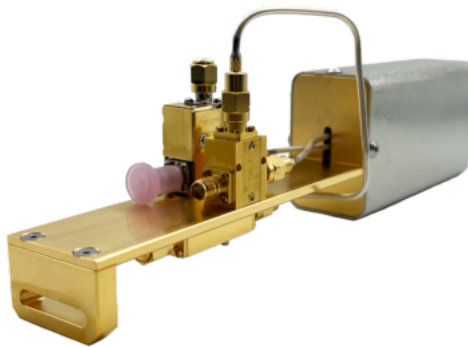


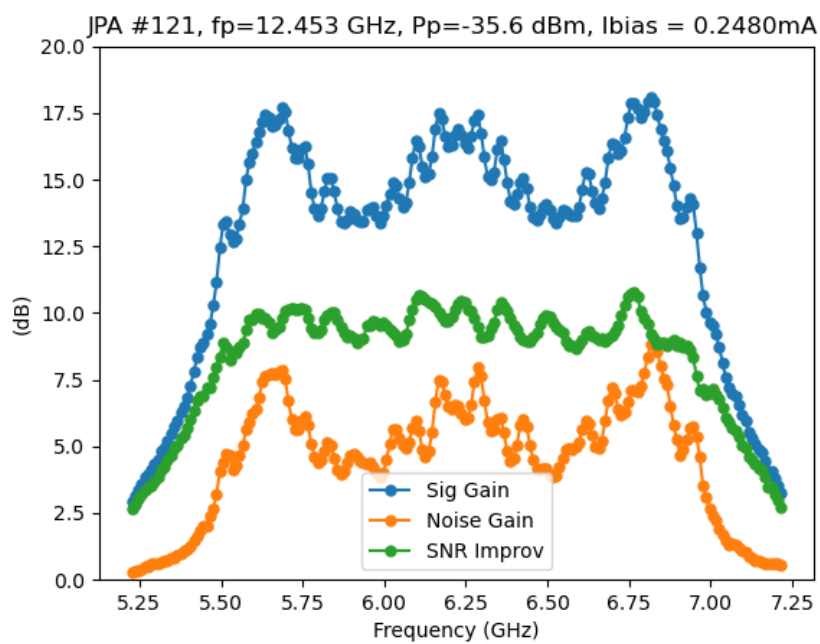


## Cryogenic Testing Service

Certification Report for JPA-MCA01 with Raytheon JPA S/N # 000121:  
May 29, 2024

