Arecibo 12m Front-End

Project Update 04/10/2022

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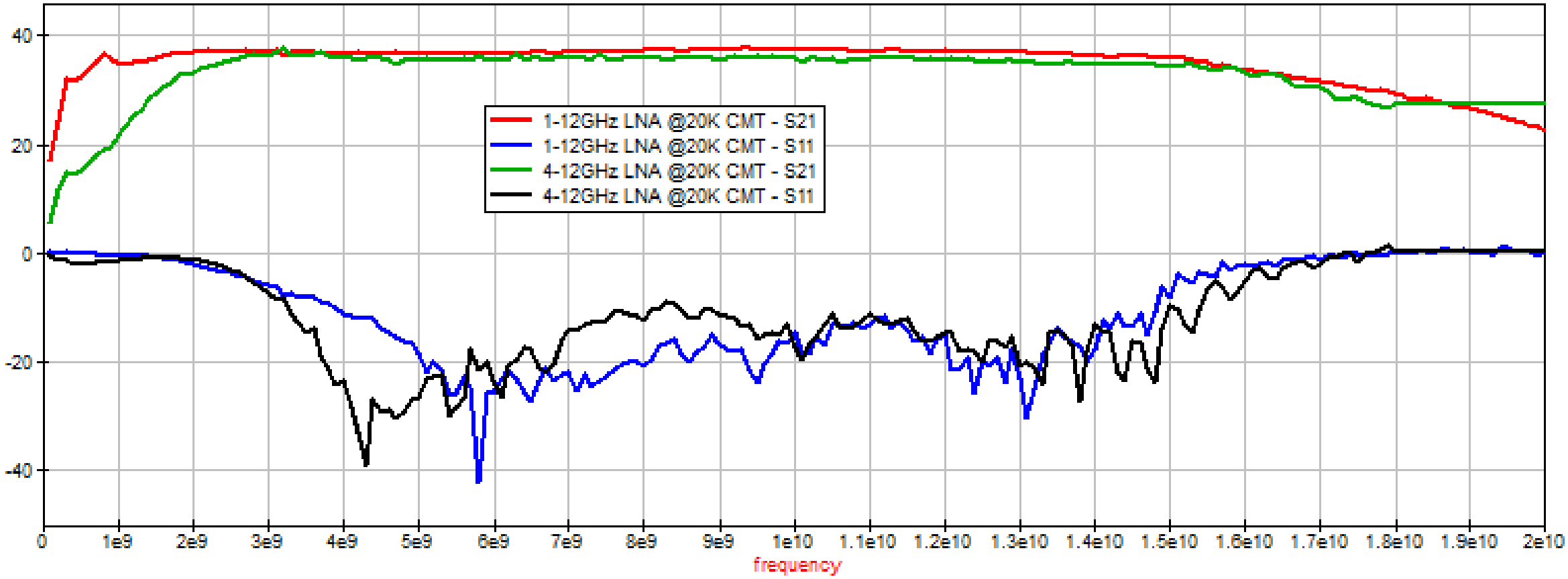
