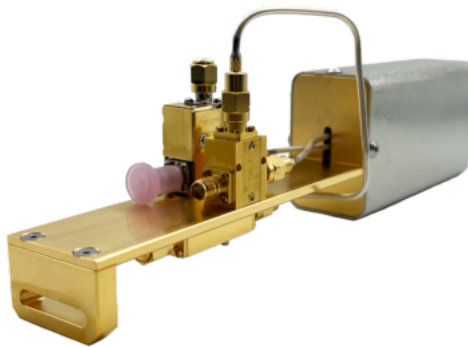


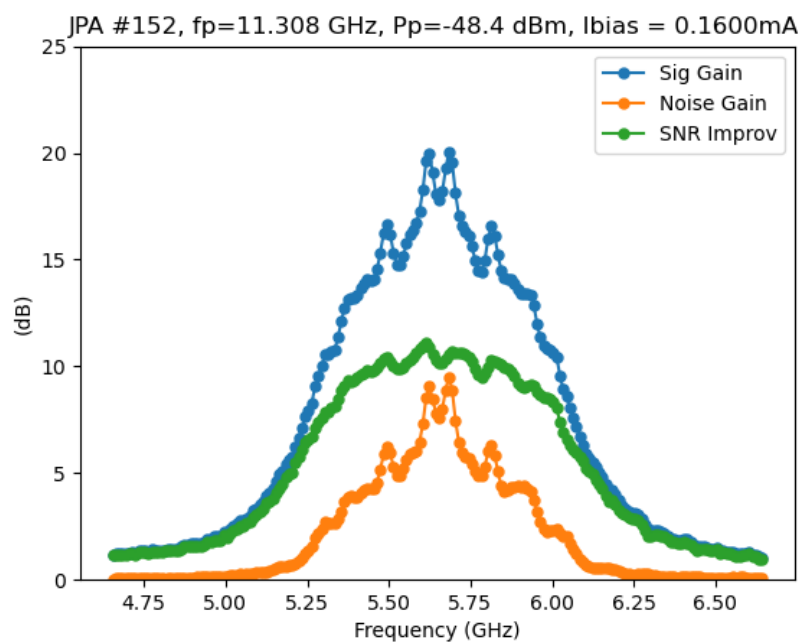


Cryogenic Testing Service

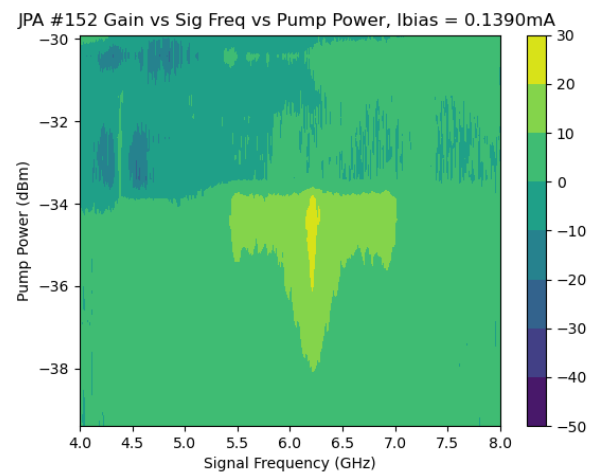
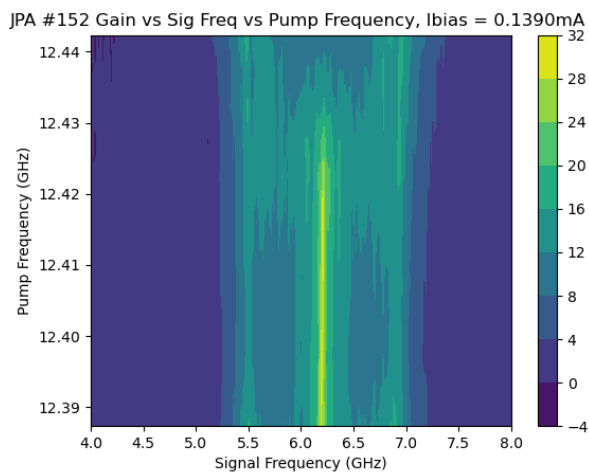
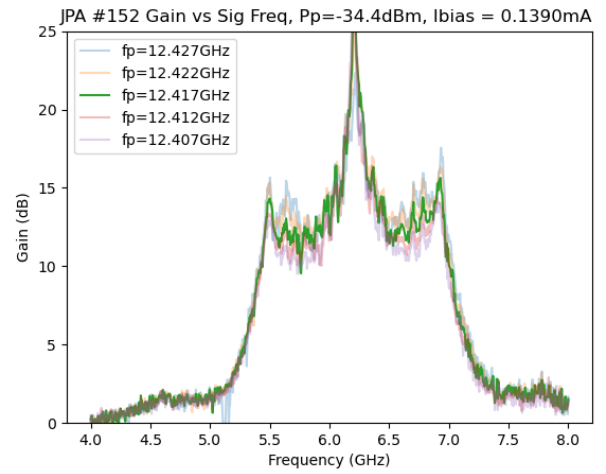