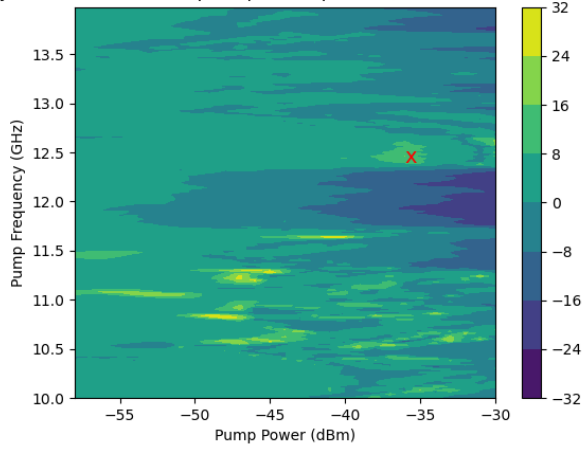


## Sample JPA Tuneup

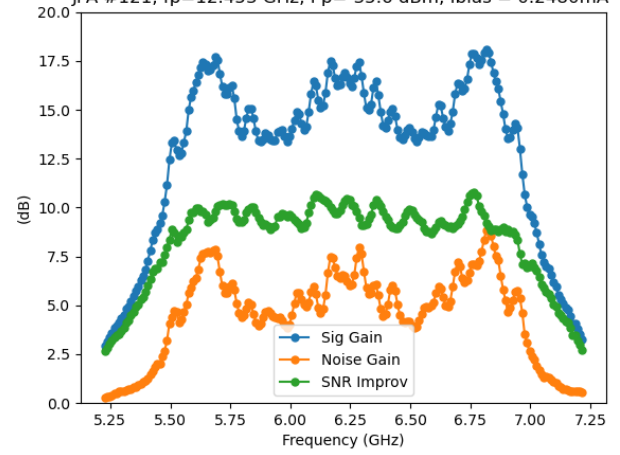


## JPA Tuneup 1:

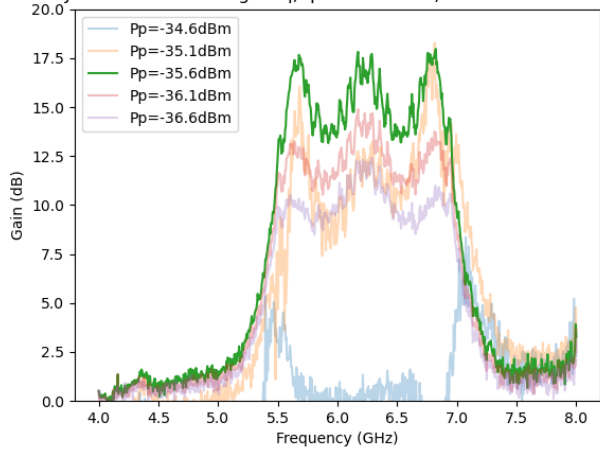
JPA #121 Gain vs Pump Freq vs Pump Power, I<sub>bias</sub> = 0.2480mA



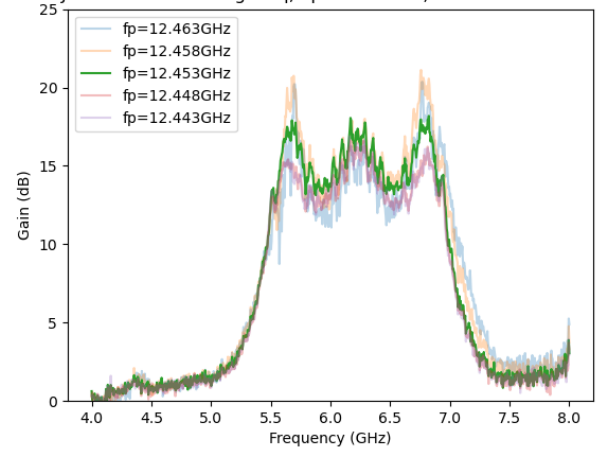
JPA #121,  $f_p=12.453$  GHz,  $P_p=-35.6$  dBm, I<sub>bias</sub> = 0.2480mA



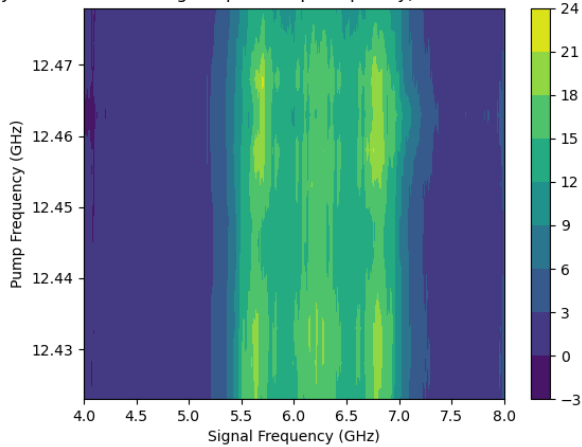
JPA #121 Gain vs Sig Freq,  $f_p=12.453$ GHz, I<sub>bias</sub> = 0.2480mA



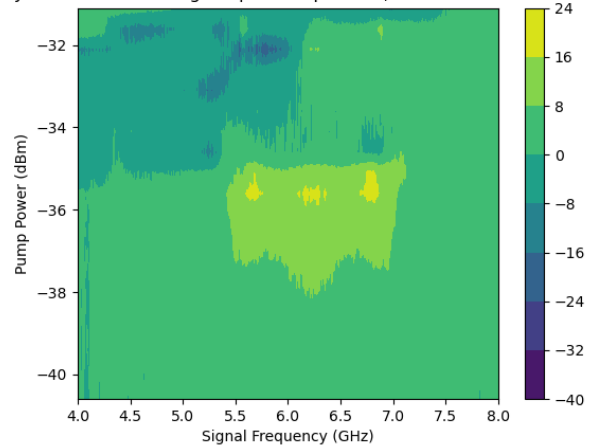
JPA #121 Gain vs Sig Freq,  $P_p=-35.6$ dBm, I<sub>bias</sub> = 0.2480mA



