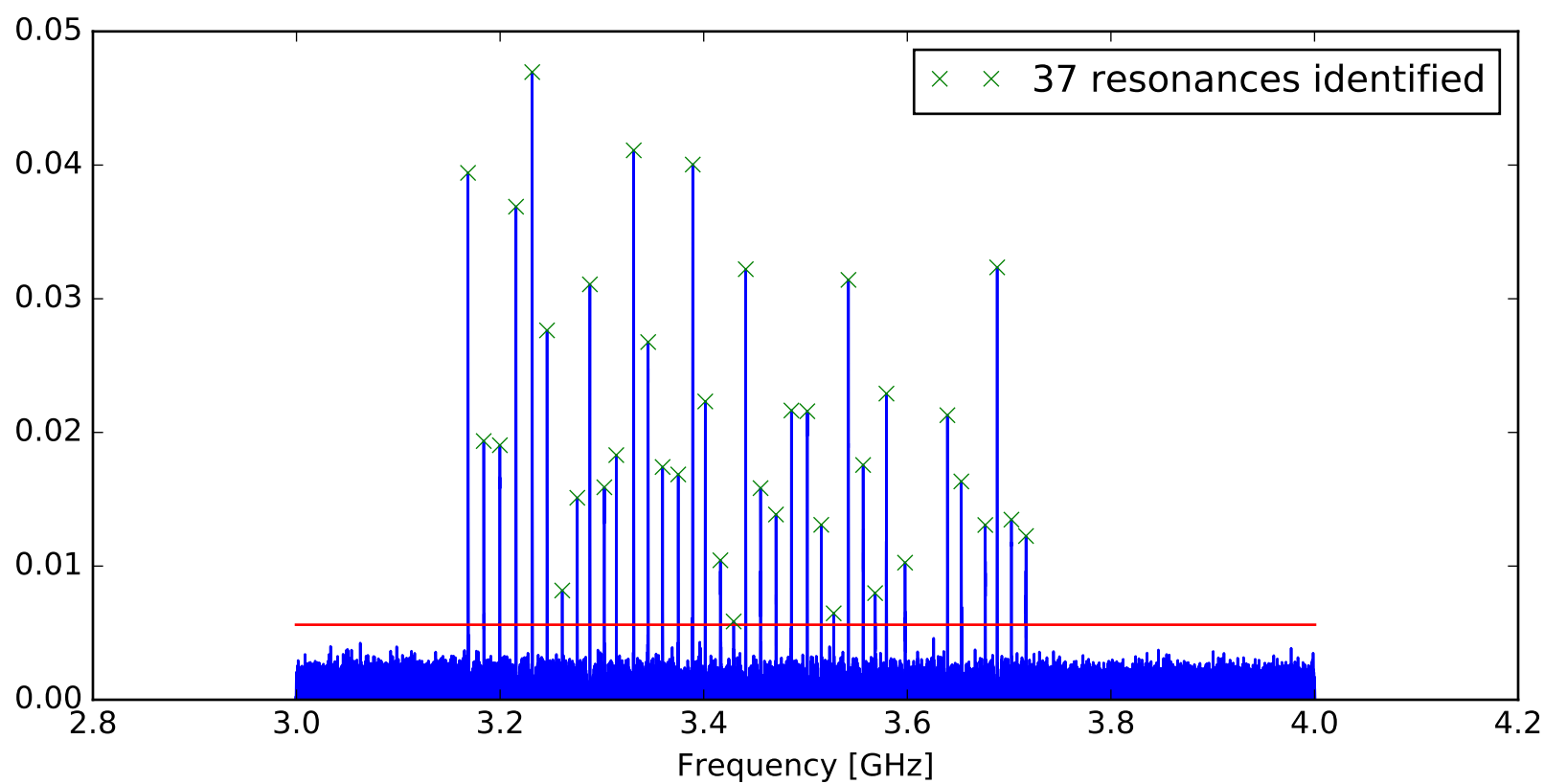
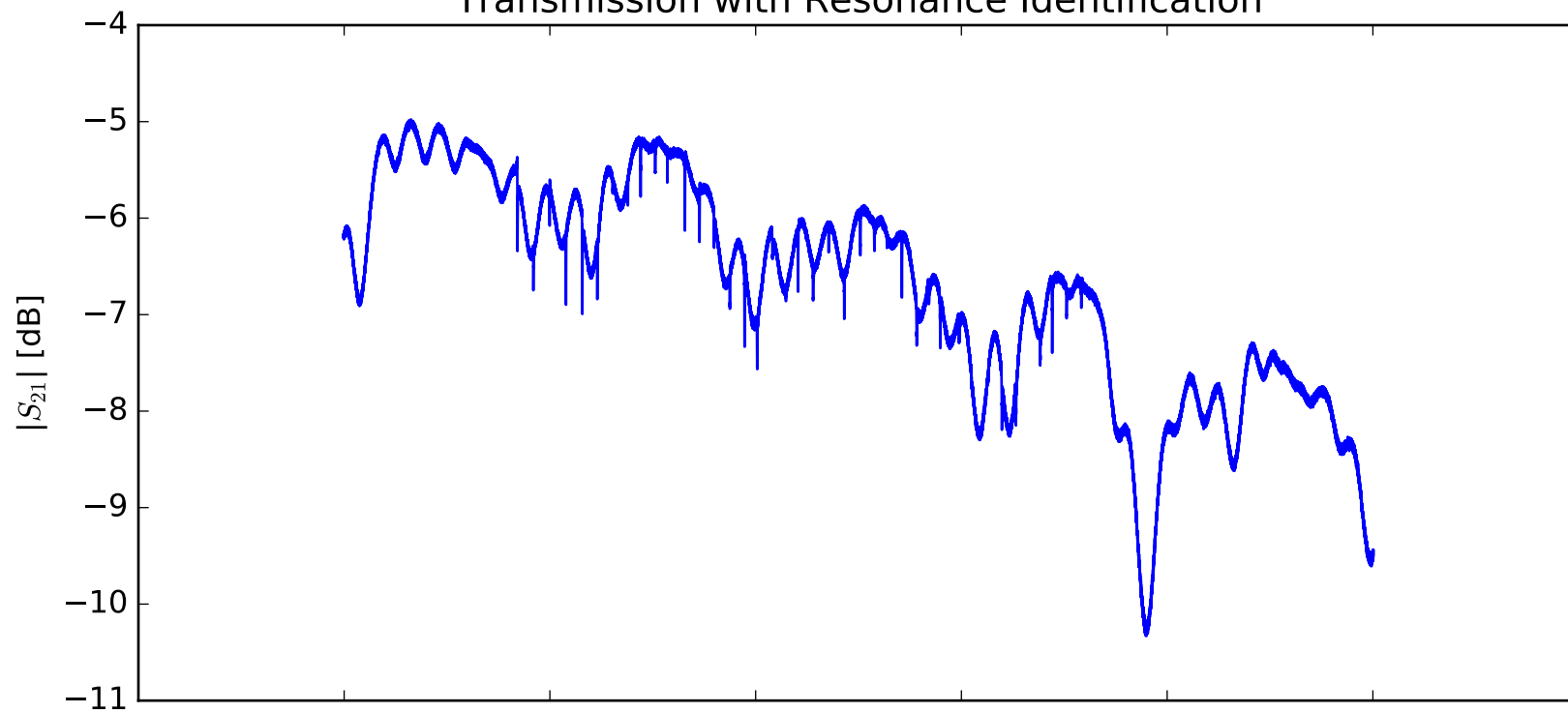
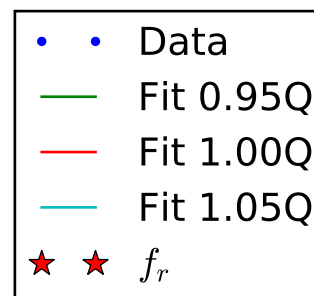
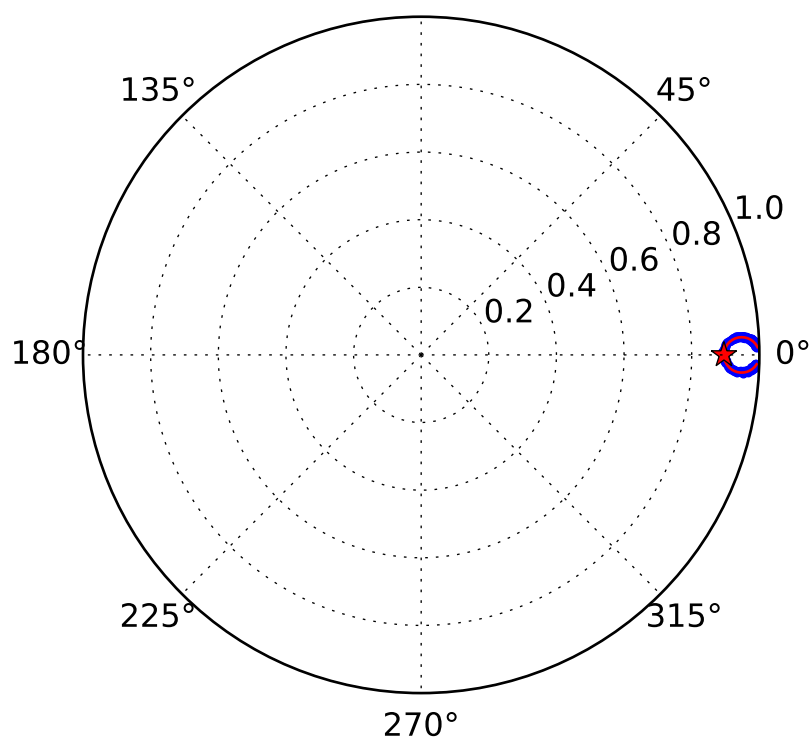
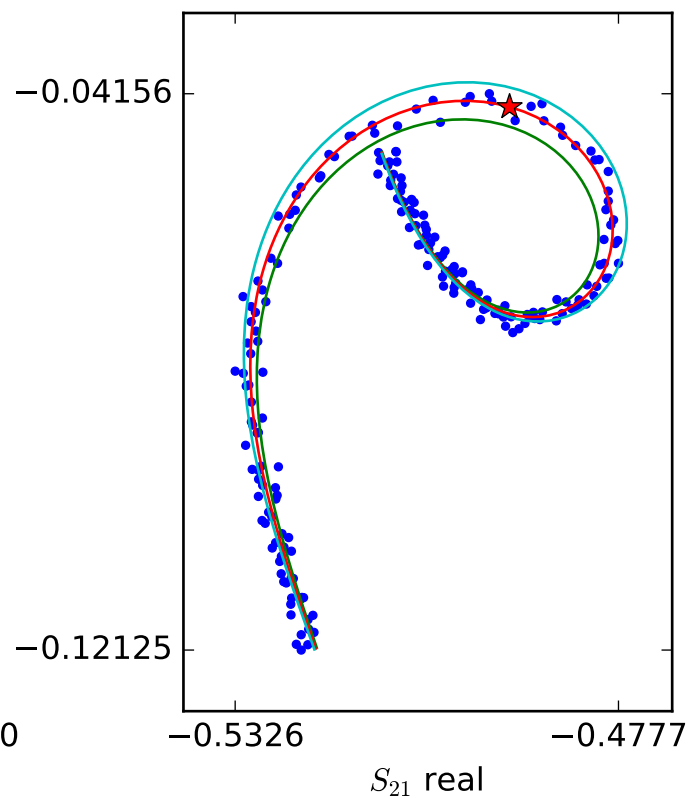
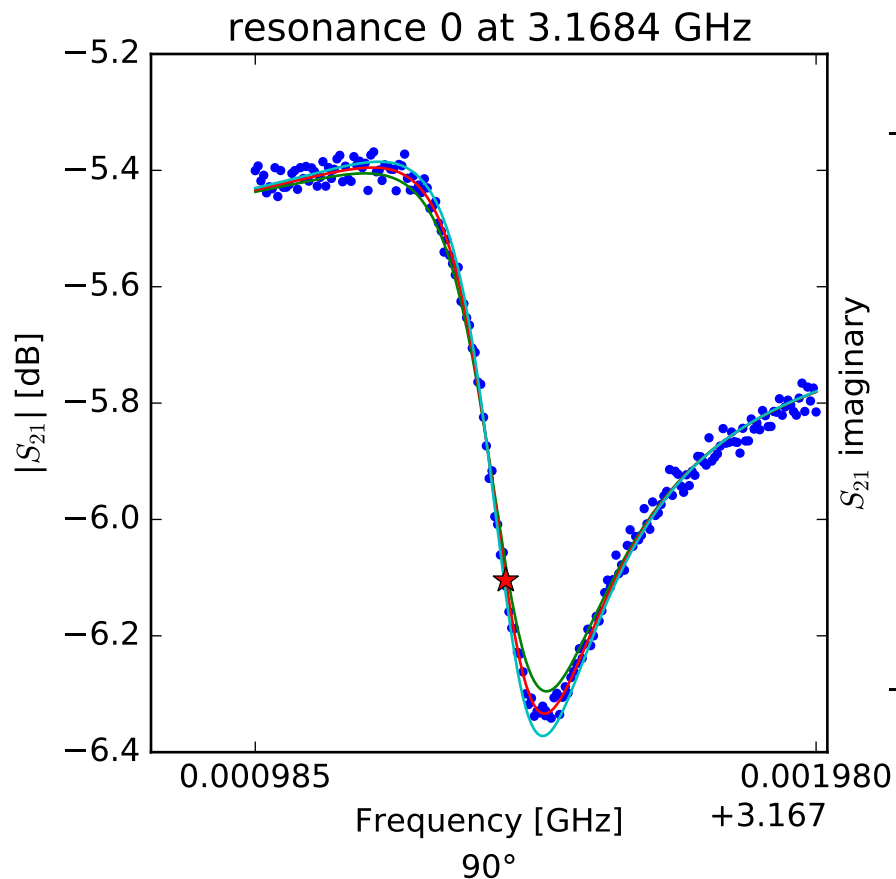