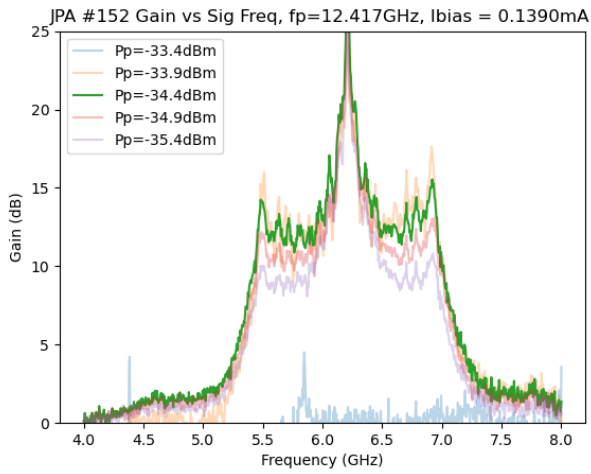
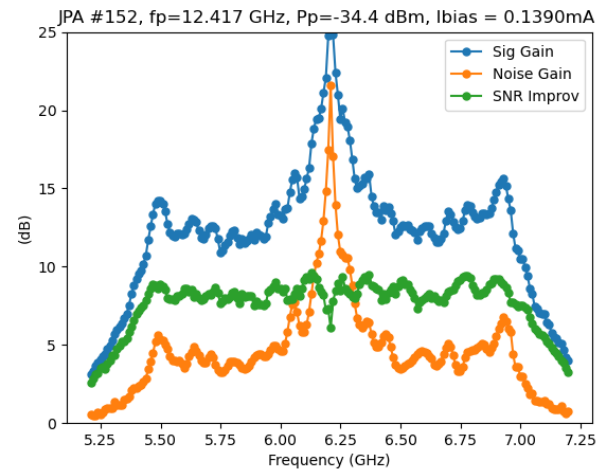
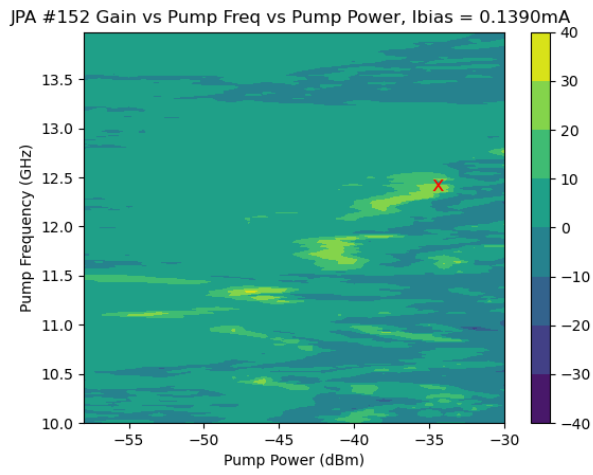
Certification Report for JPA-MCA01 with Raytheon JPA S/N # 000152:
November 23, 2024