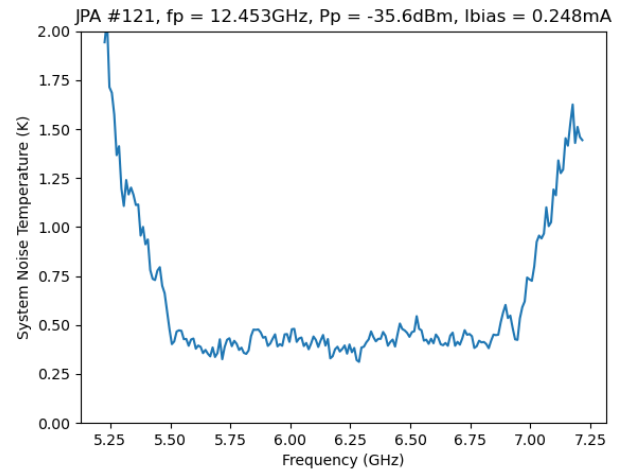
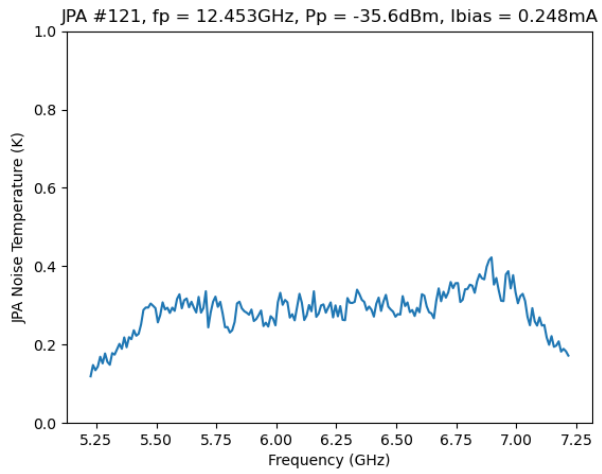
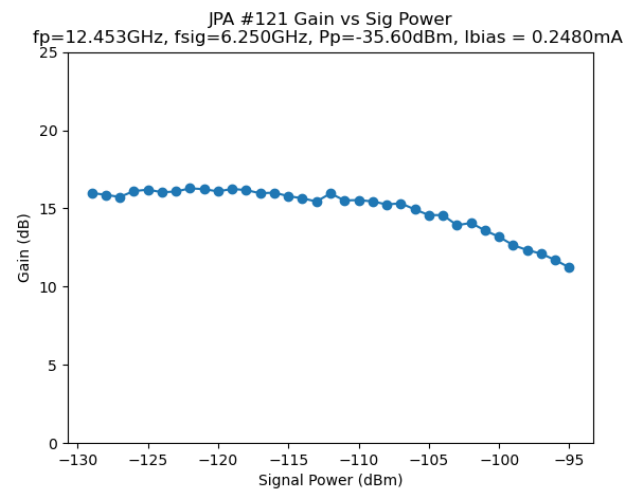
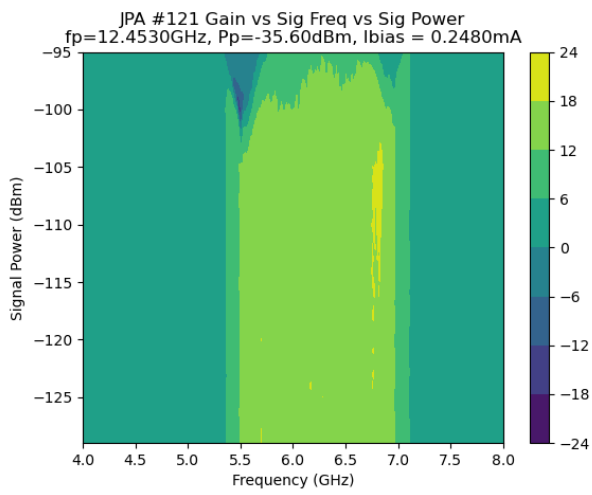
JPA #121 Gain vs Sig Freq vs Pump Frequency, I<sub>bias</sub> = 0.2480mA