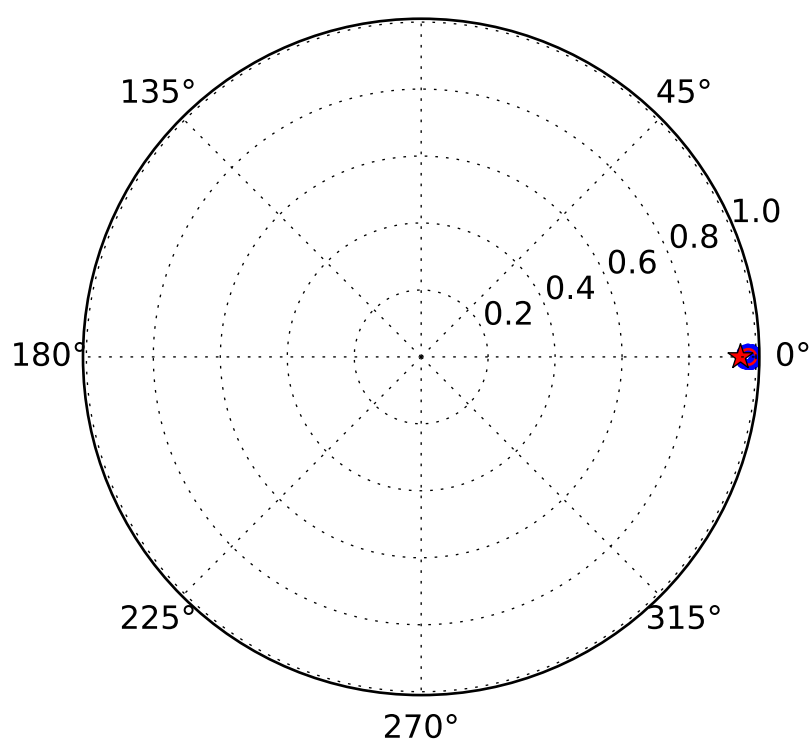
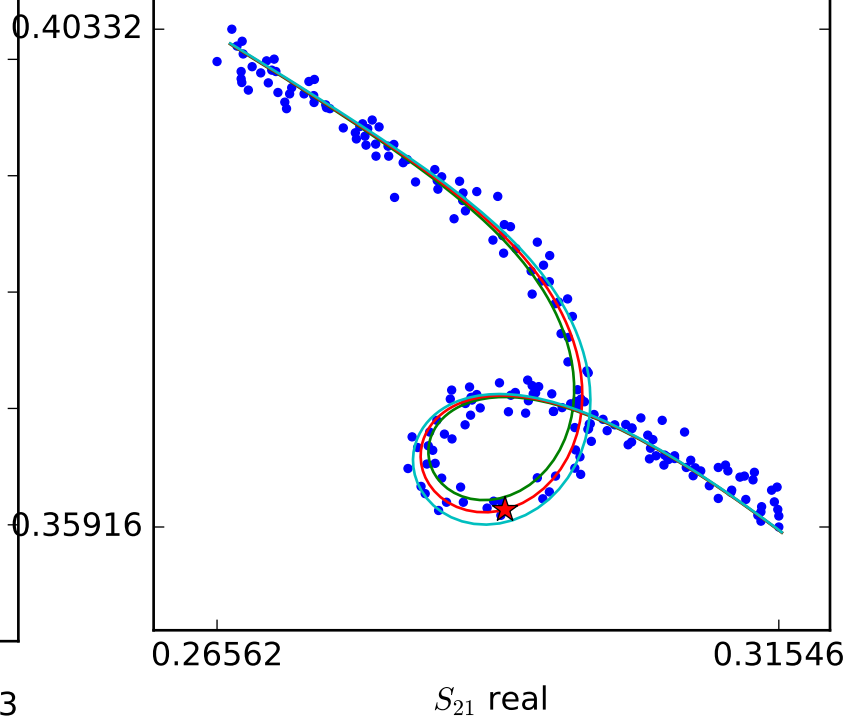
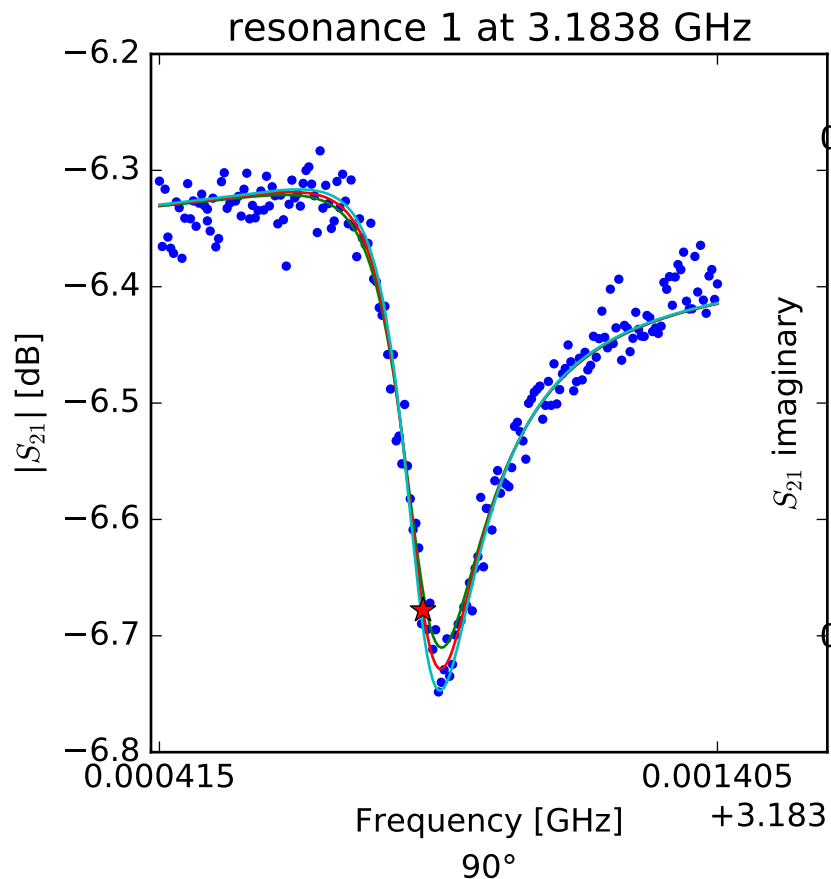
Transmission with Resonance Identification





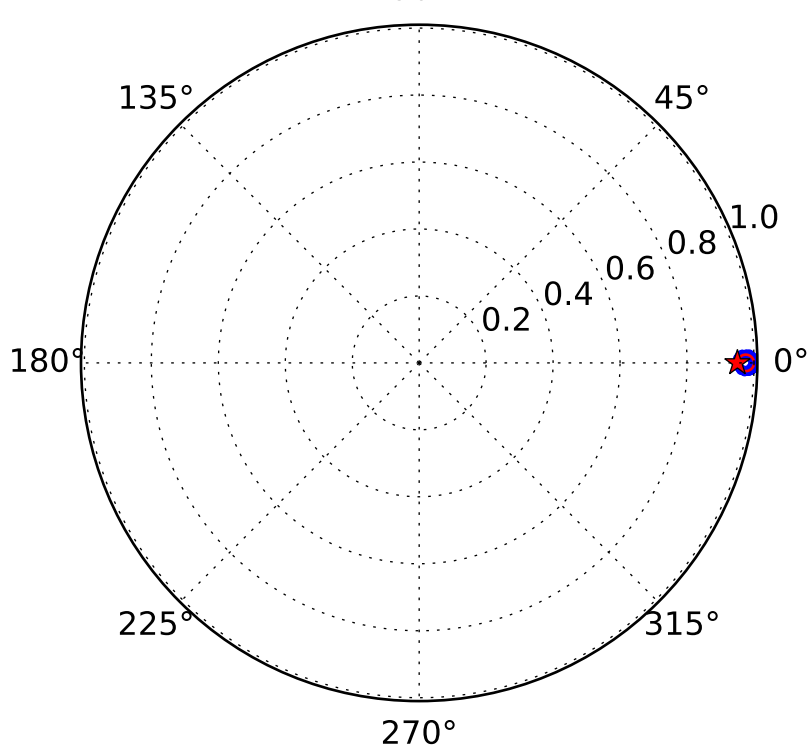
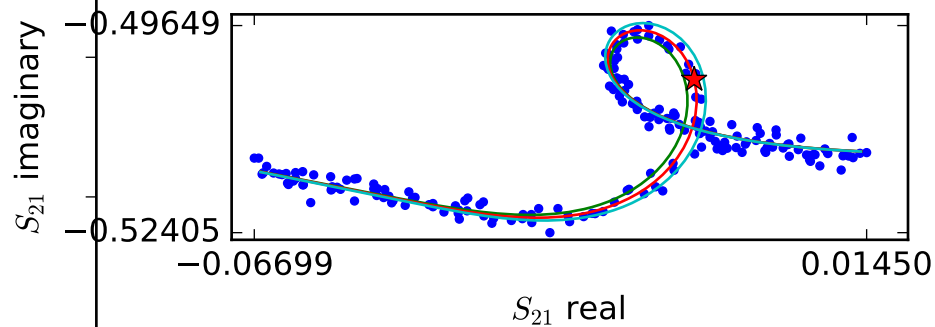
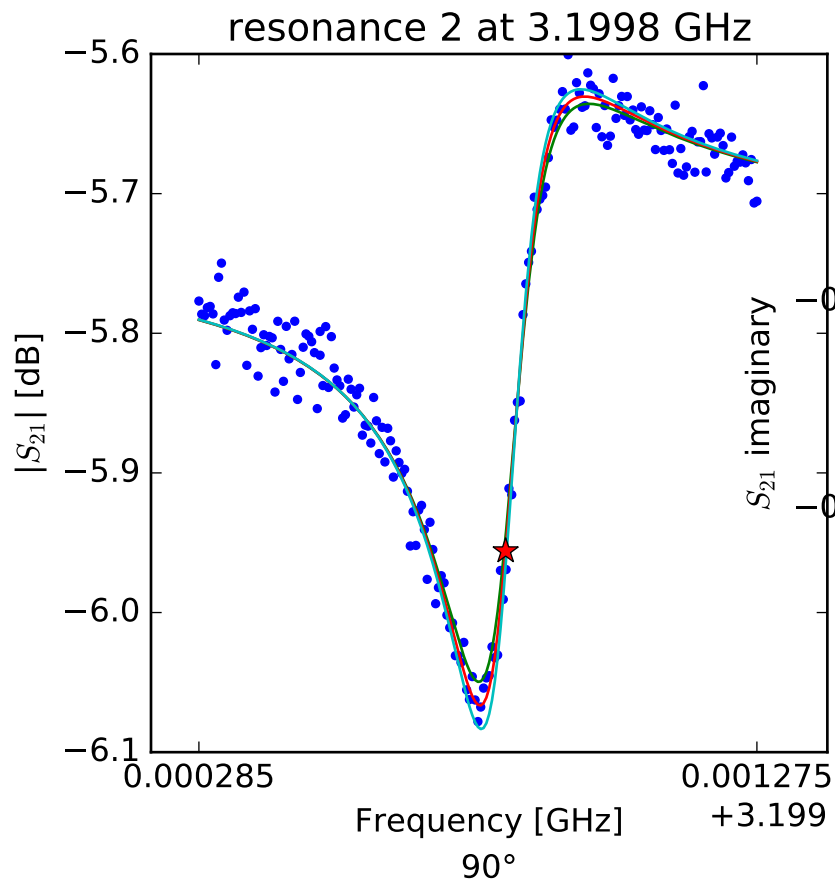
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})} \right]$$

$$\begin{aligned} f_r &= 3.1684294539 \\ Q_r &= 12409.2424027 \\ Q_c &= 118455.021363 \\ a &= (0.28499805843 - 0.441450416298j) \\ \phi_0 &= 0.944465959015 \\ \tau &= 25.9790868737 \end{aligned}$$



$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

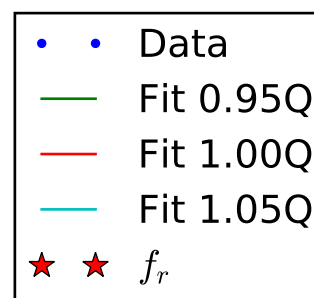
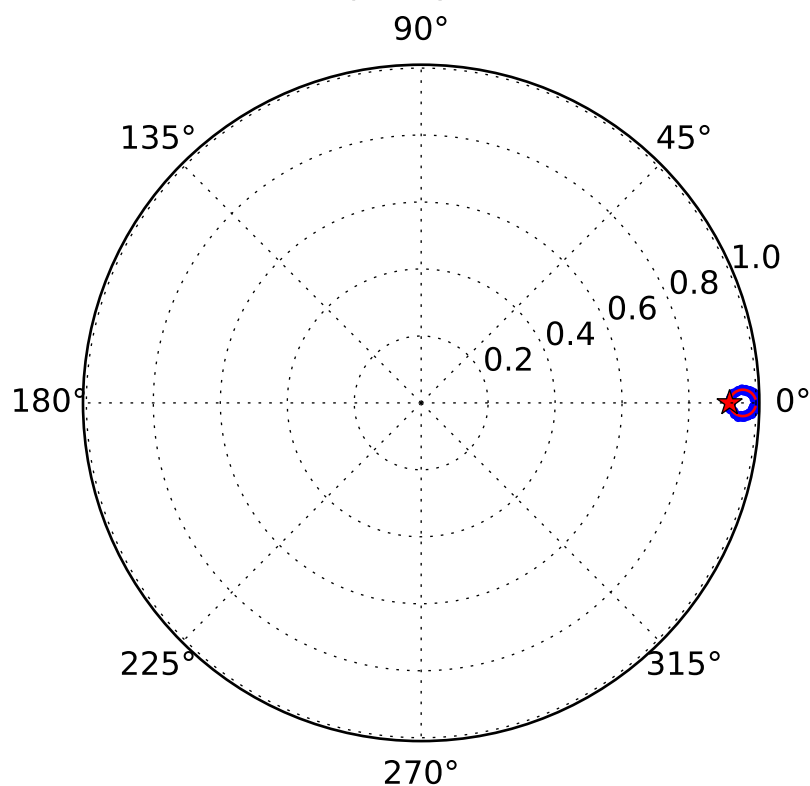
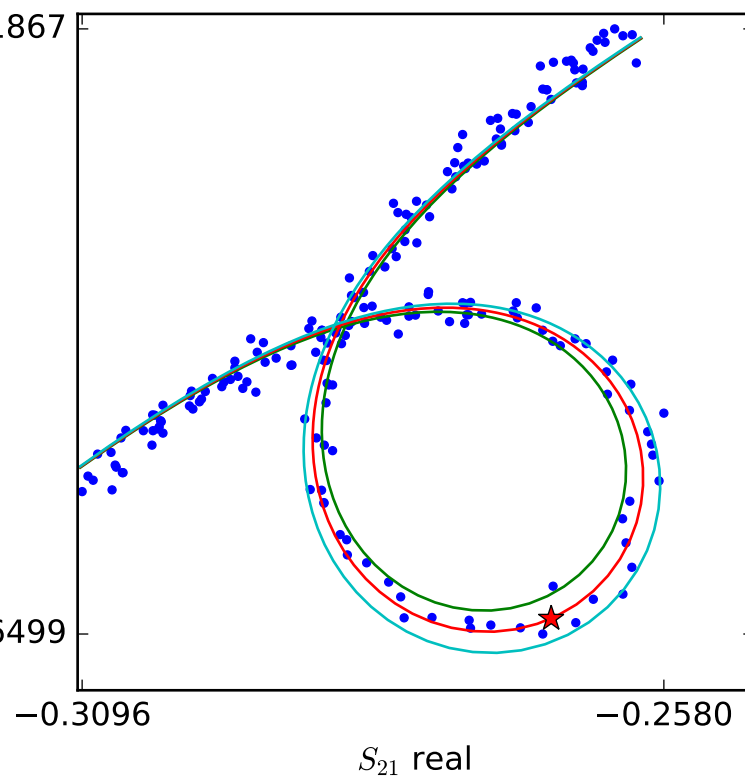
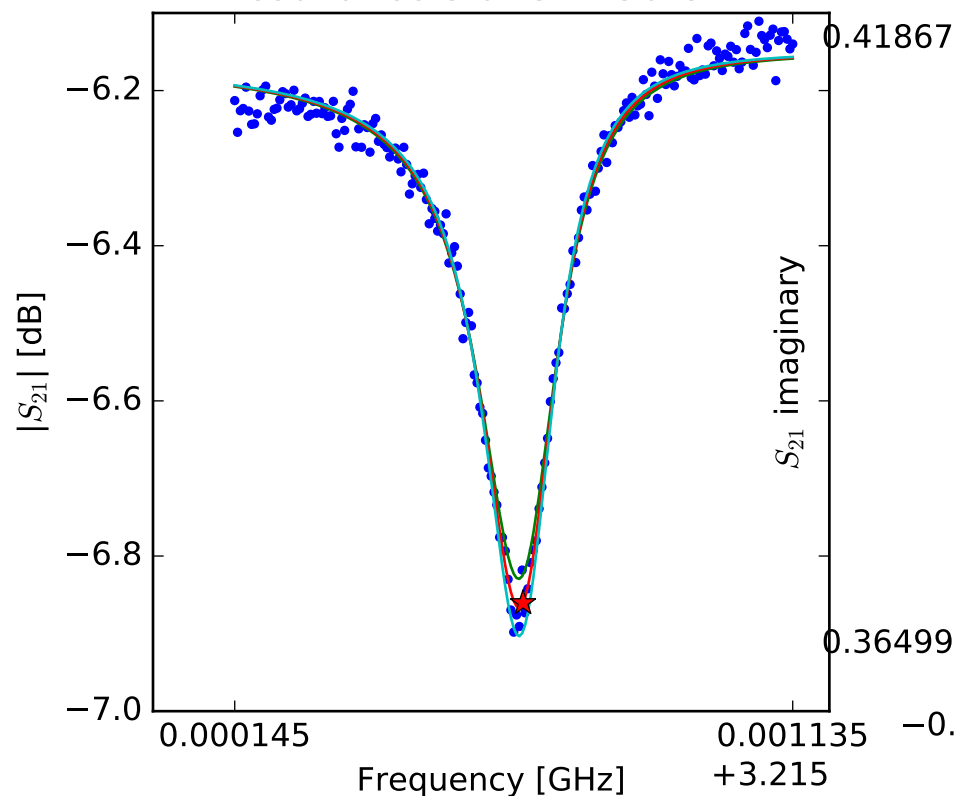
$$\begin{aligned} f_r &= 3.18388269601 \\ Q_r &= 18635.7995119 \\ Q_c &= 402030.246006 \\ a &= (0.465693650547 - 0.118517652223j) \\ \phi_0 &= 0.688757912772 \\ \tau &= 23.8116705098 \end{aligned}$$



