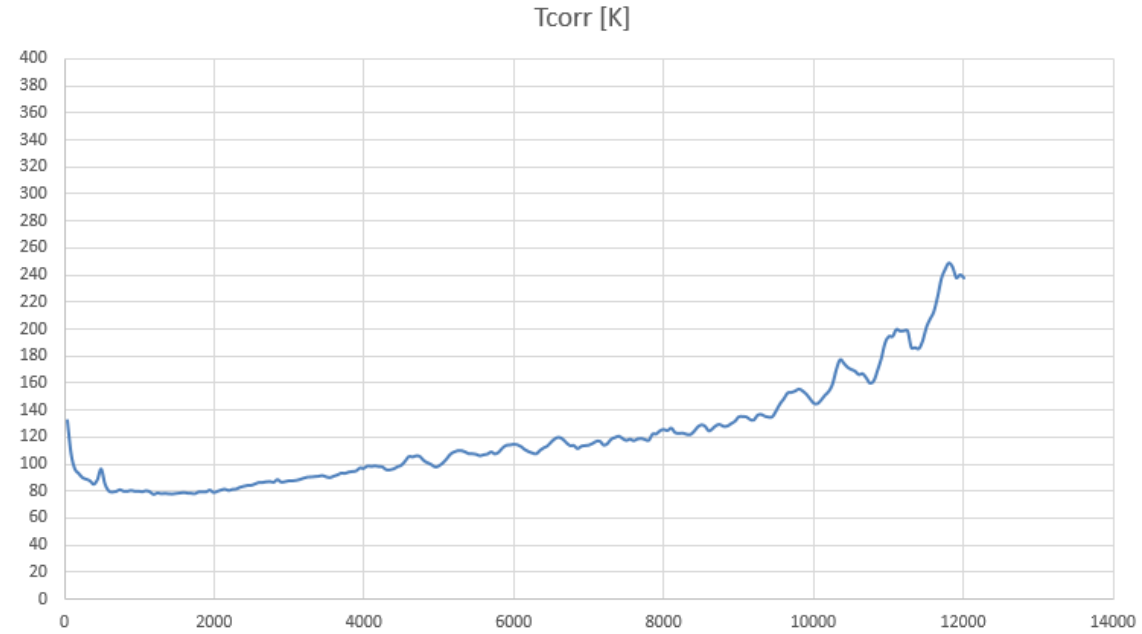
Fig. 8. Measured (solid) and simulated (dashed) reflection coefficients of, and measured isolation (dotted) between both polarizations of the circular QRFH.

5 RFI Rejection Filters In the 2-3 GHz band



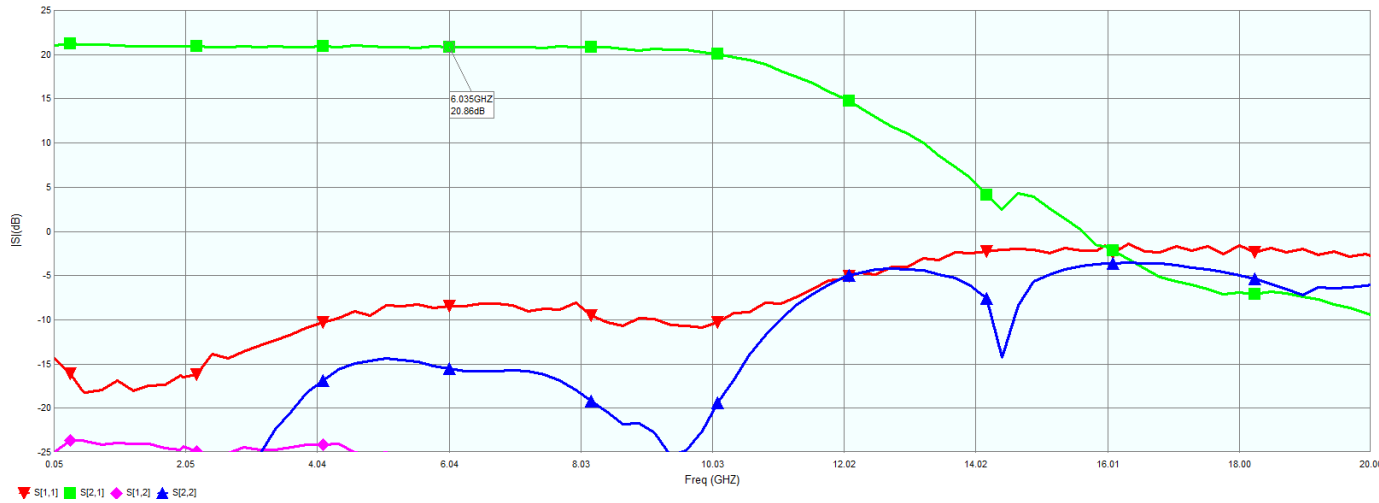
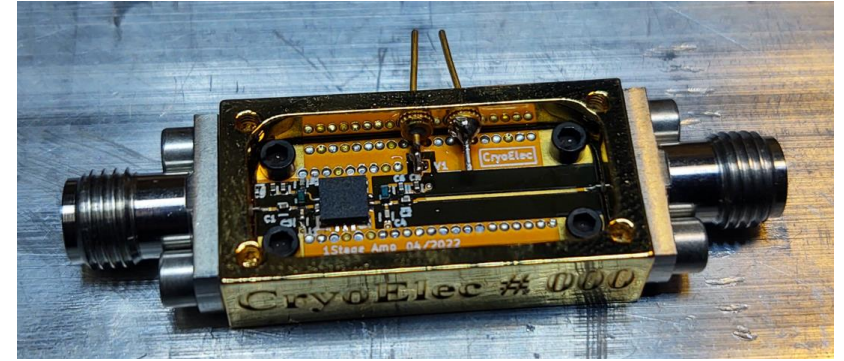
Room Temperature LNA
 Low noise and high Linearity
 High Gain