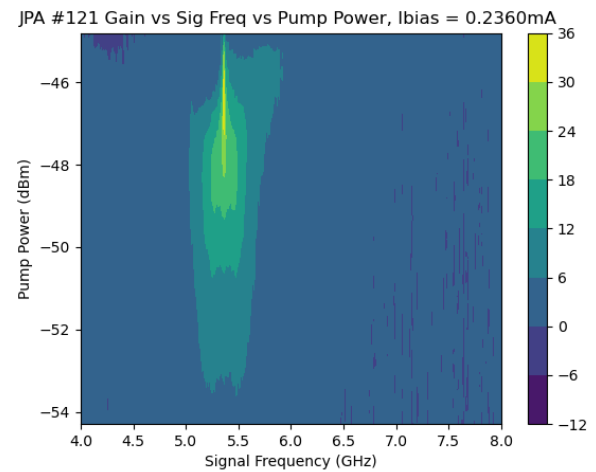
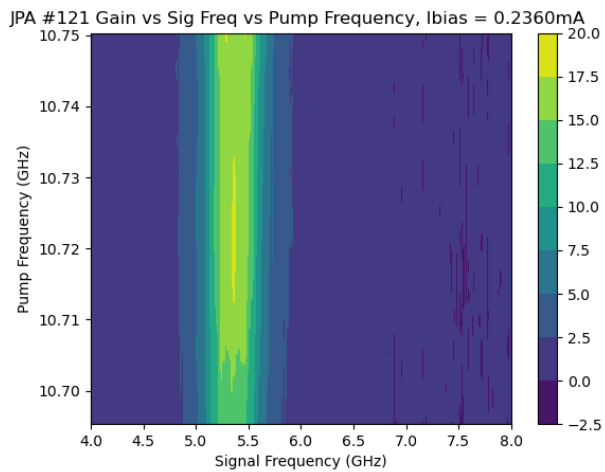
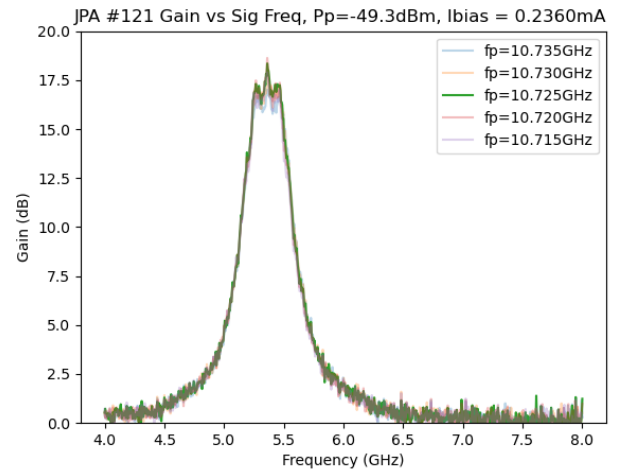
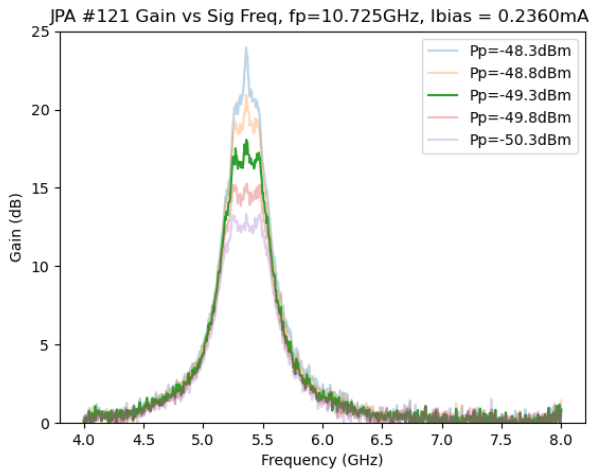
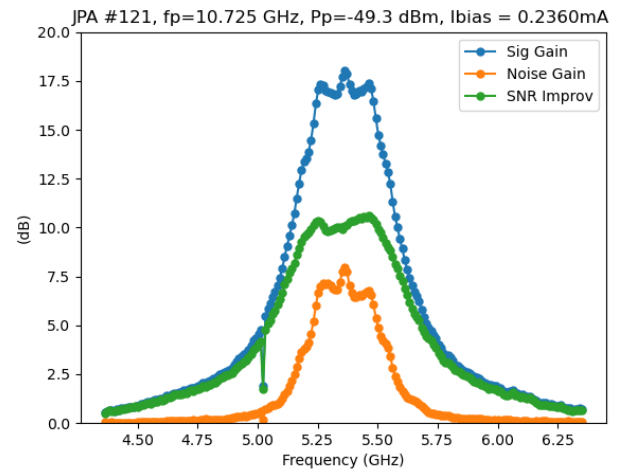
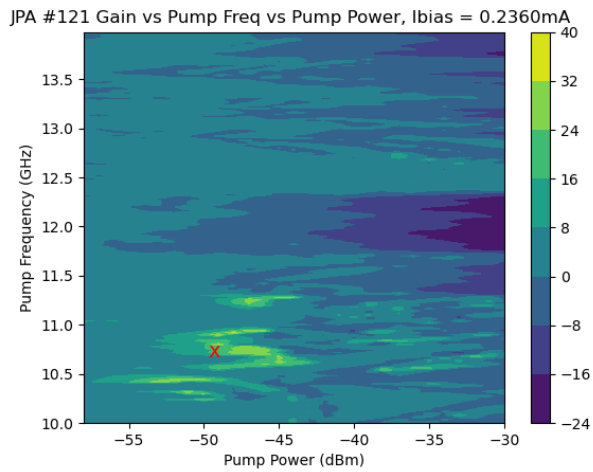
JPA #121 Gain vs Sig Freq vs Pump Power, I<sub>bias</sub> = 0.2480mA