$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

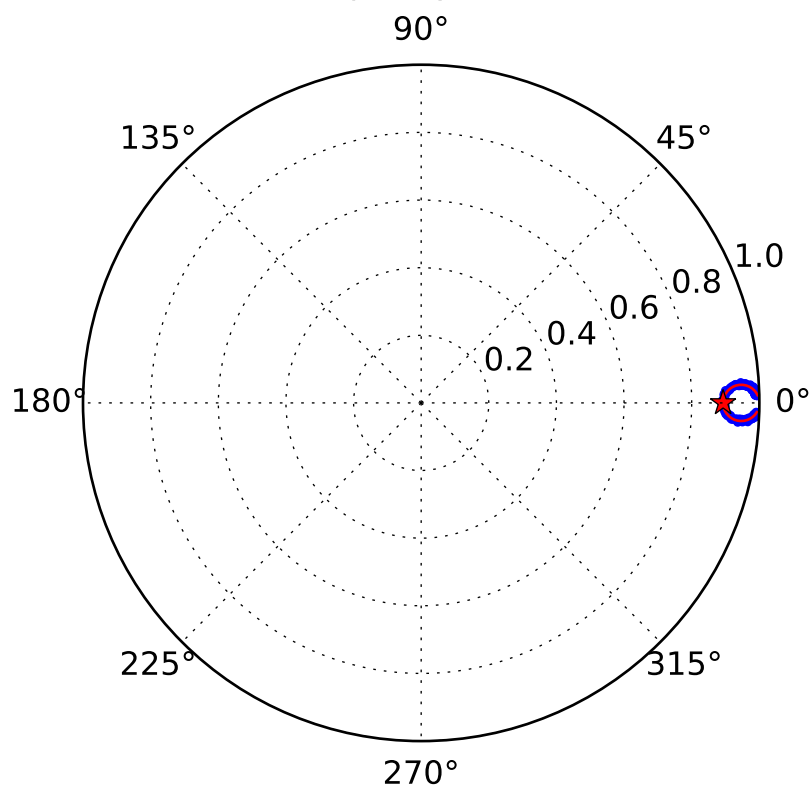
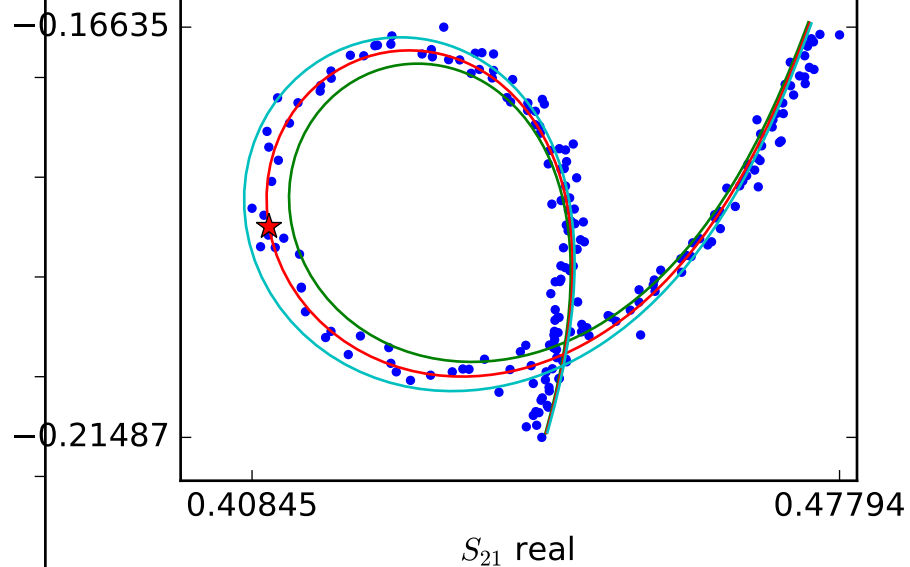
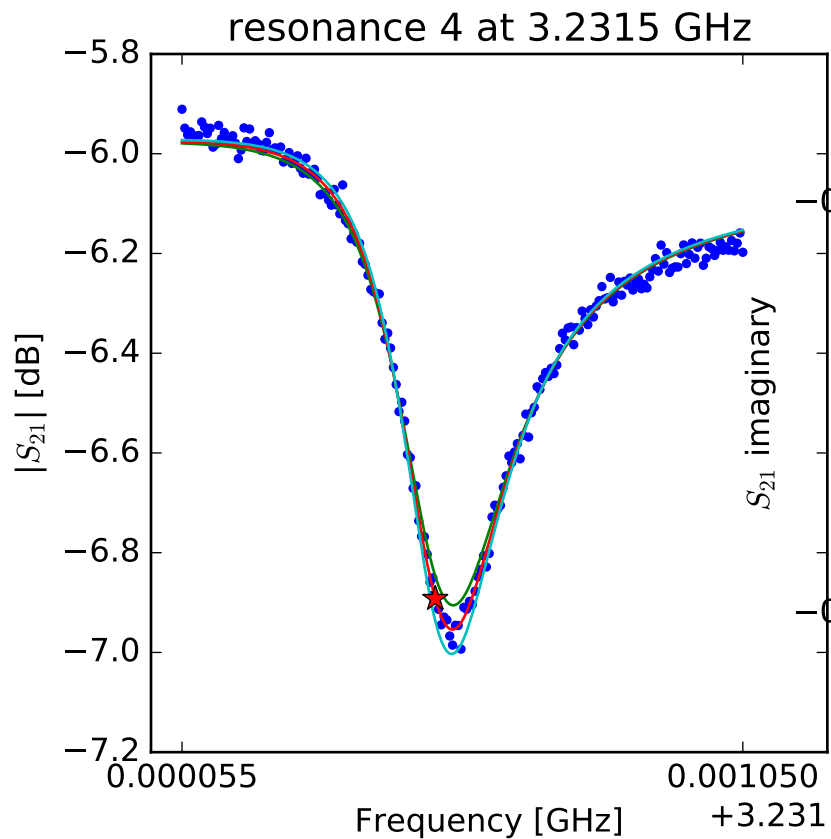
$$\begin{aligned} f_r &= 3.19982922371 \\ Q_r &= 20067.4555099 \\ Q_c &= 404950.140925 \\ a &= (-0.474606668505 - 0.204601338357j) \\ \phi_0 &= -1.01272926975 \\ \tau &= 26.1964968001 \end{aligned}$$

resonance 3 at 3.2156 GHz



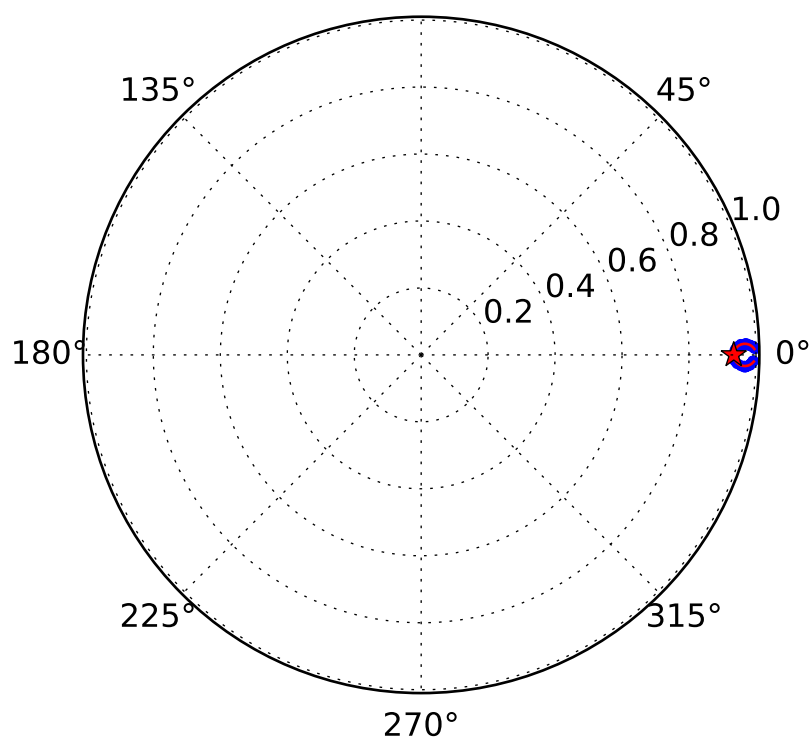
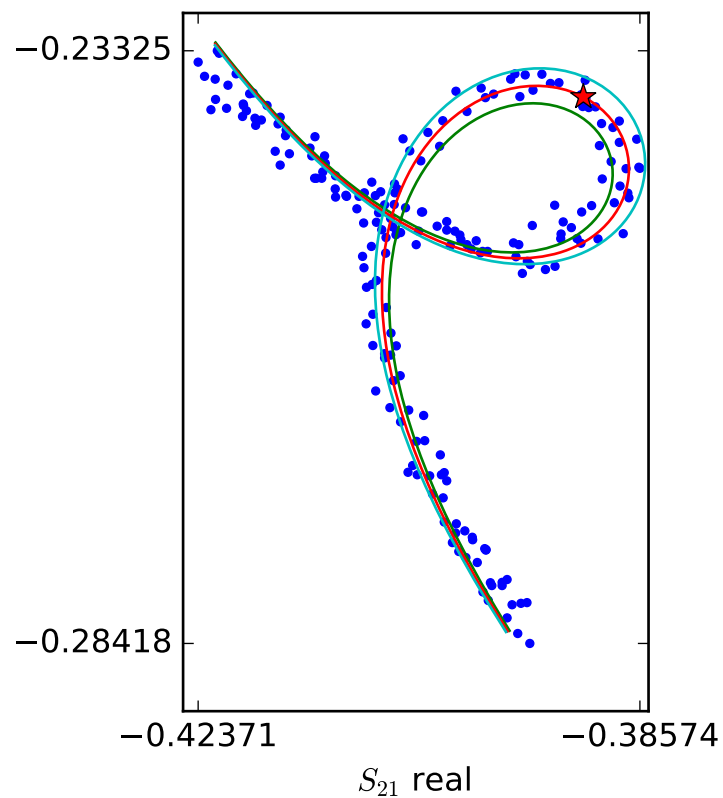
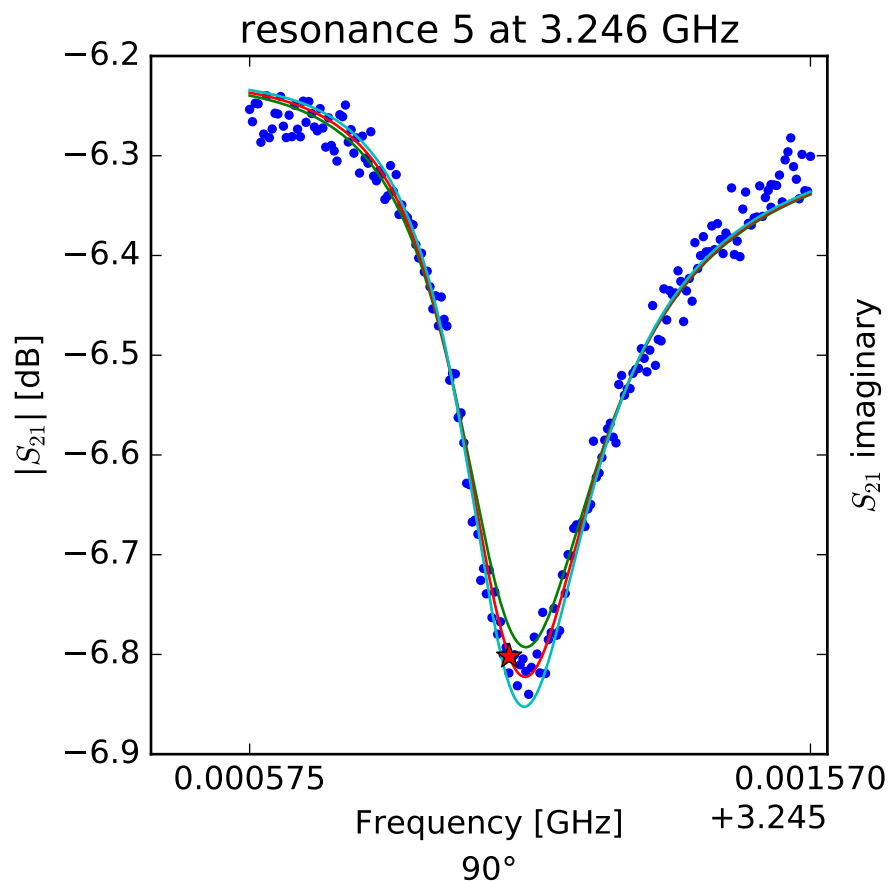
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.2156566109 \\ Q_r &= 18965.0415975 \\ Q_c &= 240260.387878 \\ a &= (-0.0610587357556 - 0.488361168445j) \\ \phi_0 &= -0.169817645238 \\ \tau &= 24.6860912086 \end{aligned}$$