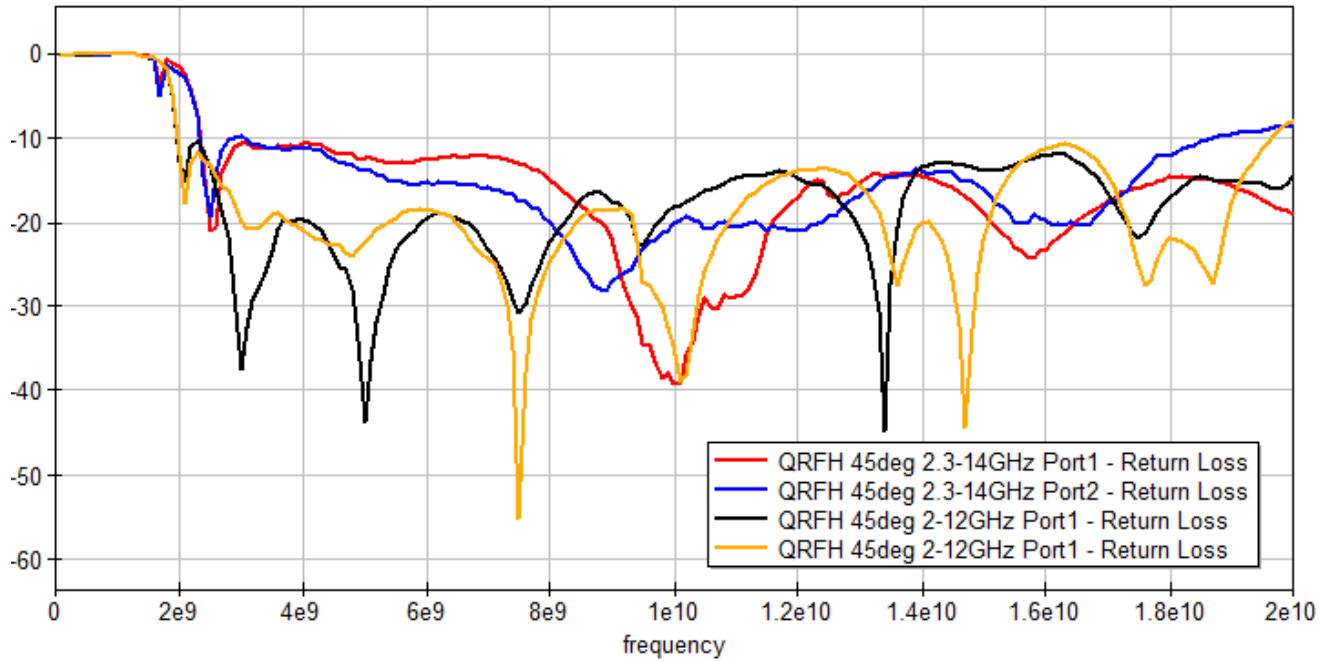
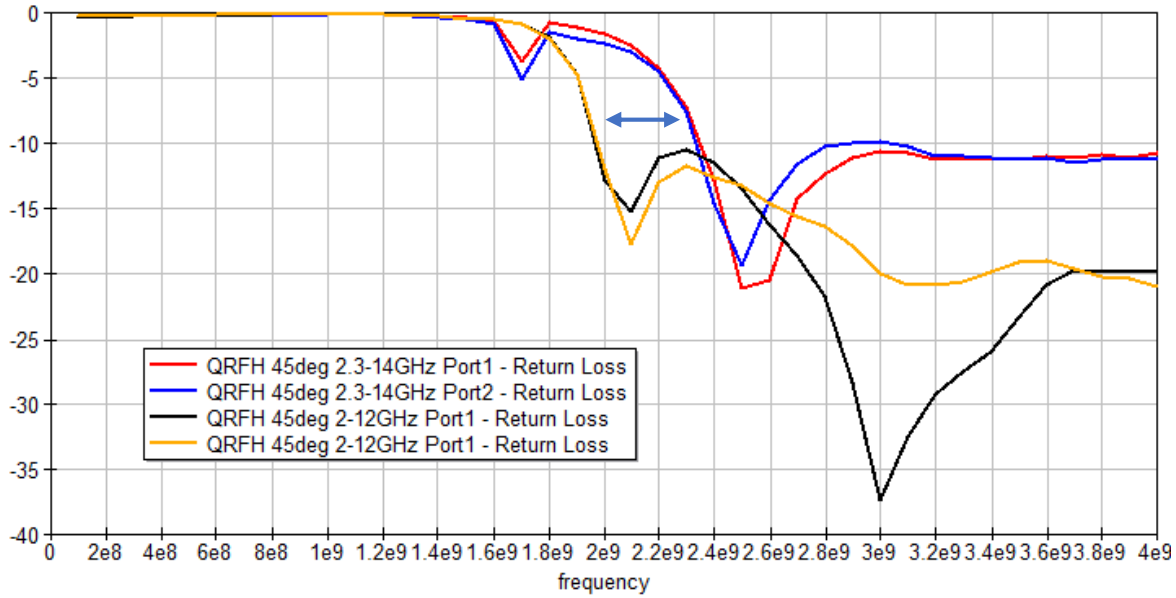
Gain and S11 of the 2 candidate cryogenic LNAs