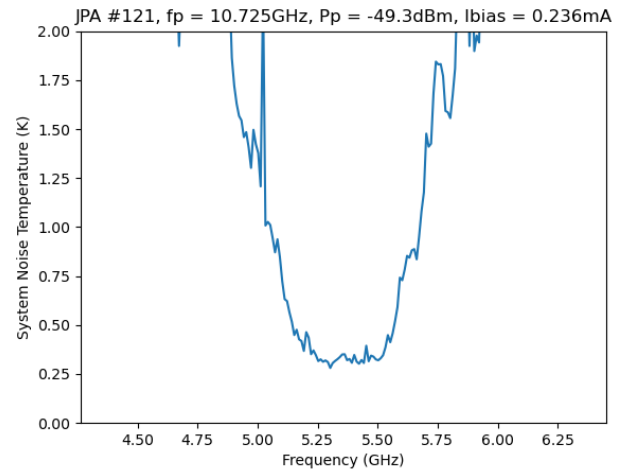
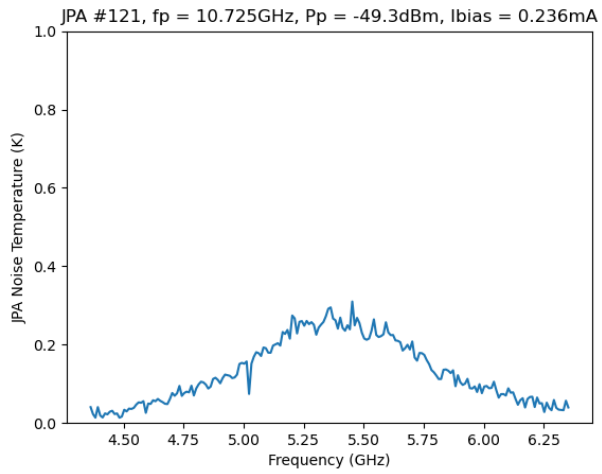
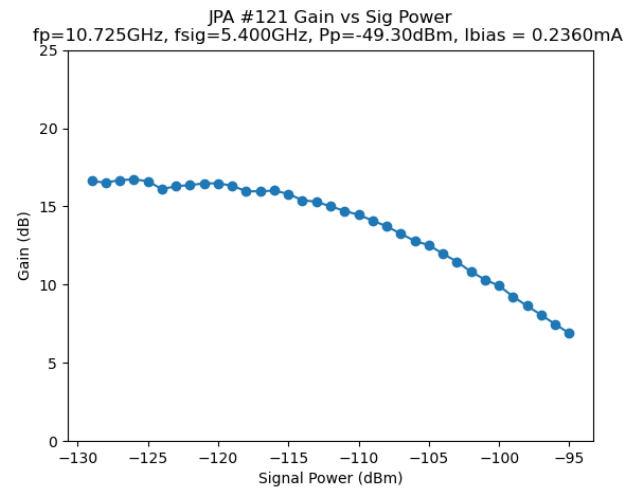
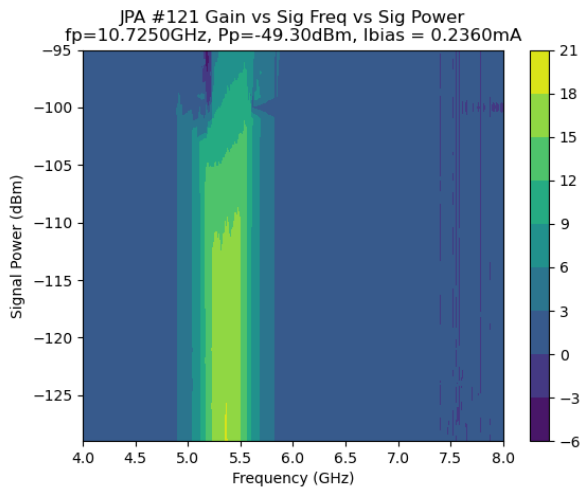
# Sample JPA Tuneup 1 (cont.):