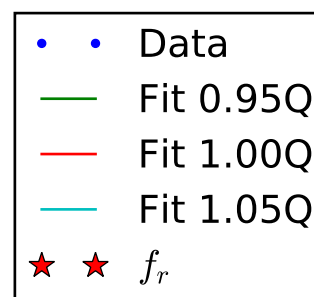
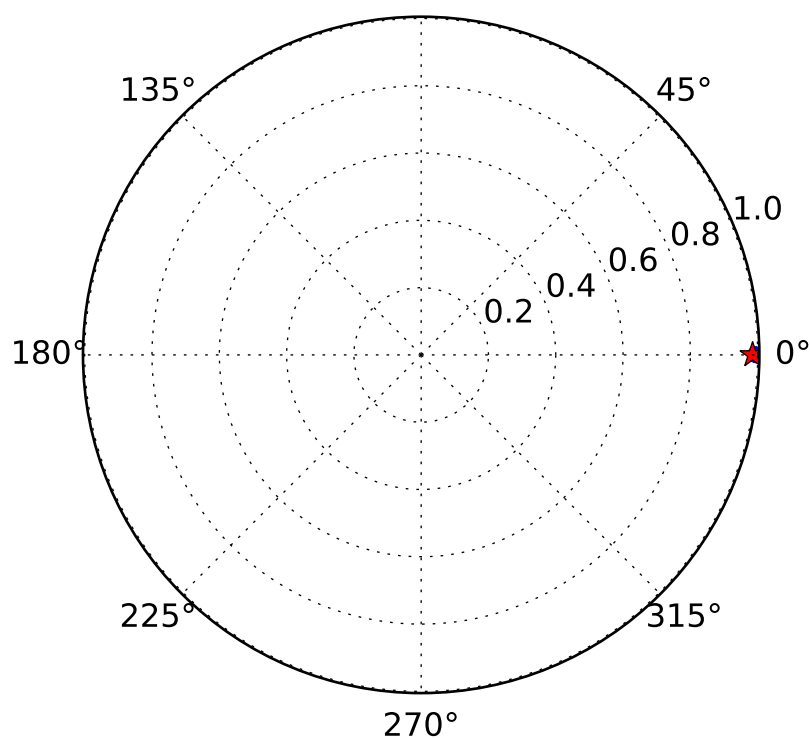
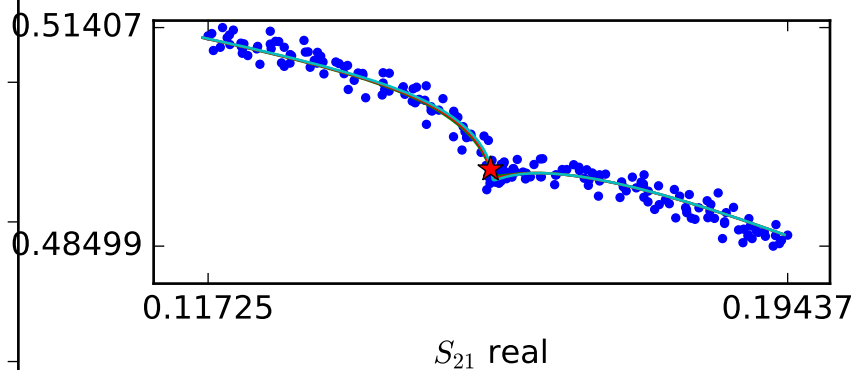
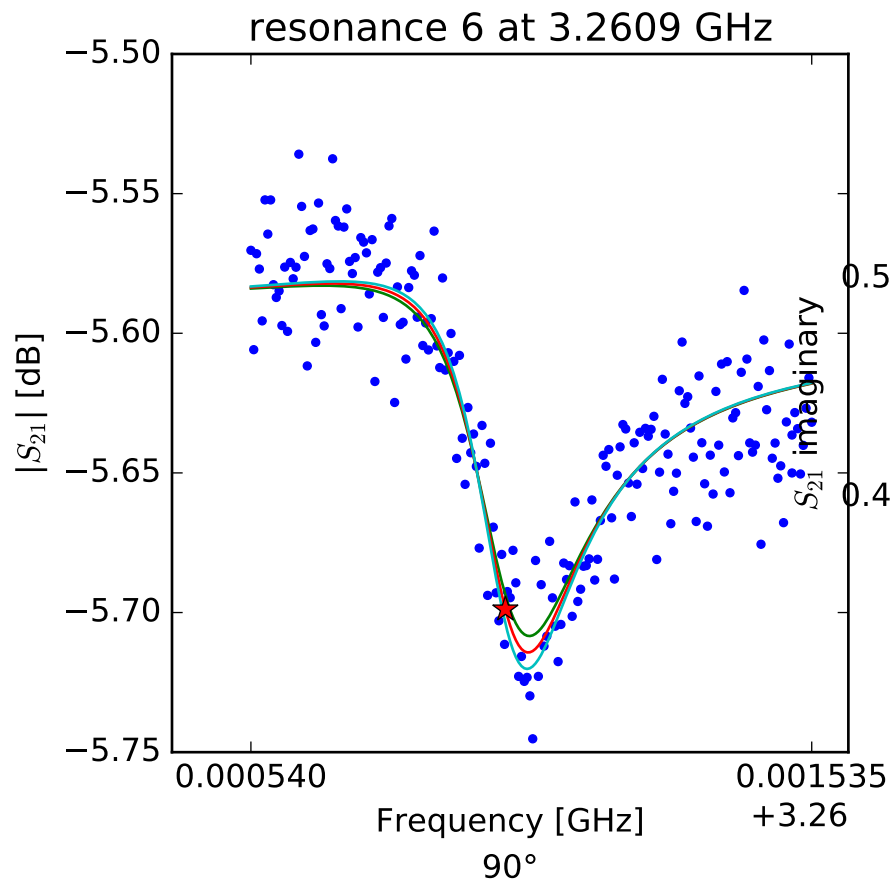
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.23150438338 \\ Q_r &= 13083.8280076 \\ Q_c &= 122008.939947 \\ a &= (0.422549611004 - 0.266780591875j) \\ \phi_0 &= 0.457757422314 \\ \tau &= 25.6756623069 \end{aligned}$$



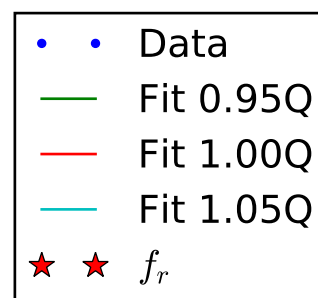
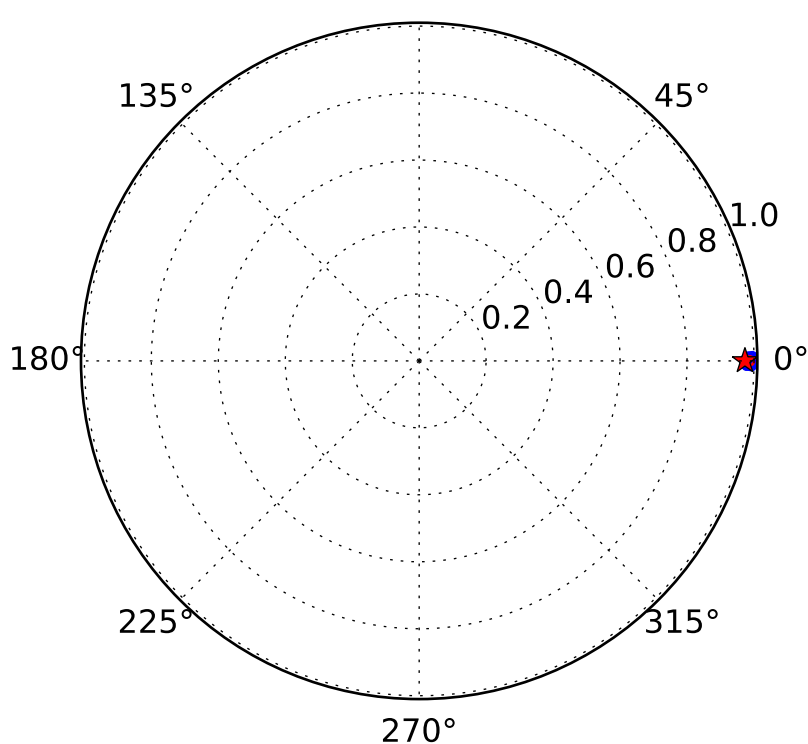
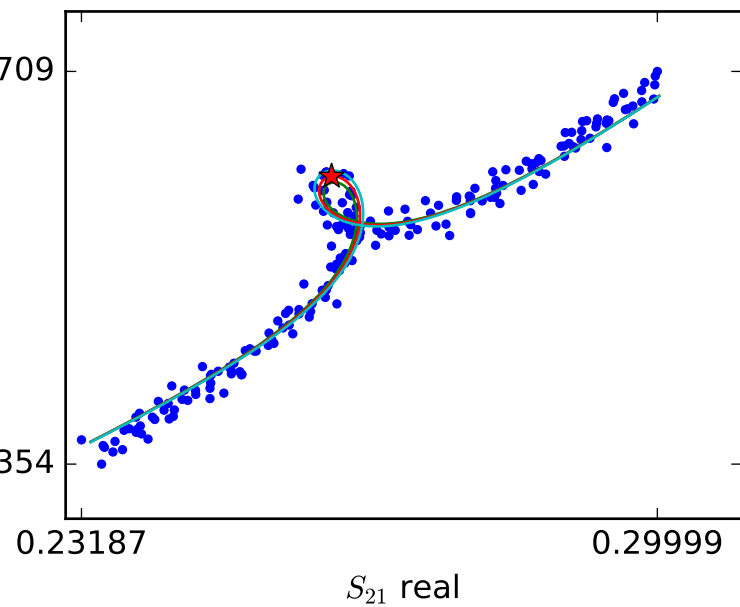
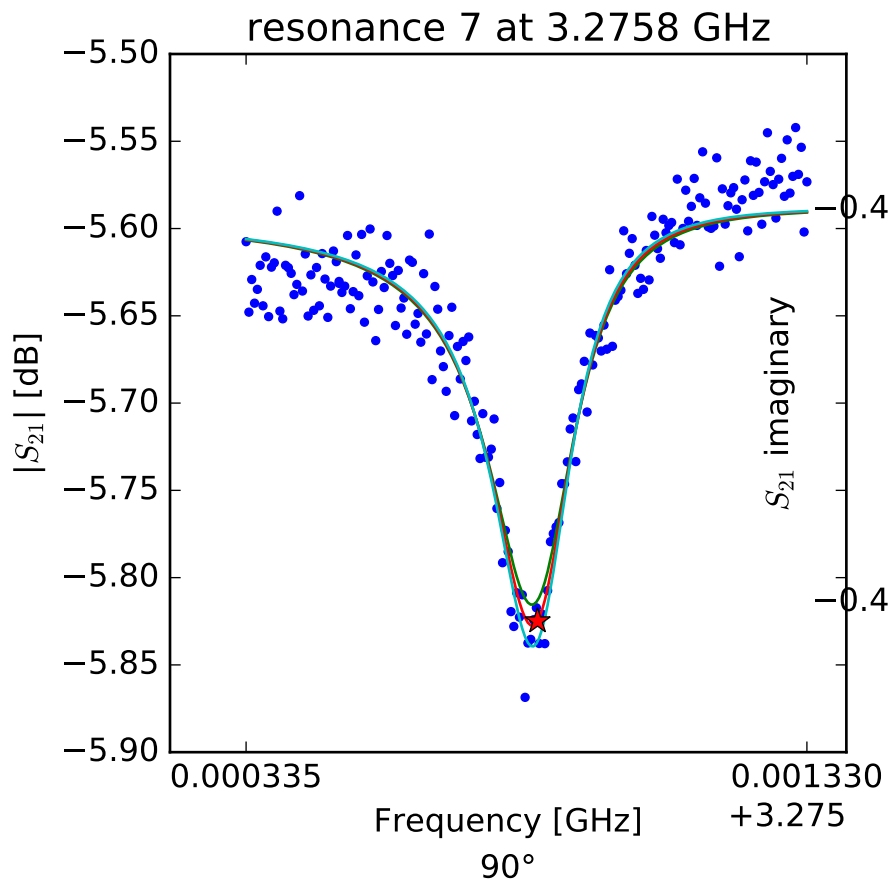
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.24603559949 \\ Q_r &= 10601.7553322 \\ Q_c &= 159364.313241 \\ a &= (-0.279907117724 + 0.398886254546j) \\ \phi_0 &= 0.350806080504 \\ \tau &= 24.2624089777 \end{aligned}$$