45 deg QRFH Feeds: 2 Versions: 2-12GHz and 2.3-14 GHz

Return Loss of the 2.3-14GHz Feed has higher reflection
On the 2-2.3GHz Band → Helps lower the gain of the LNA





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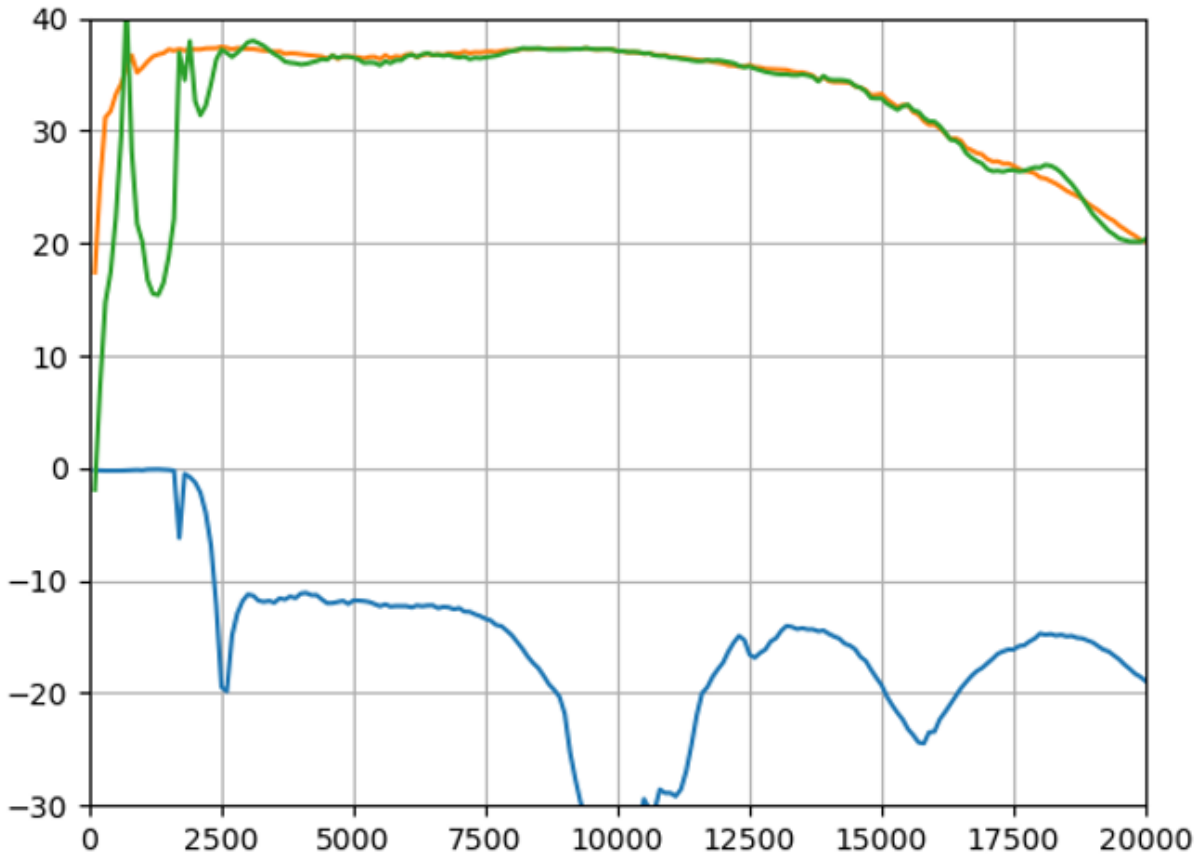
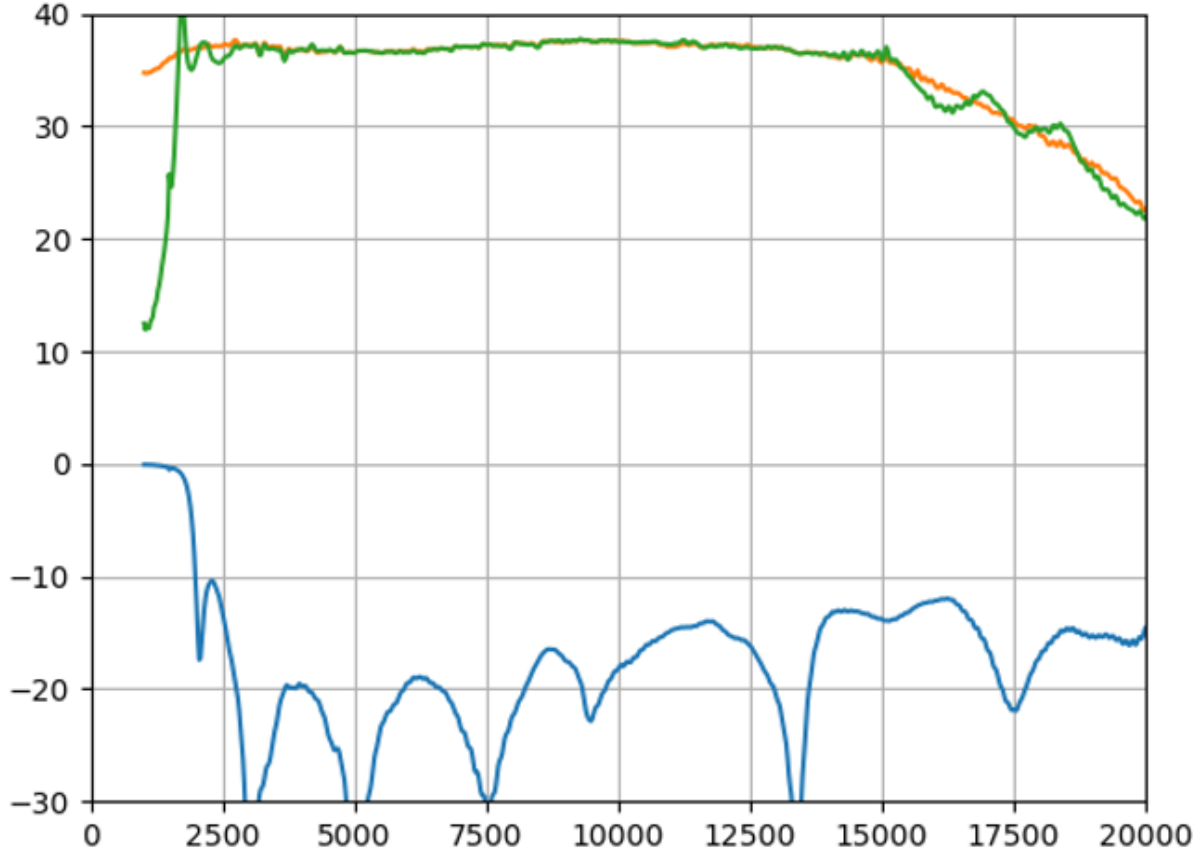
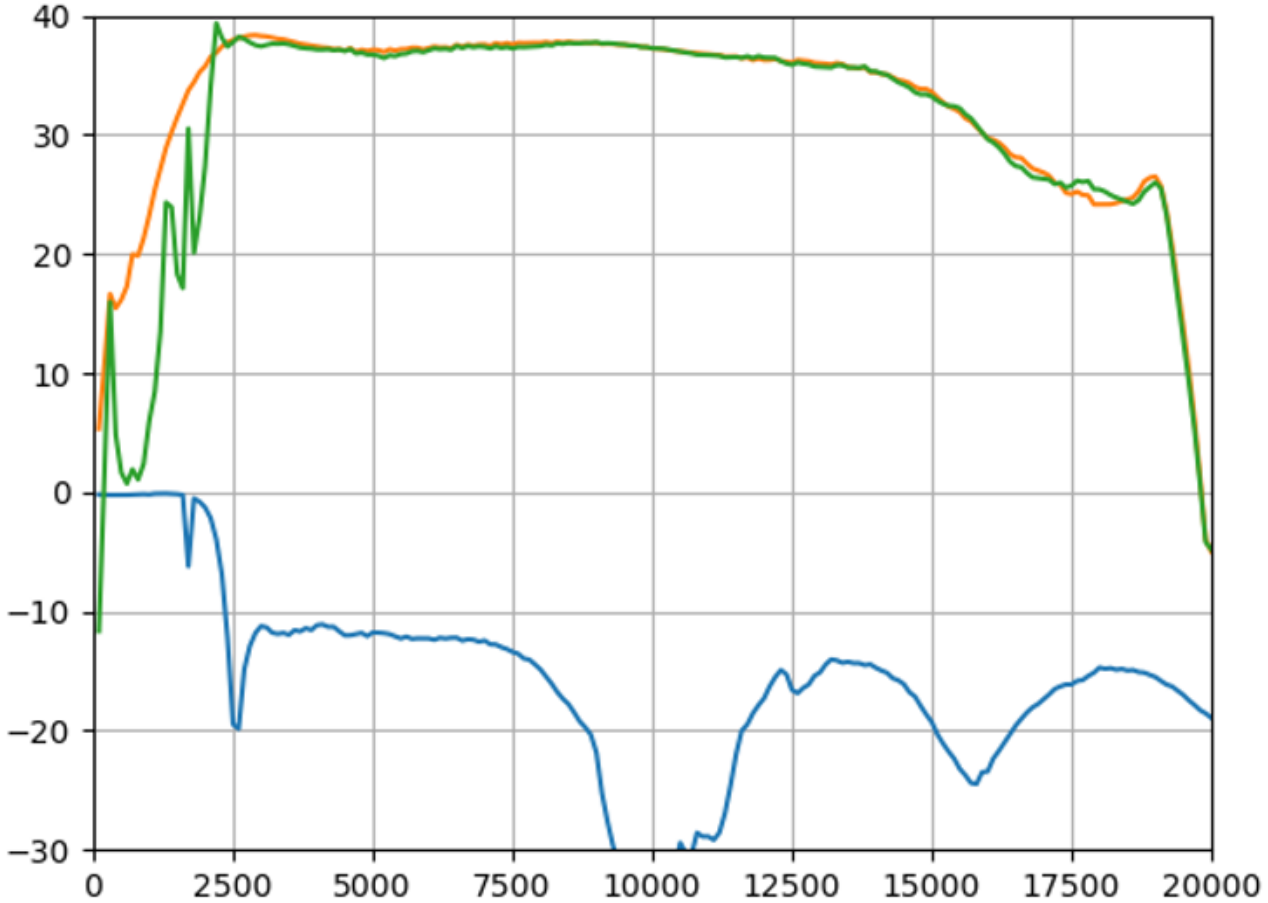
1-12GHz LNA With 2.3-14GHz Feed