## Sample JPA Tuneup 2:

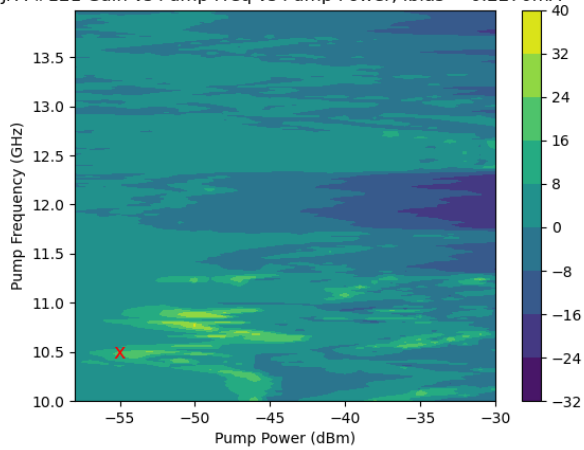


# Sample JPA Tuneup 2 (cont.):

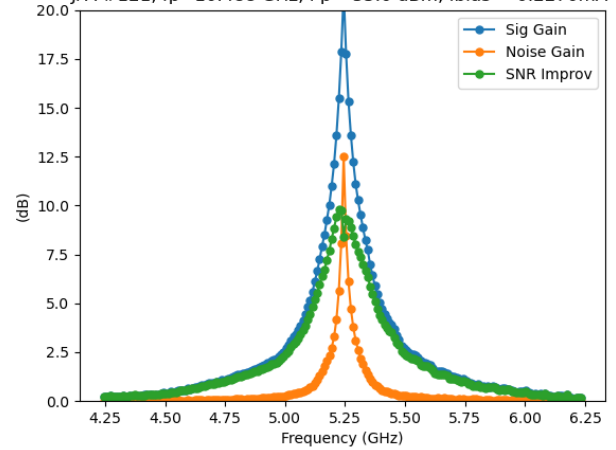


### Sample JPA Tuneup 3:

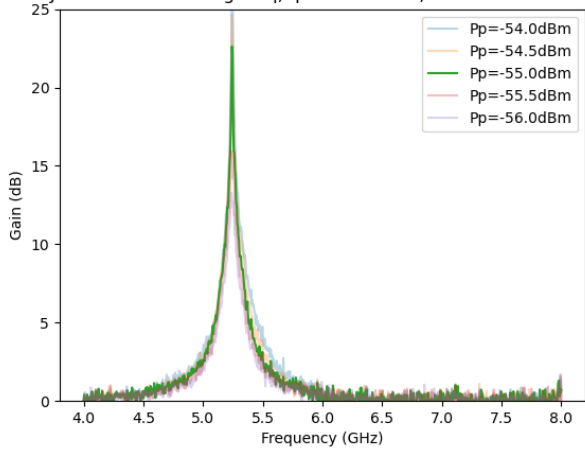
JPA #121 Gain vs Pump Freq vs Pump Power, I<sub>bias</sub> = 0.2270mA



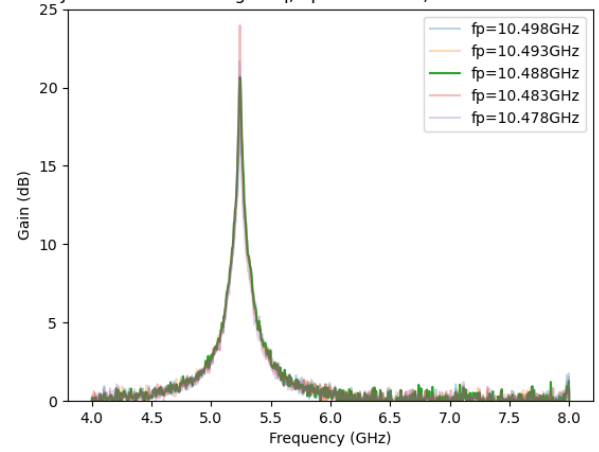
JPA #121, f<sub>p</sub>=10.488 GHz, P<sub>p</sub>=-55.0 dBm, I<sub>bias</sub> = 0.2270mA