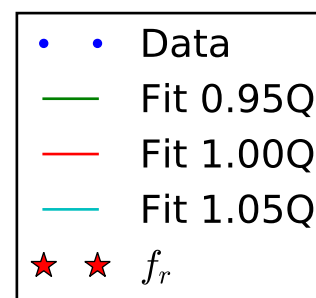
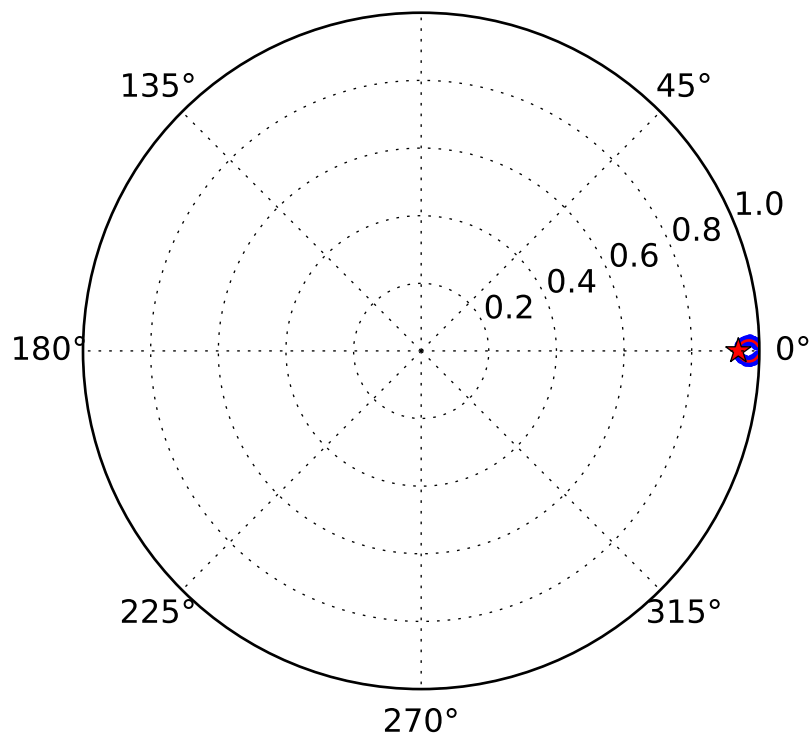
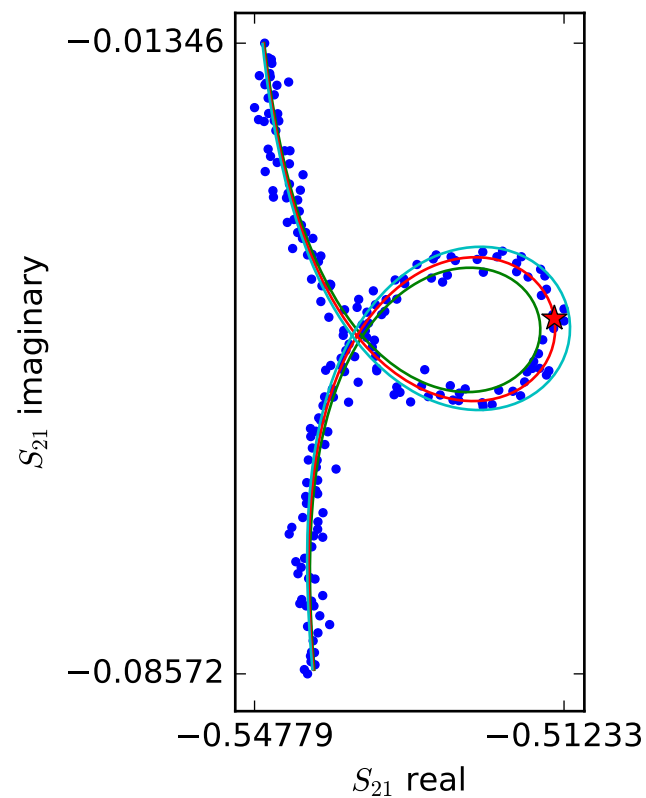
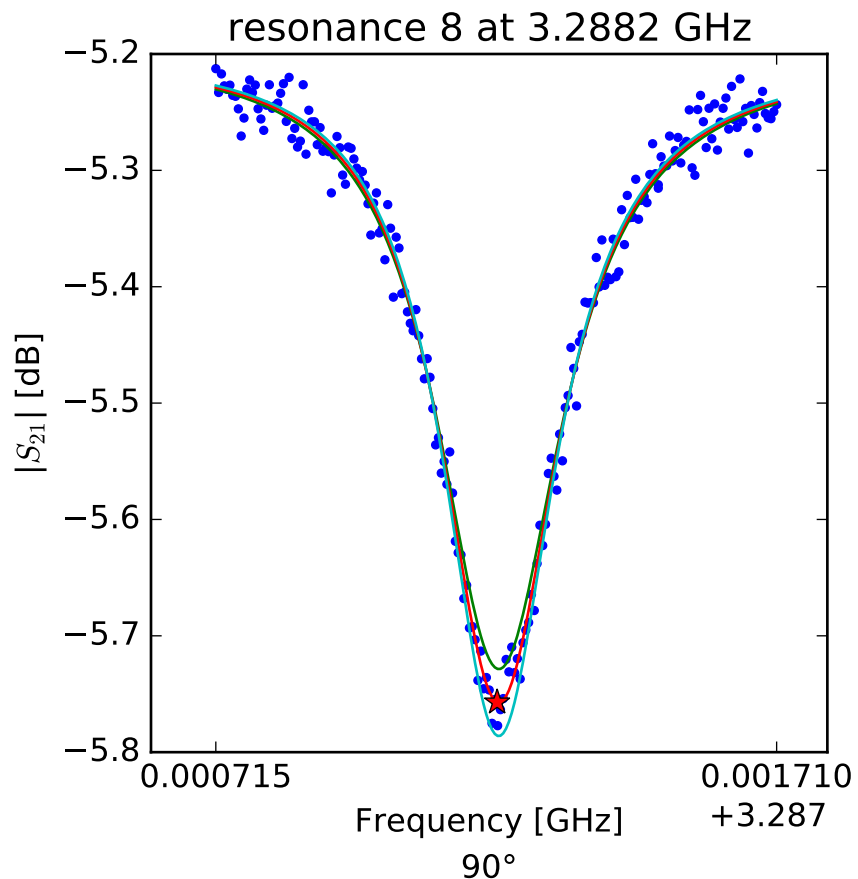
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.26099147723 \\ Q_r &= 14593.9133457 \\ Q_c &= 965006.352175 \\ a &= (0.106855401135 + 0.513982483902j) \\ \phi_0 &= 0.689507728431 \\ \tau &= 25.7633463515 \end{aligned}$$



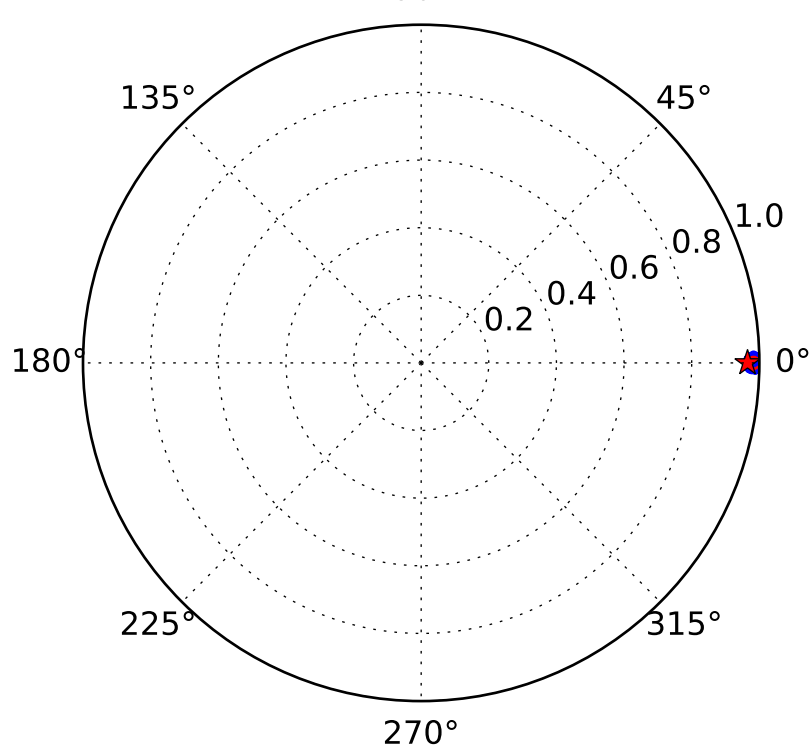
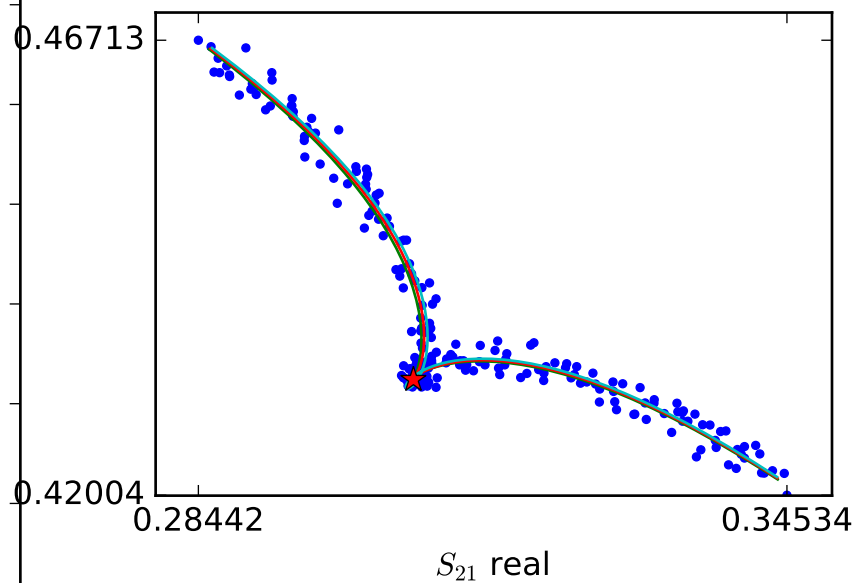
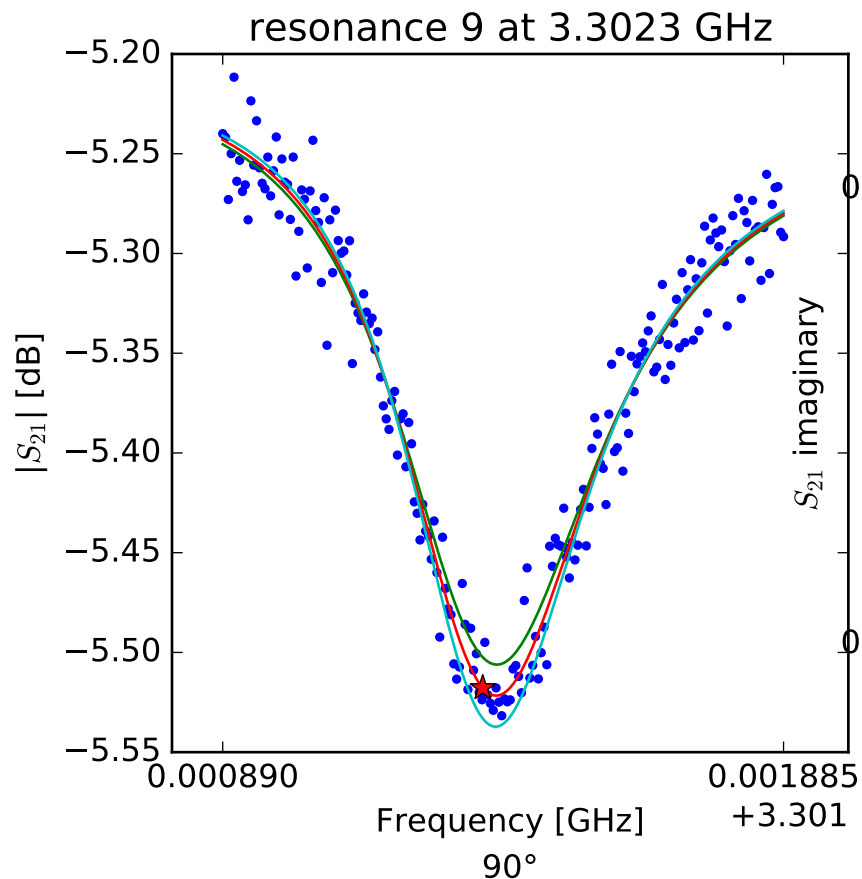
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.27585211381 \\ Q_r &= 18149.617911 \\ Q_c &= 669409.513043 \\ a &= (-0.355643350826 + 0.386637190816j) \\ \phi_0 &= -0.206228184685 \\ \tau &= 25.499886066 \end{aligned}$$