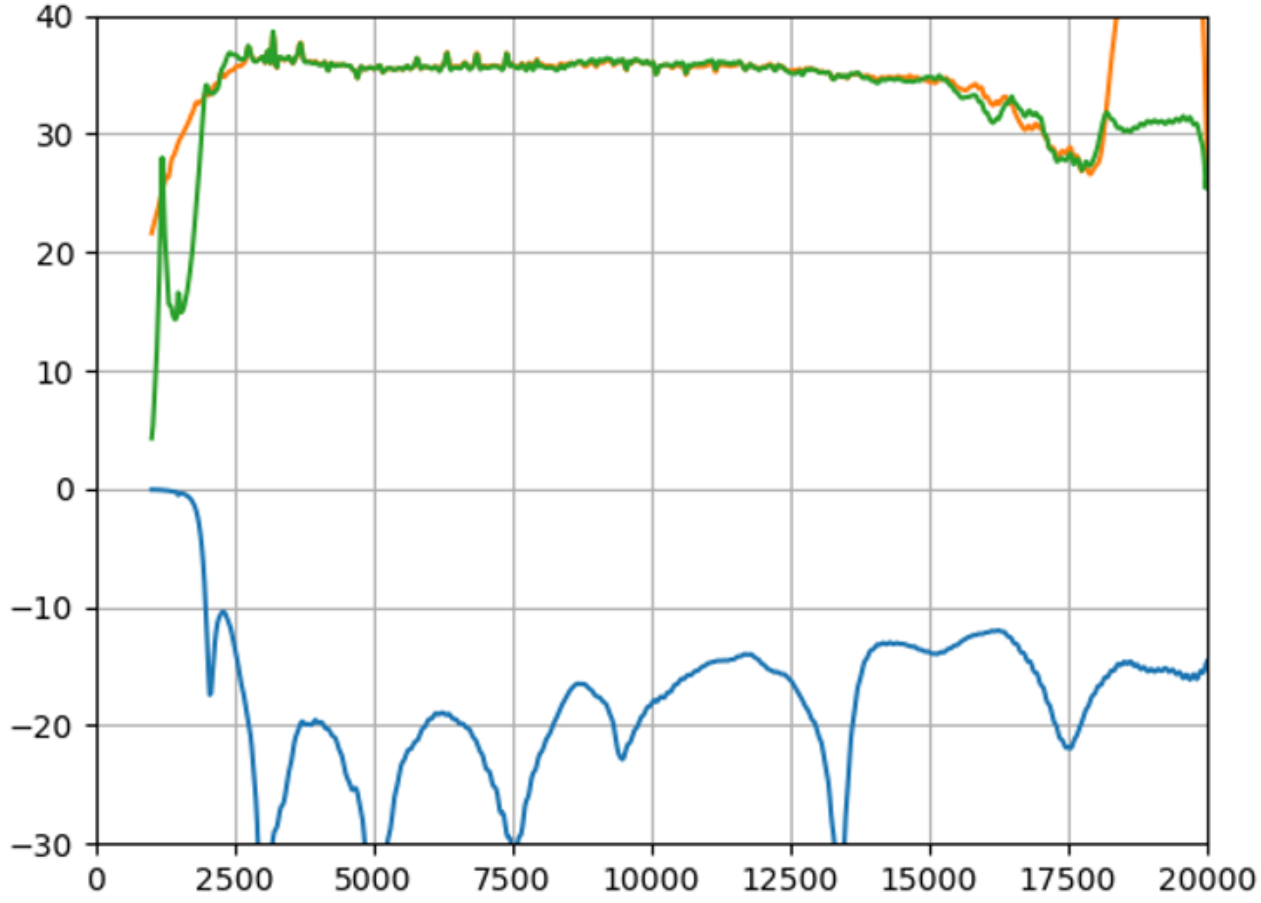
1-12GHz LNA With 2-12GHz Feed



4-12GHz LNA With 2.3-14GHz Feed



4-12GHz LNA With 2-12GHz Feed