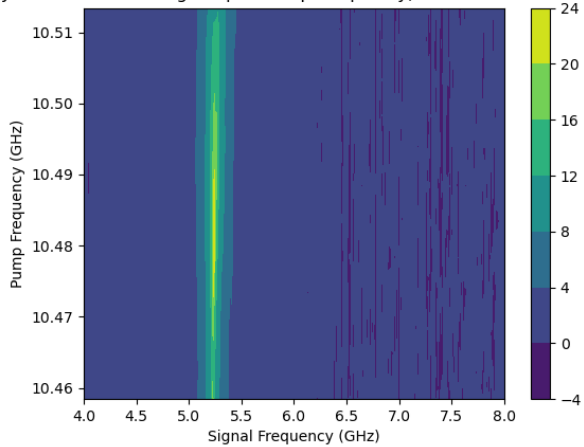
JPA #121 Gain vs Sig Freq, f<sub>p</sub>=10.488GHz, I<sub>bias</sub> = 0.2270mA



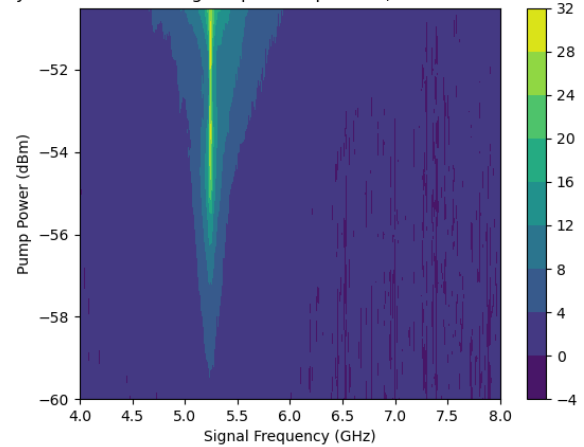
JPA #121 Gain vs Sig Freq, P<sub>p</sub>=-55.0dBm, I<sub>bias</sub> = 0.2270mA



JPA #121 Gain vs Sig Freq vs Pump Frequency, I<sub>bias</sub> = 0.2270mA



JPA #121 Gain vs Sig Freq vs Pump Power, I<sub>bias</sub> = 0.2270mA



### Sample JPA Tuneup 3 (cont.):