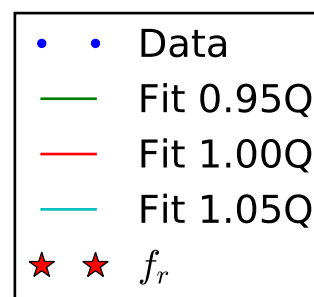
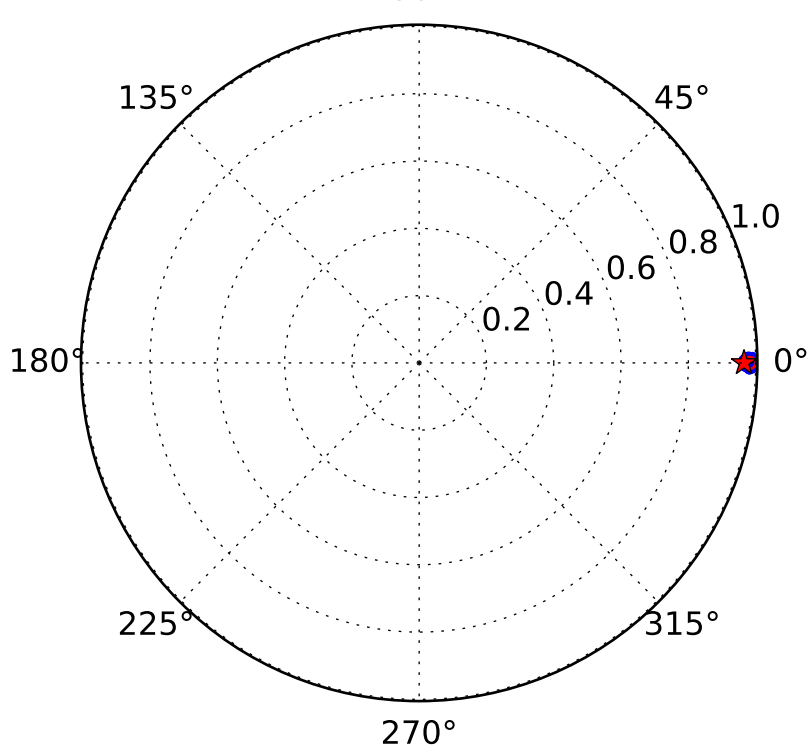
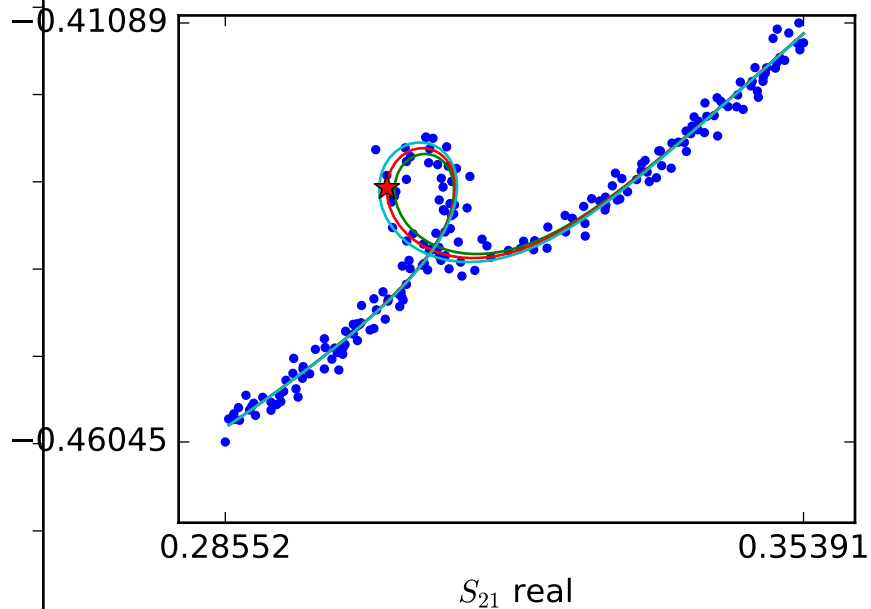
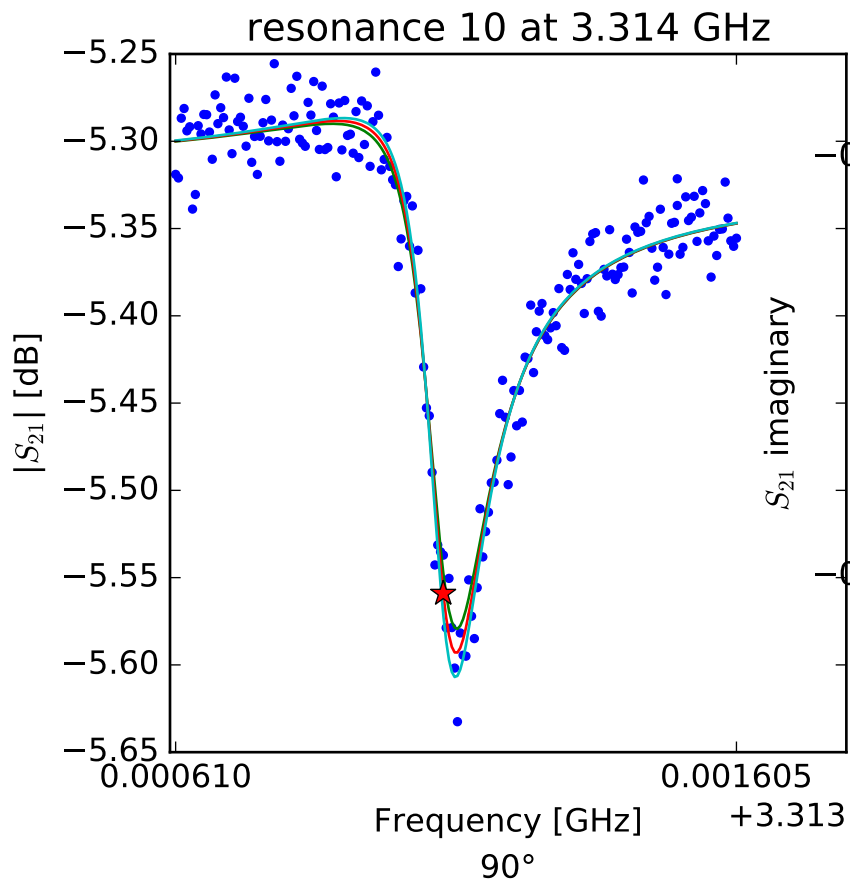
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.28821412083 \\ Q_r &= 12378.0733483 \\ Q_c &= 199006.459359 \\ a &= (0.520953828685 + 0.174959557008j) \\ \phi_0 &= 0.0441145379164 \\ \tau &= 26.0132676352 \end{aligned}$$



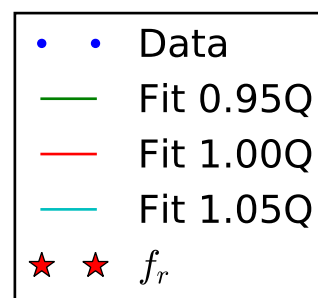
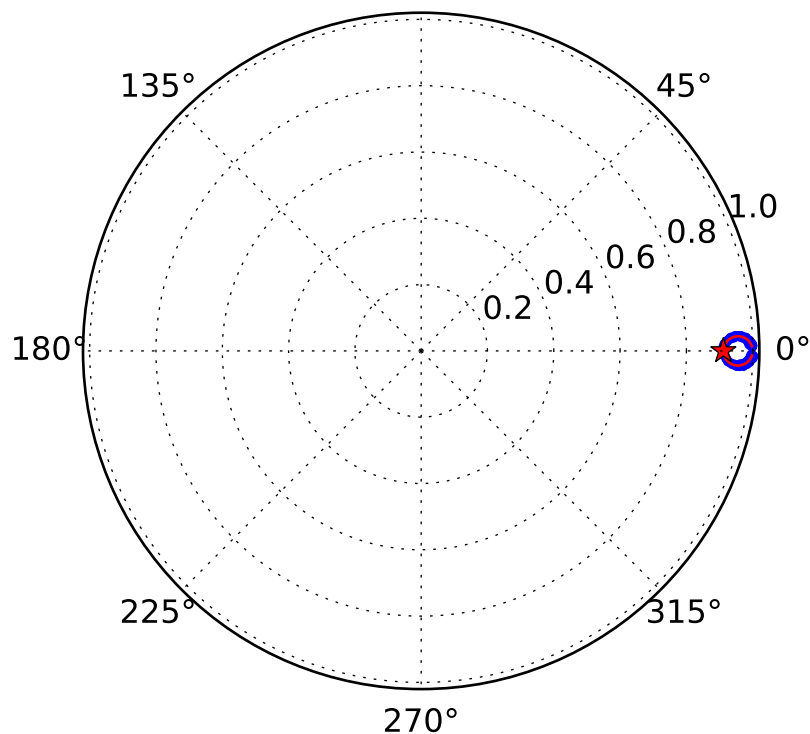
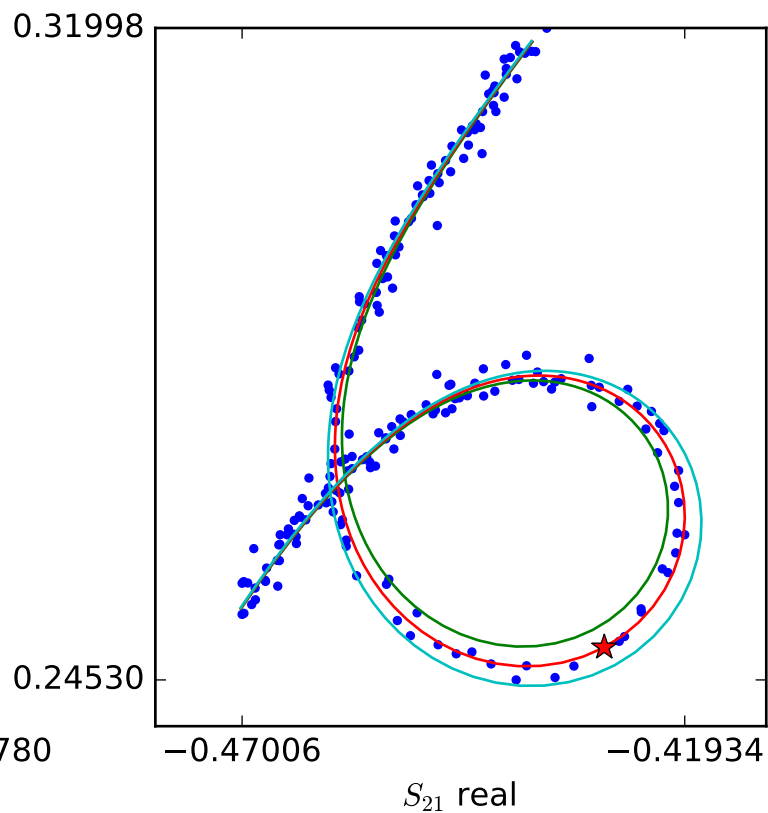
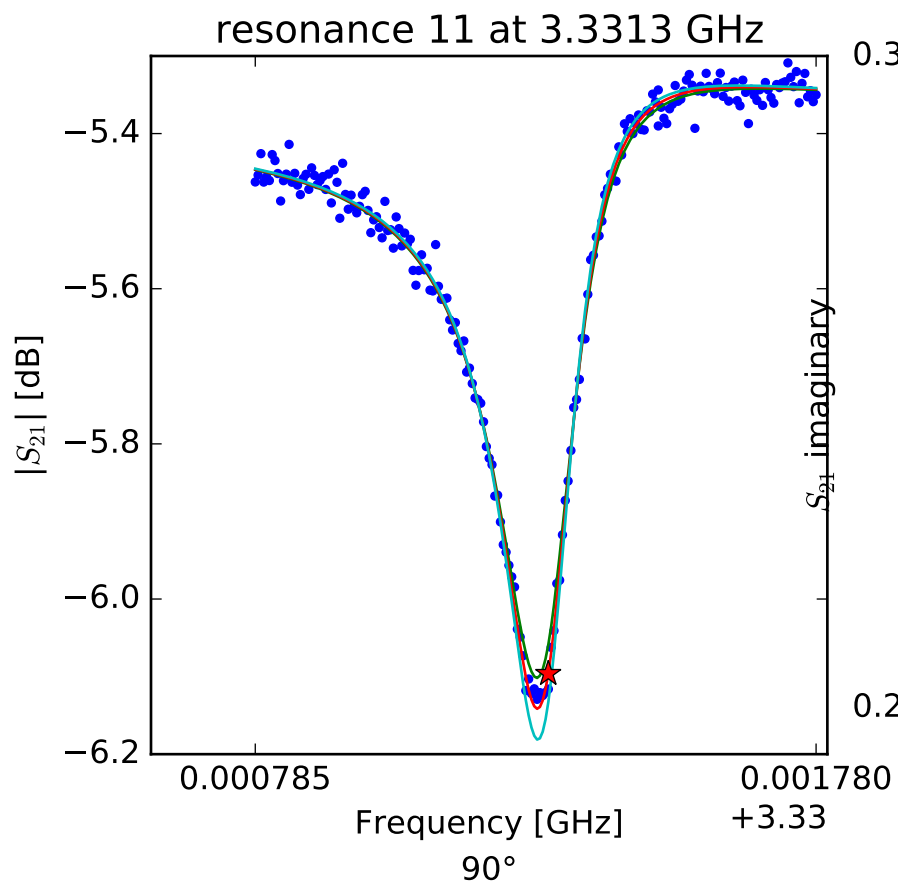
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.30235133264 \\ Q_r &= 7673.23868163 \\ Q_c &= 219183.83858 \\ a &= (0.224546614234 - 0.500471628025j) \\ \phi_0 &= 0.21679644436 \\ \tau &= 25.6375306543 \end{aligned}$$



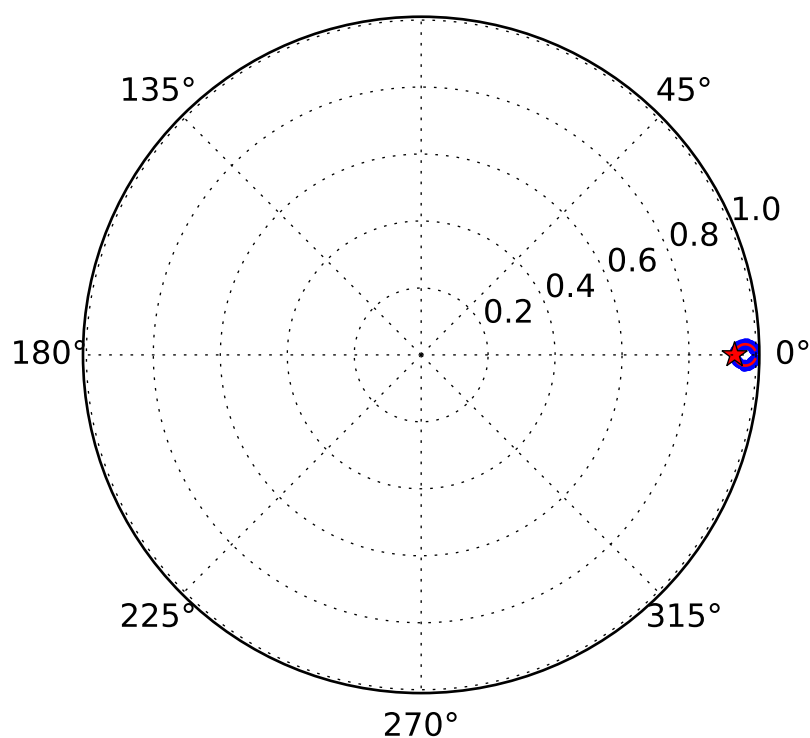
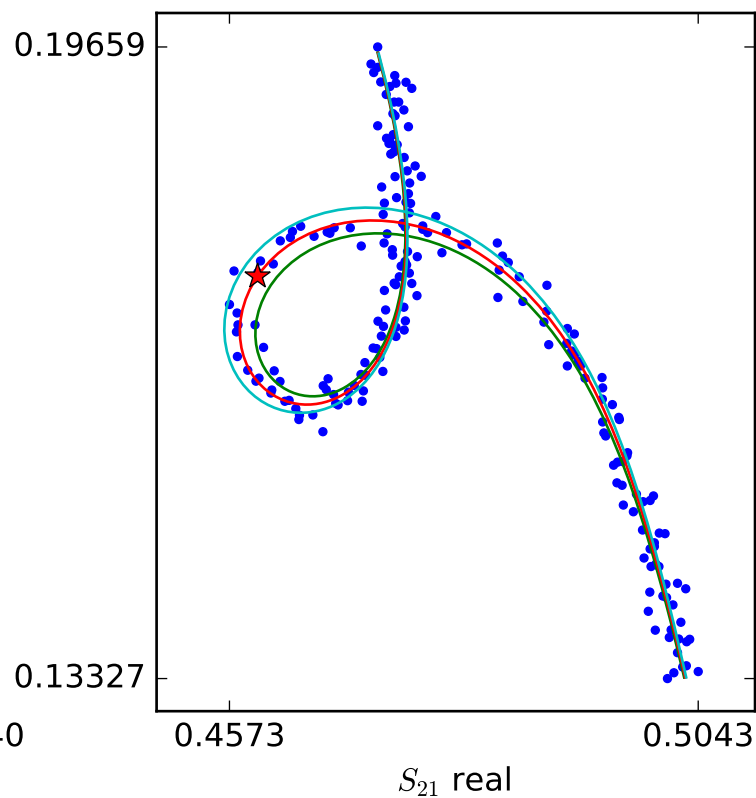
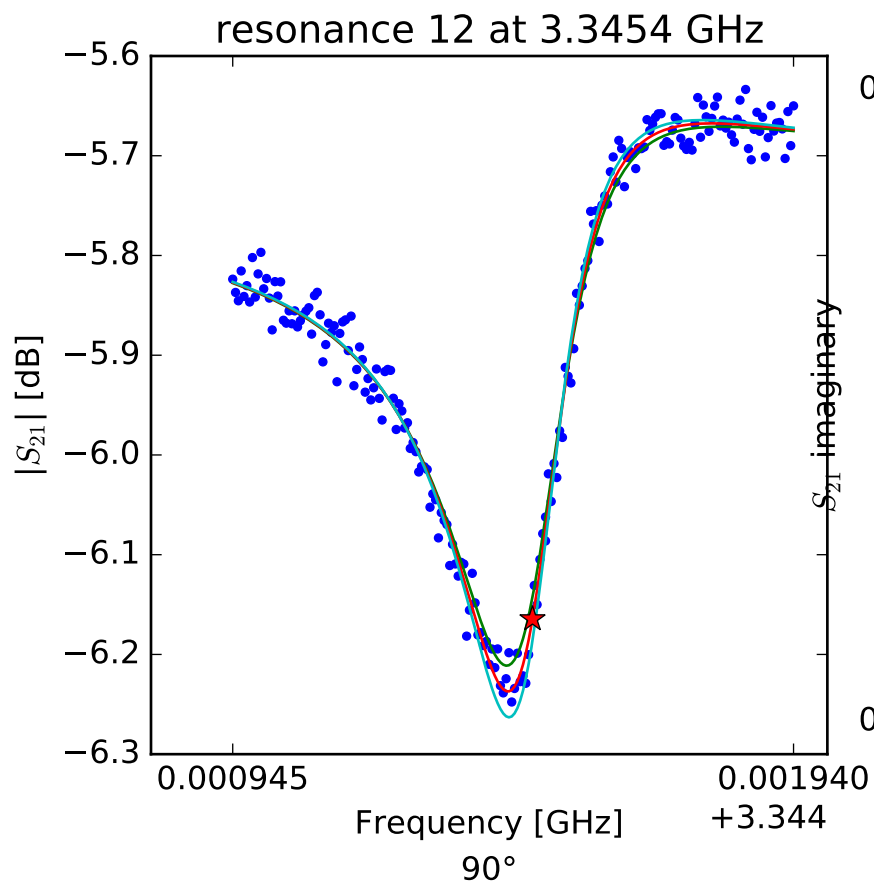
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.31408477444 \\ Q_r &= 25324.8068824 \\ Q_c &= 731485.553628 \\ a &= (0.315020175221 + 0.44102035043j) \\ \phi_0 &= 0.66074191388 \\ \tau &= 25.4368198187 \end{aligned}$$