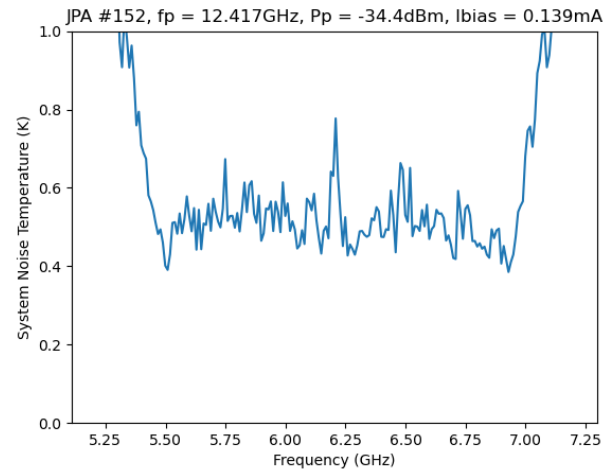
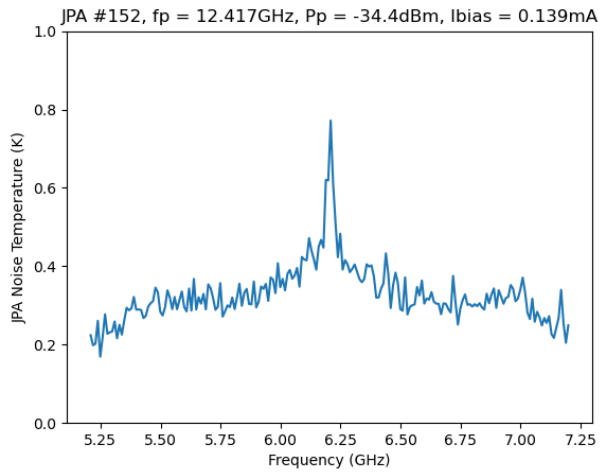
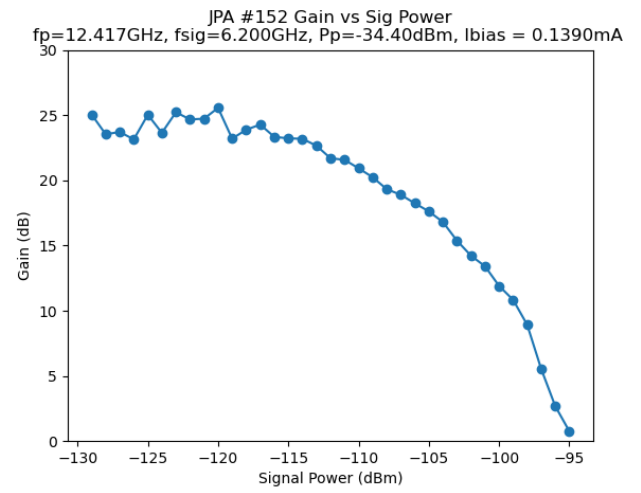
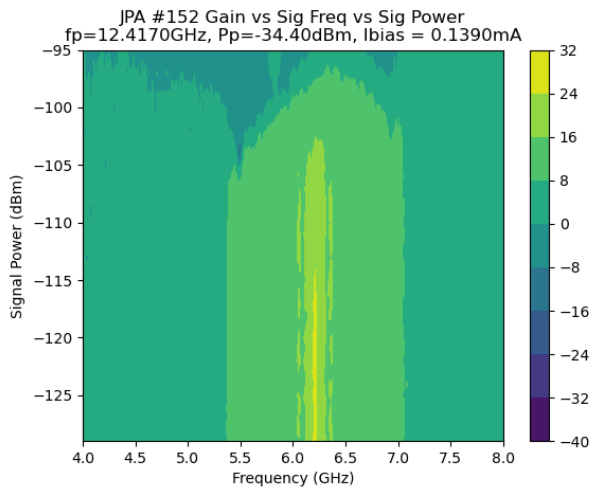
Sample JPA Tuneup



JPA Tuneup 1:

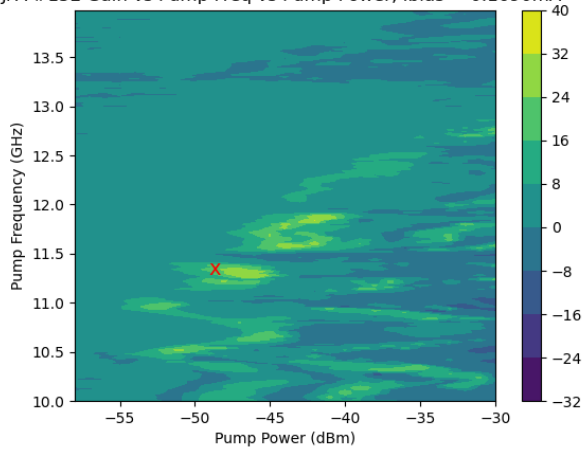


Sample JPA Tuneup 1 (cont.):

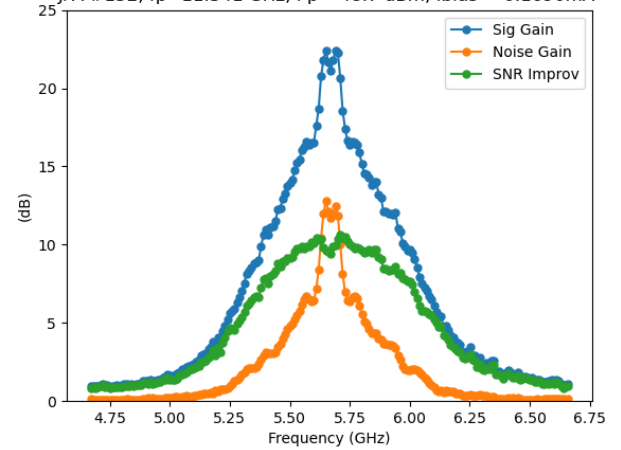


Sample JPA Tuneup 2:

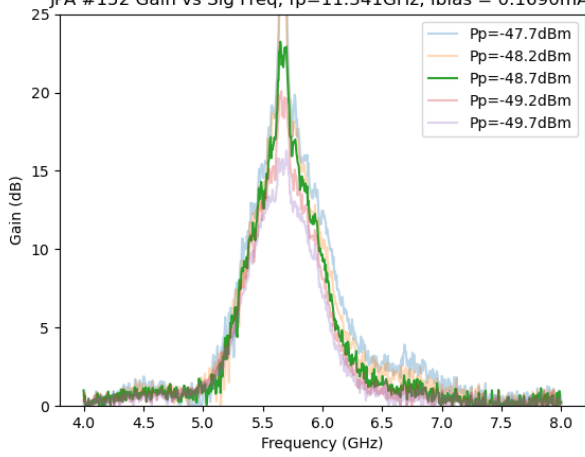
JPA #152 Gain vs Pump Freq vs Pump Power, I_{bias} = 0.1690mA



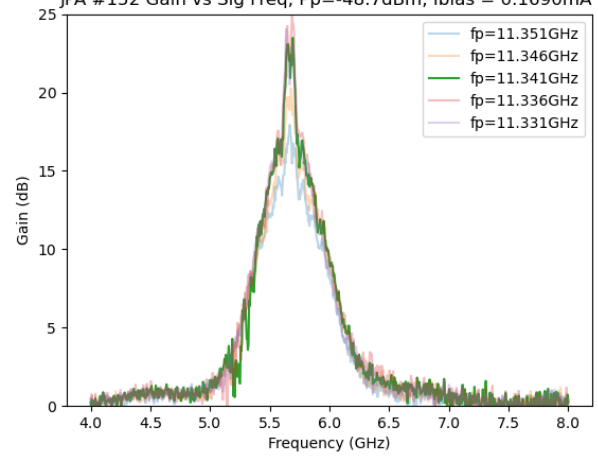
JPA #152, $f_p=11.341$ GHz, $P_p=-48.7$ dBm, I_{bias} = 0.1690mA