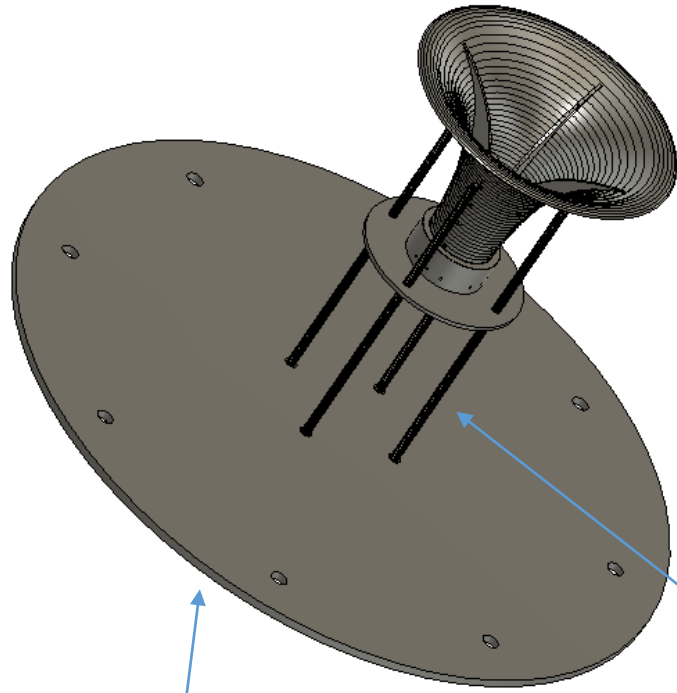
Output P1dB: +22dBm
 Input P1dB: -22dBm



Lower gain LNA ~21dB , same noise
 Output P1dB: +22dBm
 Input P1dB: +0dBm

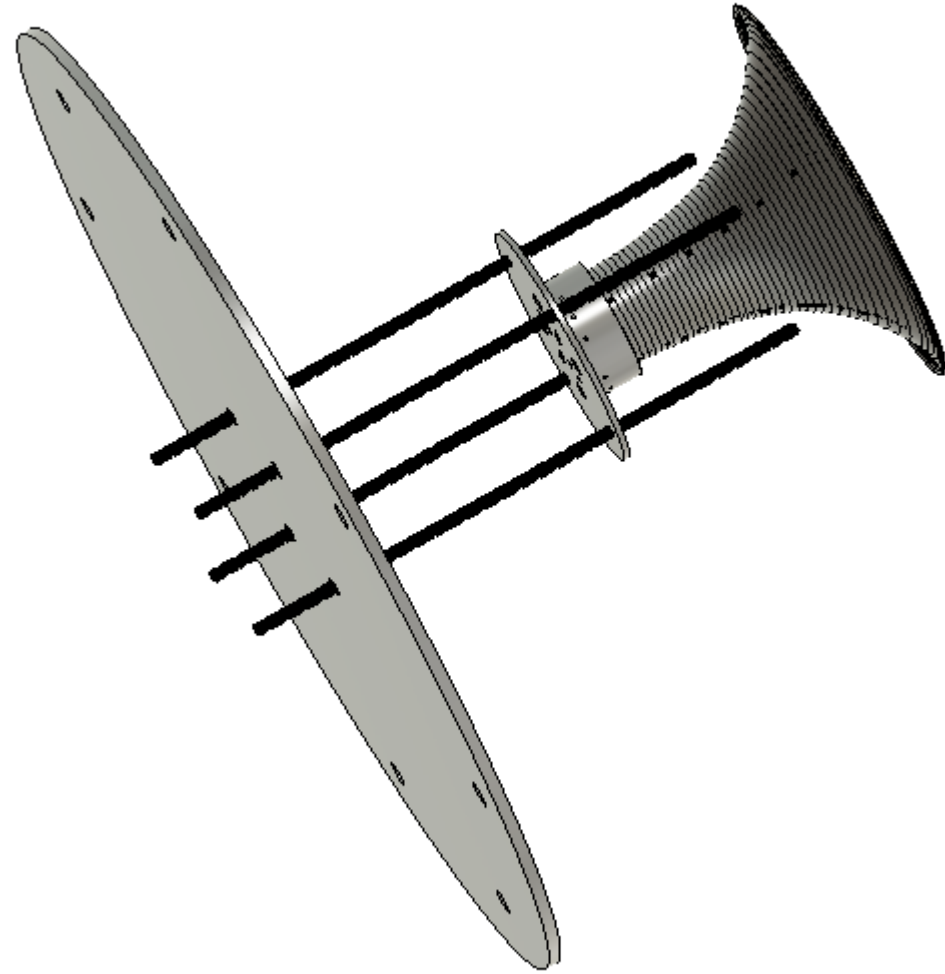
Can be used for RFI Spetra measurements





Attach this plate
To top of cone

4 Threaded Rods
Make Feed/subreflector distance adjustable



- Improve Feed performance to match best Caltech Data
- Cryogenically test the 2 new filters: 2.25 and 2.5GHz
- Cryogenically cool coupler , estimate the loss
- Y-factor measurement (receiver noise) might need to use the 2.5GHz or higher filter , a lot of RFI here
- Trip Plan / Packing
- Order all needed parts for phase 2 (in stock parts needed for the cryogenics and for the room temp receiver...)