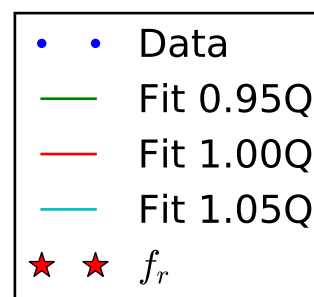
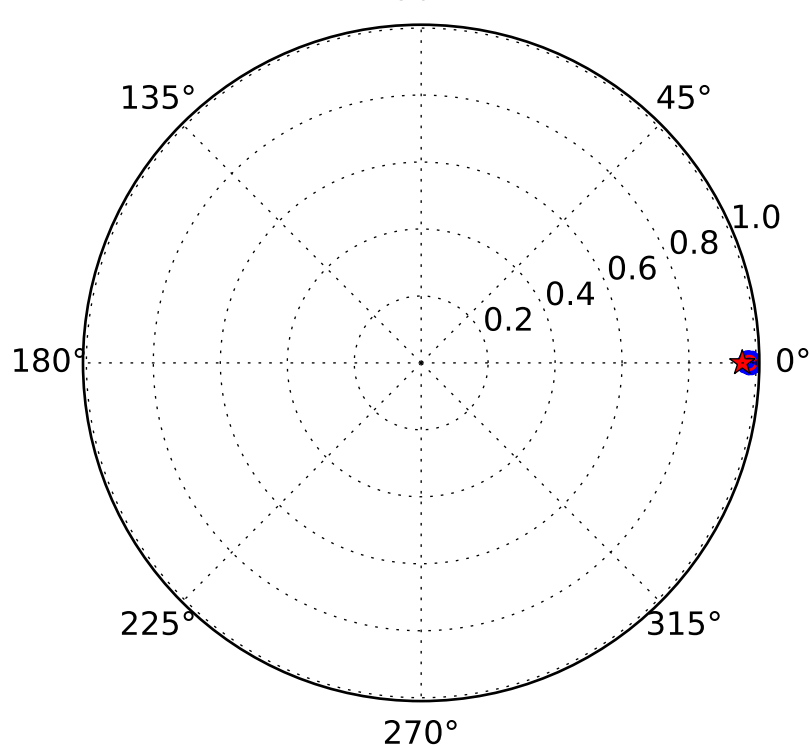
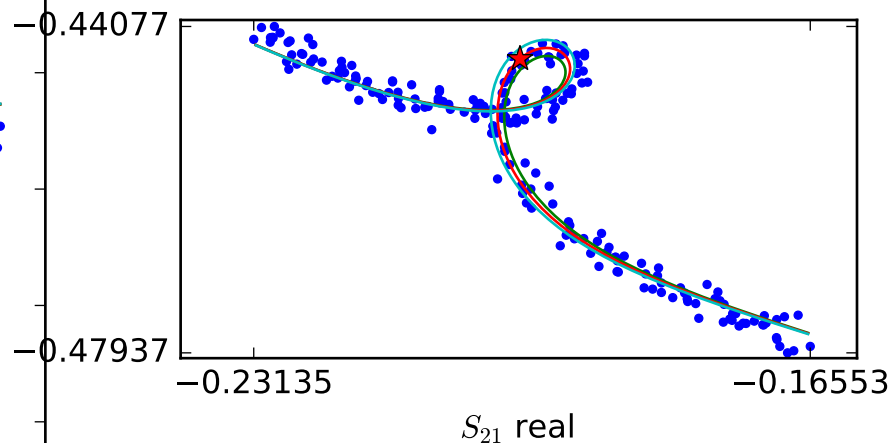
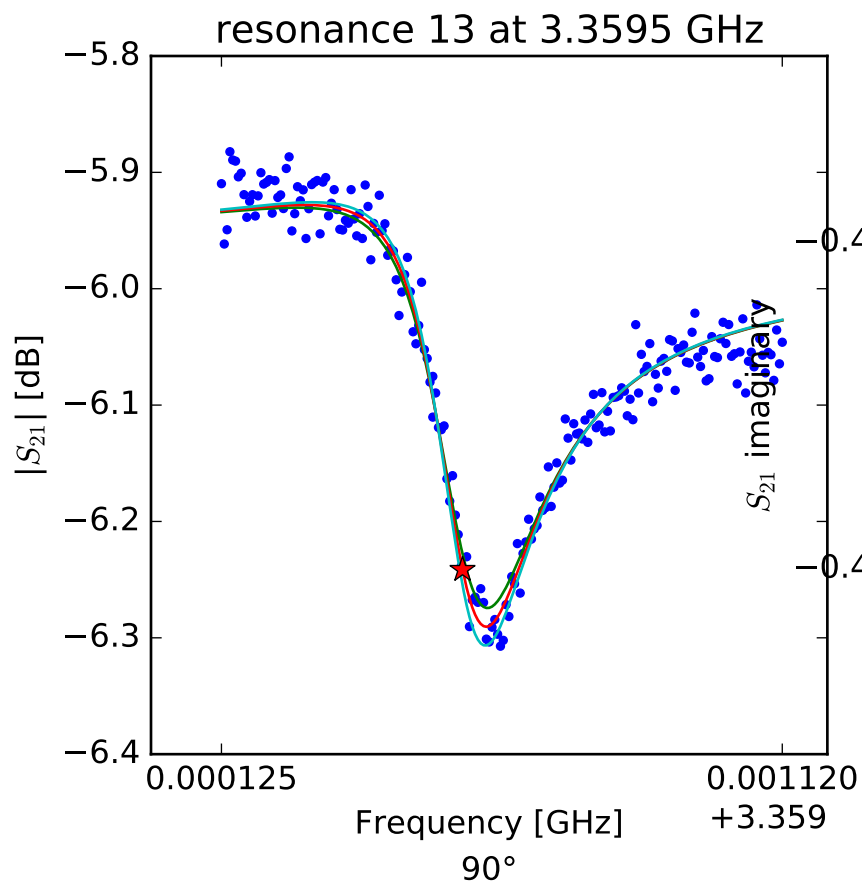
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.33130484002 \\ Q_r &= 20075.0523297 \\ Q_c &= 226758.825142 \\ a &= (-0.485815333909 - 0.232045914324j) \\ \phi_0 &= -0.439384977933 \\ \tau &= 25.8641034288 \end{aligned}$$



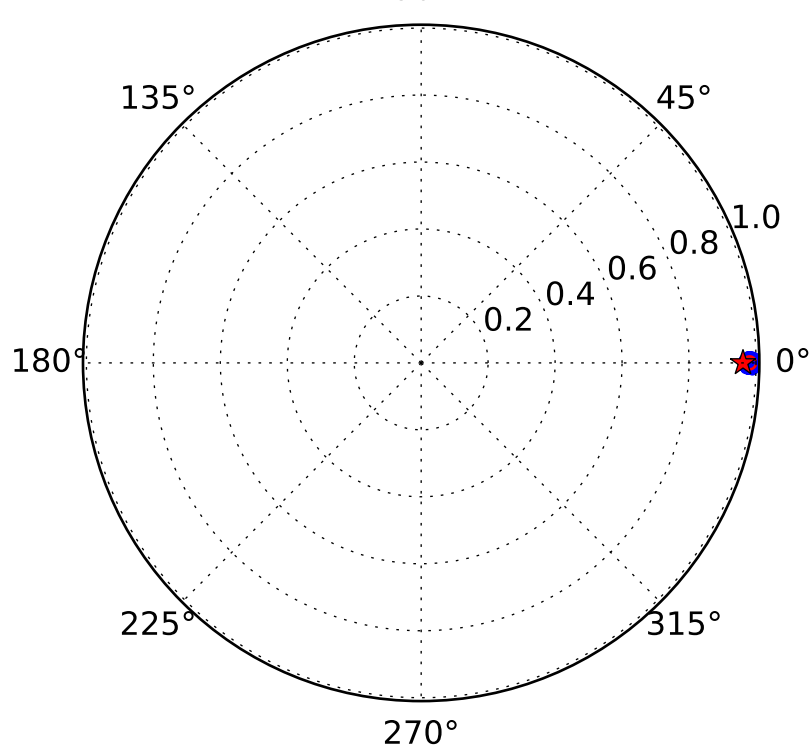
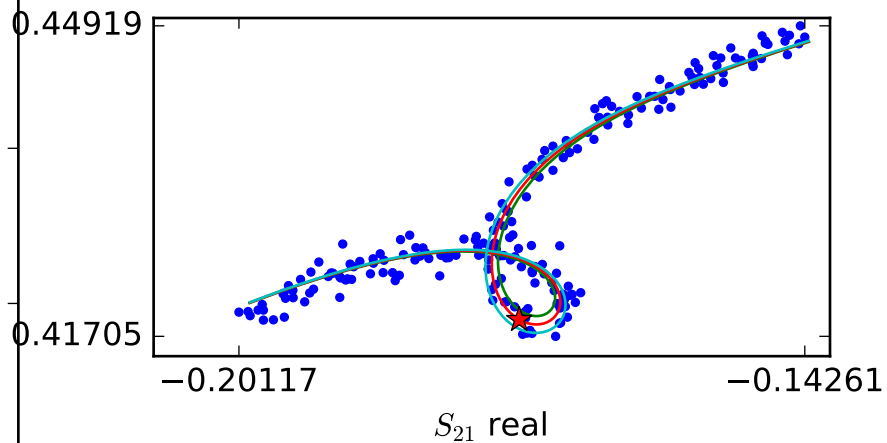
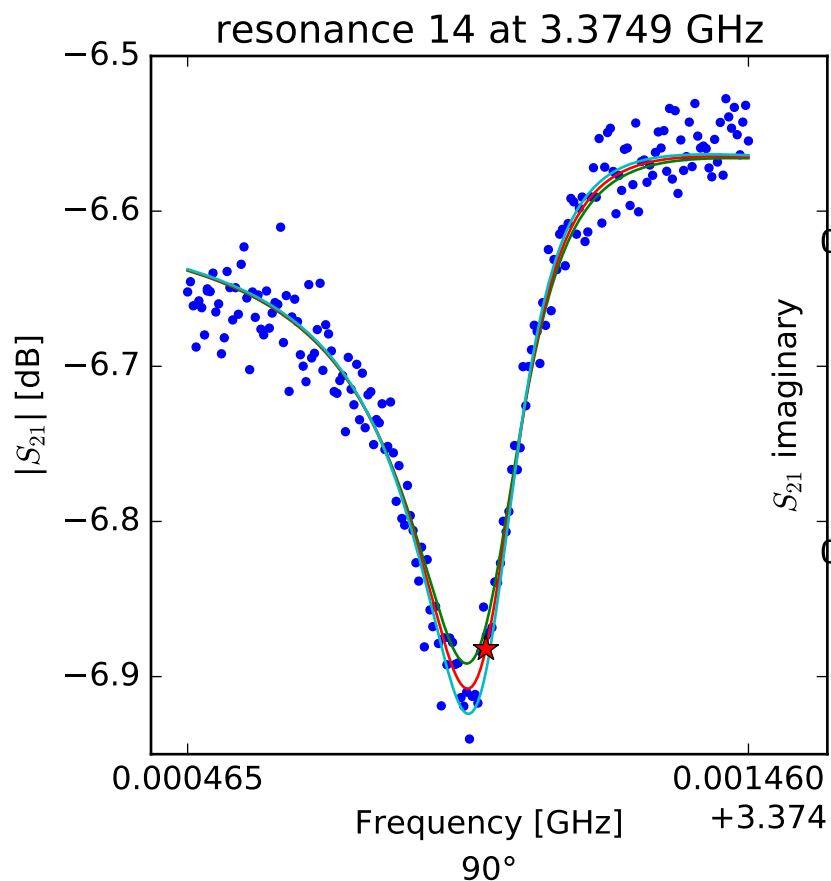
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.34547685524 \\ Q_r &= 14205.3964112 \\ Q_c &= 222134.989987 \\ a &= (0.505893455381 + 0.10595432089j) \\ \phi_0 &= -0.688231562988 \\ \tau &= 25.1032169413 \end{aligned}$$