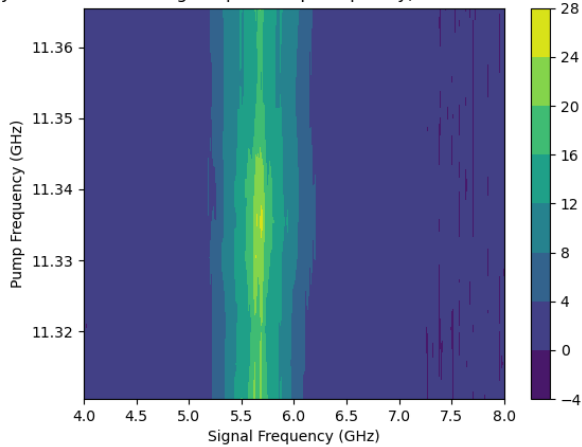
JPA #152 Gain vs Sig Freq, $f_p=11.341$ GHz, I_{bias} = 0.1690mA



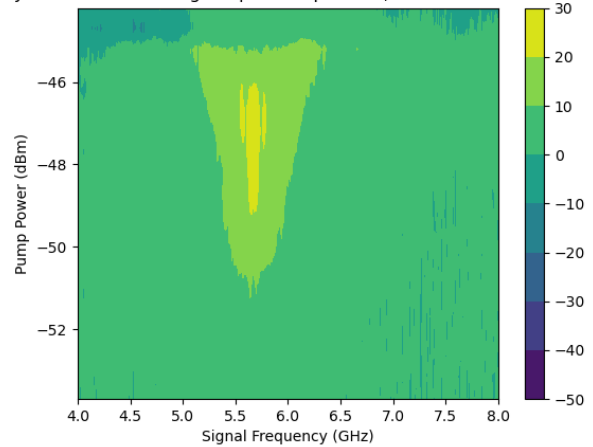
JPA #152 Gain vs Sig Freq, $P_p=-48.7$ dBm, I_{bias} = 0.1690mA



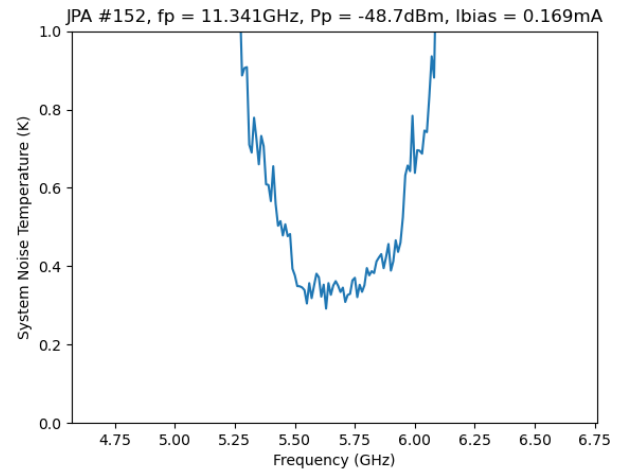
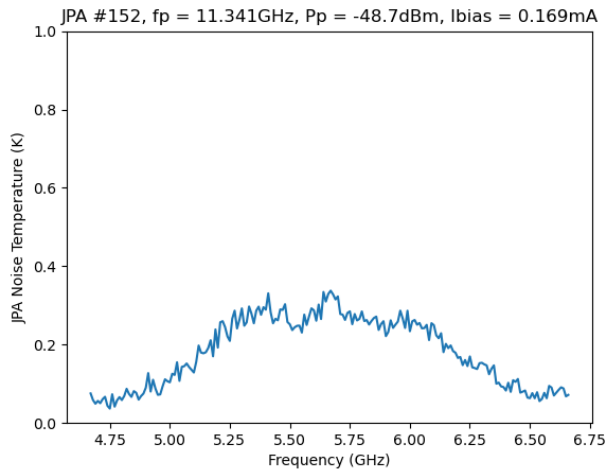
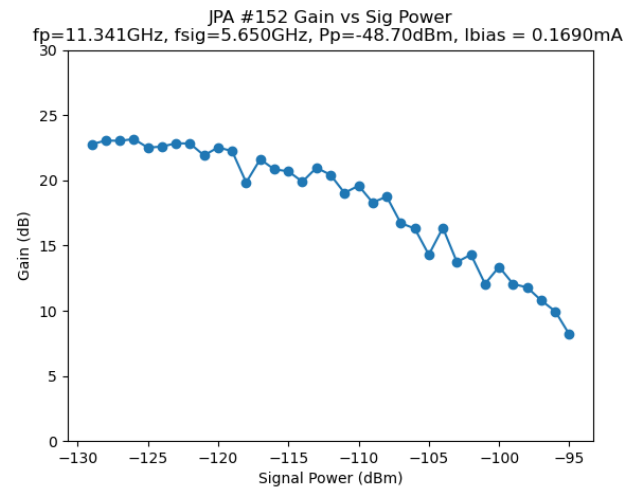
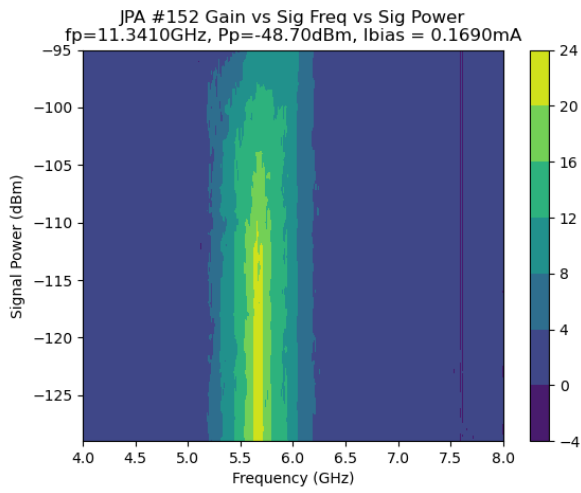
JPA #152 Gain vs Sig Freq vs Pump Frequency, I_{bias} = 0.1690mA