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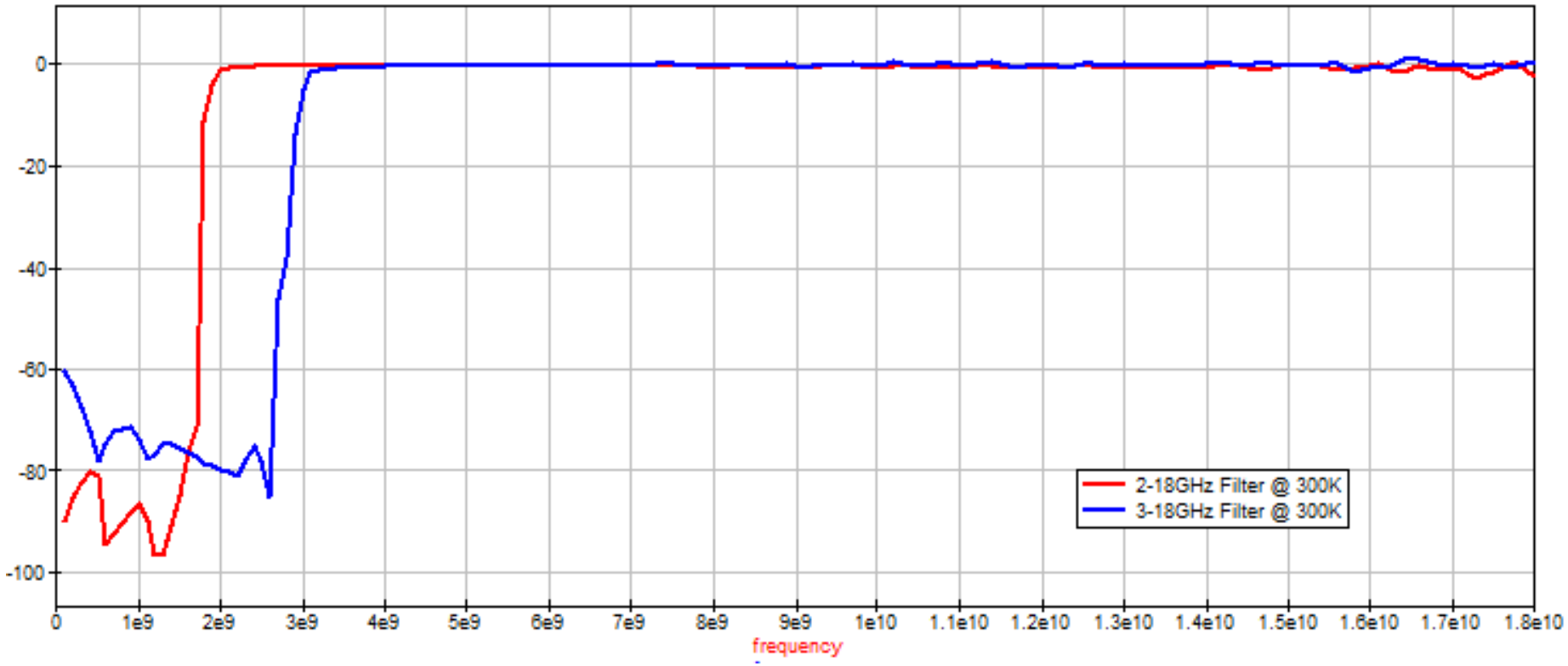
300K response of 2 commercially available HPF Filters