JPA #152 Gain vs Sig Freq vs Pump Power, I_{bias} = 0.1690mA

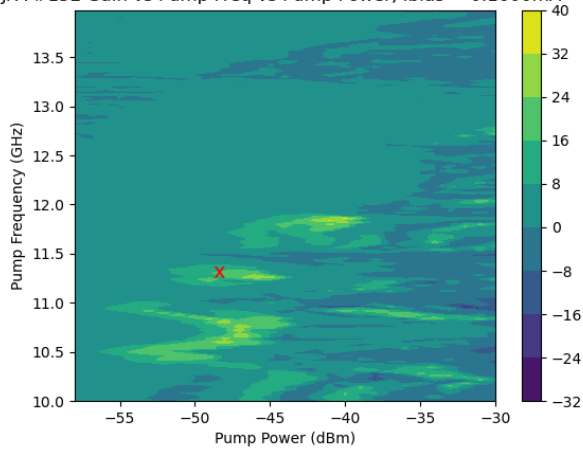


Sample JPA Tuneup 2 (cont.):

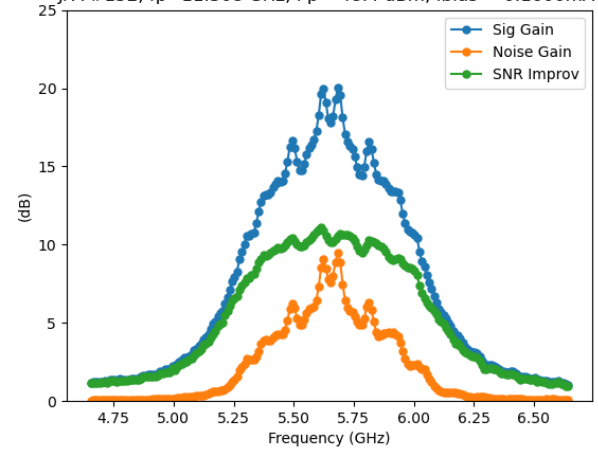


Sample JPA Tuneup 3:

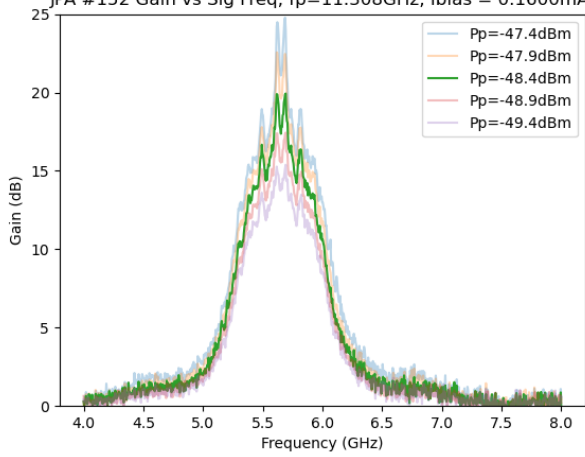
JPA #152 Gain vs Pump Freq vs Pump Power, I_{bias} = 0.1600mA



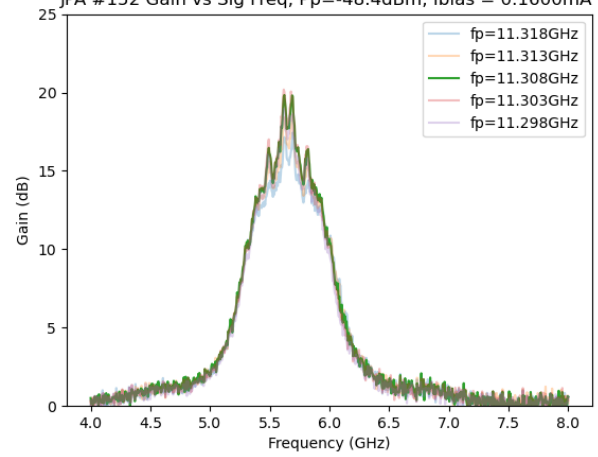
JPA #152, f_p=11.308 GHz, P_p=-48.4 dBm, I_{bias} = 0.1600mA



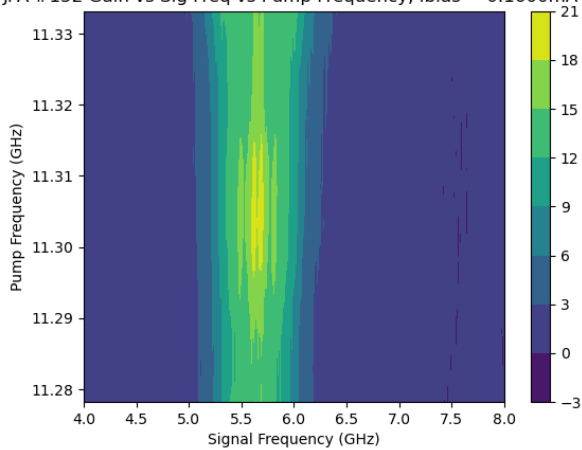
JPA #152 Gain vs Sig Freq, f_p=11.308GHz, I_{bias} = 0.1600mA



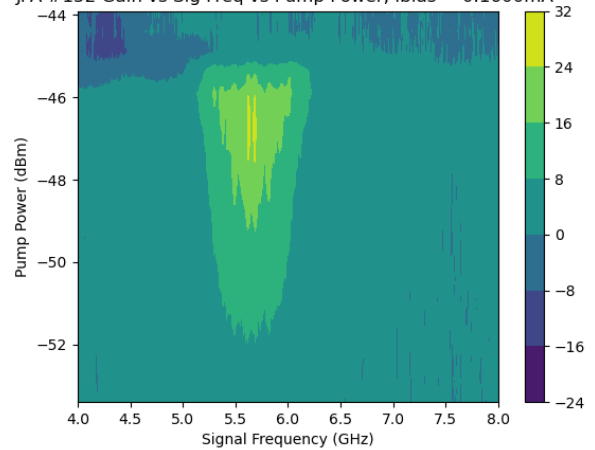
JPA #152 Gain vs Sig Freq, P_p=-48.4dBm, I_{bias} = 0.1600mA



JPA #152 Gain vs Sig Freq vs Pump Frequency, I_{bias} = 0.1600mA



JPA #152 Gain vs Sig Freq vs Pump Power, I_{bias} = 0.1600mA



Sample JPA Tuneup 3 (cont.):