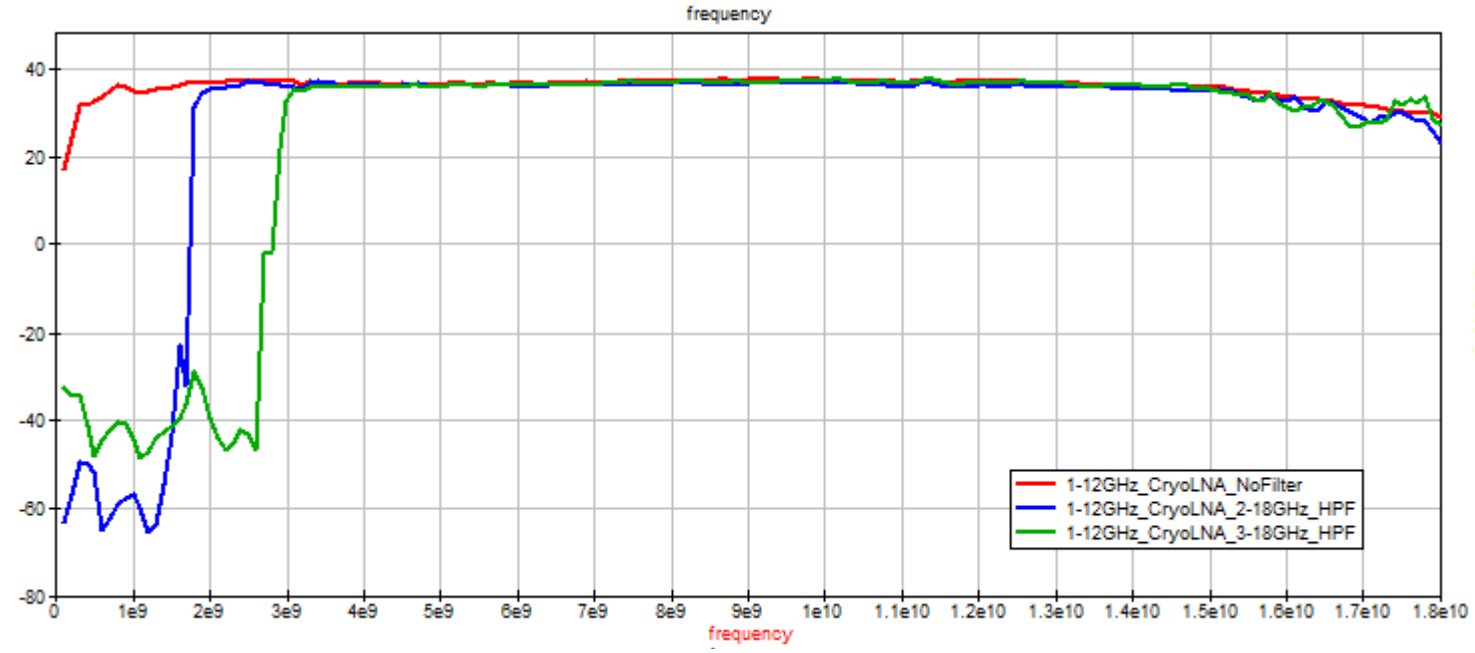
2-18 GHz

3-18 GHz

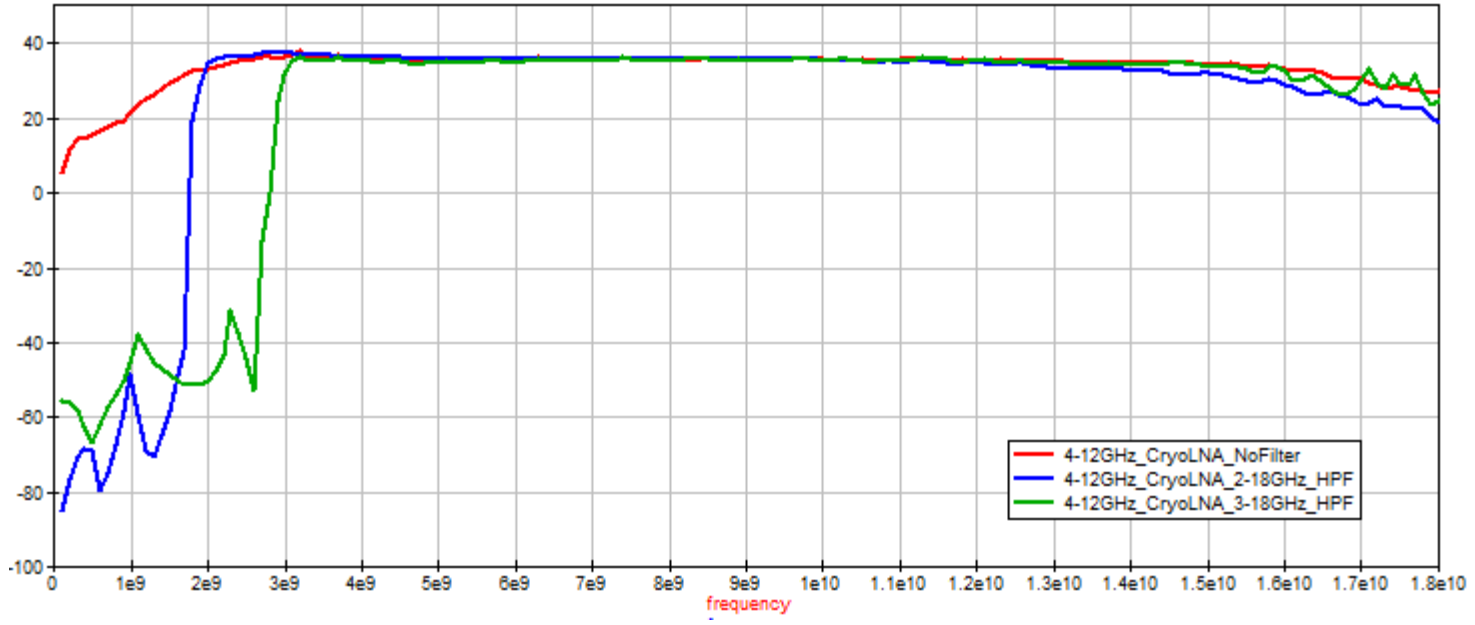
Note: these 2 filters will need to tested at cryogenic temp
The date below is at 300K



1-12 GHz LNA
With High Pass Filters



4-12 GHz LNA
With High Pass Filters



Effect of the Loss of Feed and High pass filter will be determined next from:

Accurate measurements of the insertion losses of the filters at cryogenic temperature
Accurate measurements of the insertion loss of the feed