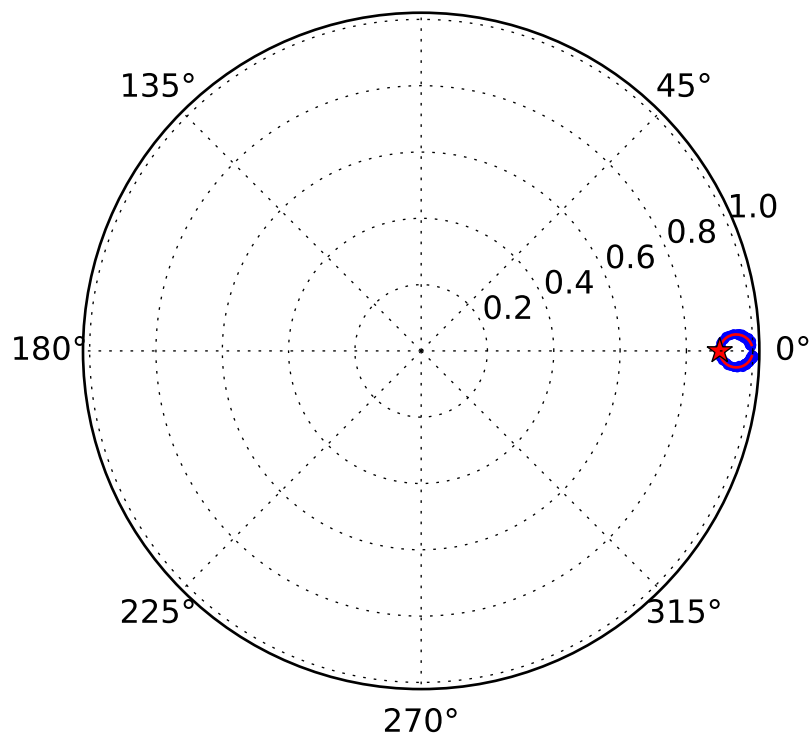
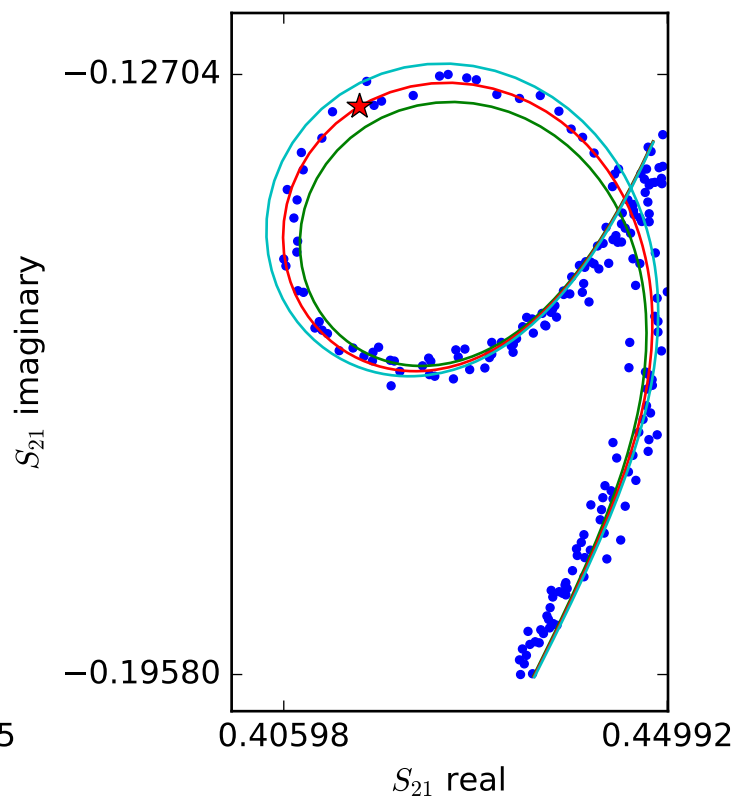
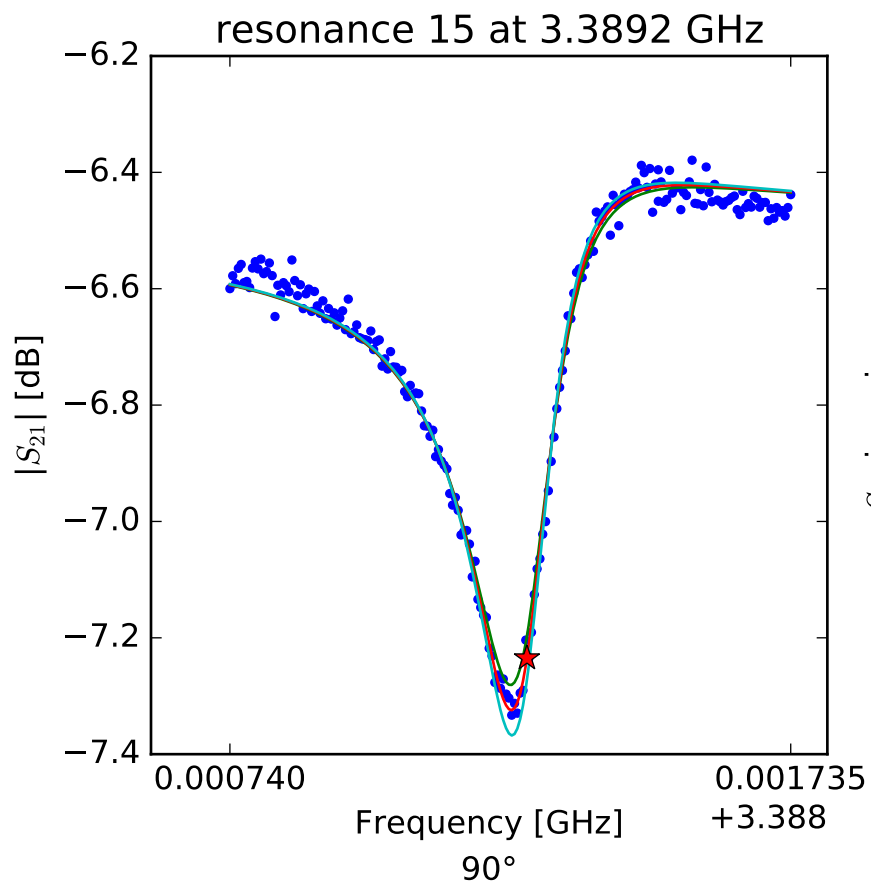
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.35955270761 \\ Q_r &= 15455.2627643 \\ Q_c &= 376081.146034 \\ a &= (-0.0484692918837 - 0.500367588377j) \\ \phi_0 &= 0.725749046835 \\ \tau &= 25.612752566 \end{aligned}$$



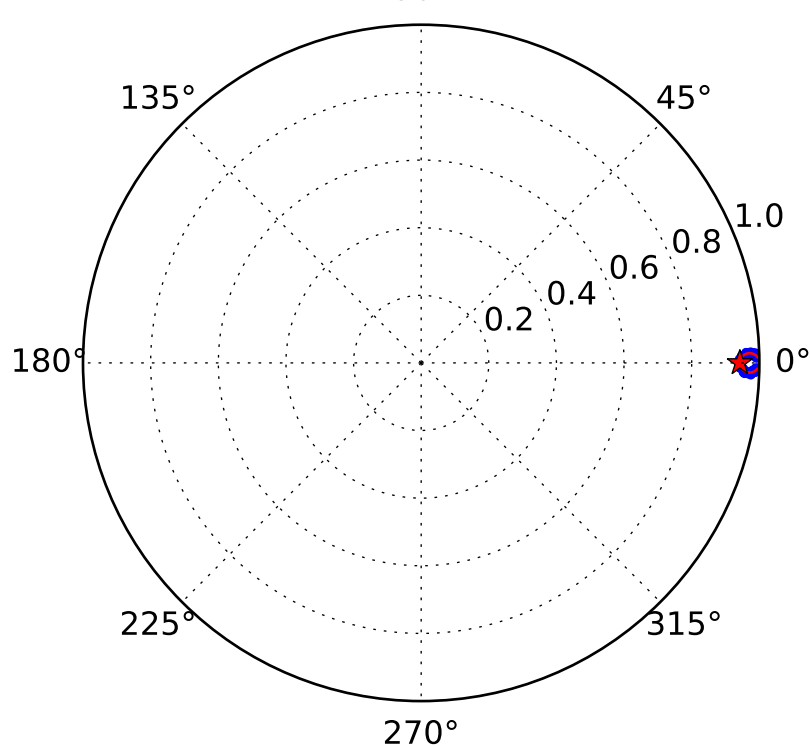
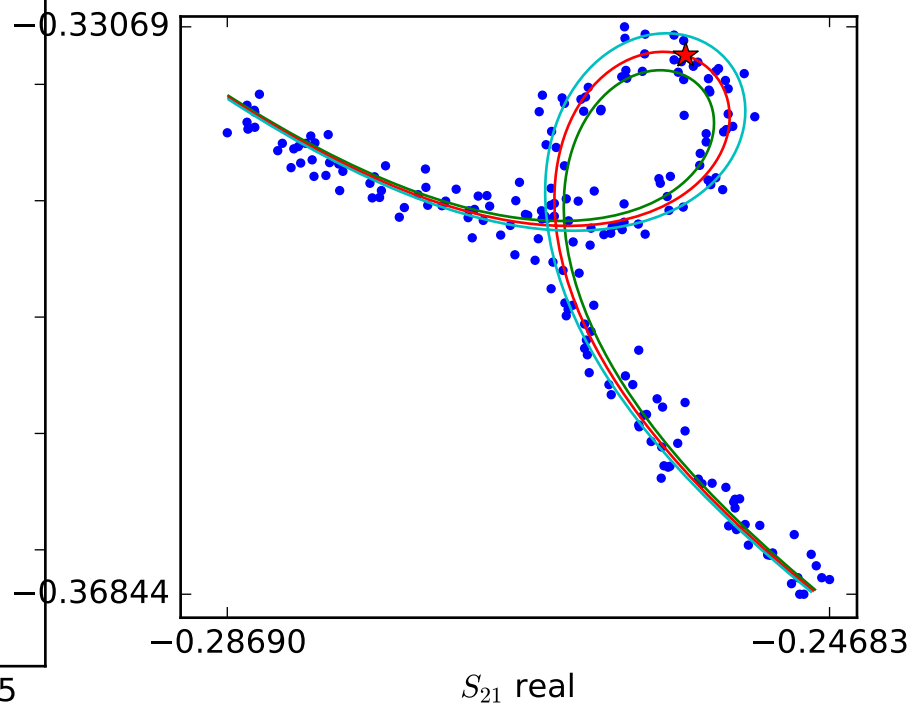
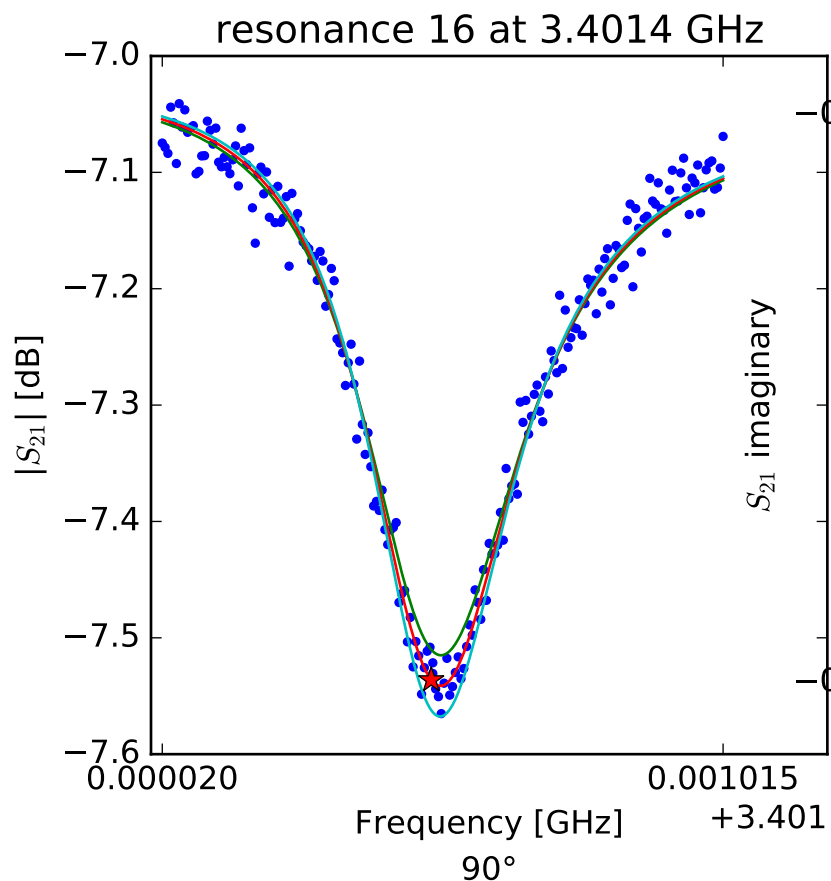
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})} \right]$$

$$\begin{aligned} f_r &= 3.37499417304 \\ Q_r &= 14532.4700359 \\ Q_c &= 374009.48367 \\ a &= (0.387261285224 + 0.263406604228j) \\ \phi_0 &= -0.534527311726 \\ \tau &= 24.2330033278 \end{aligned}$$



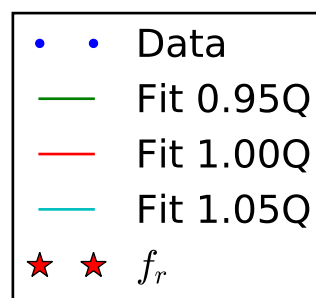
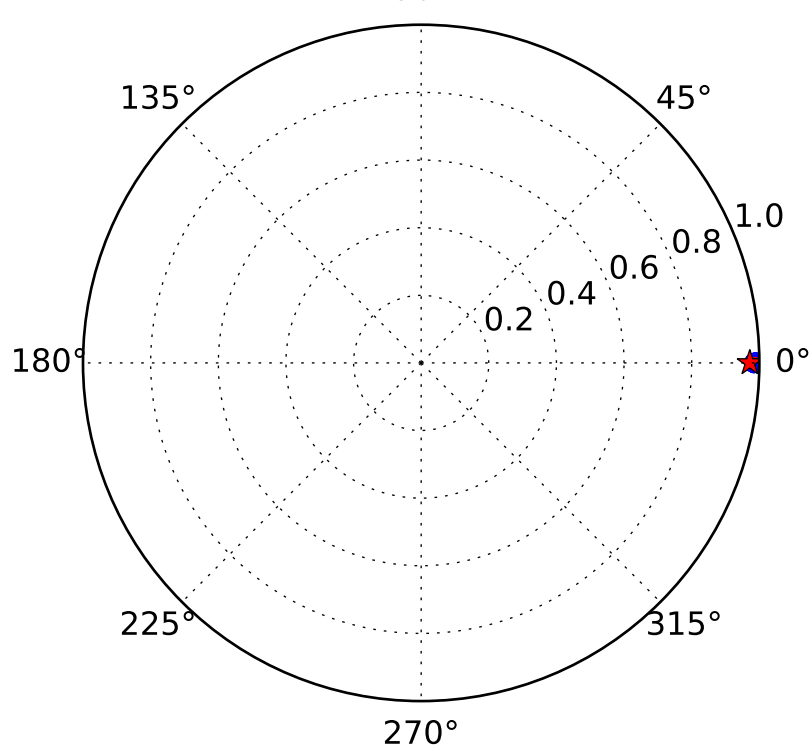
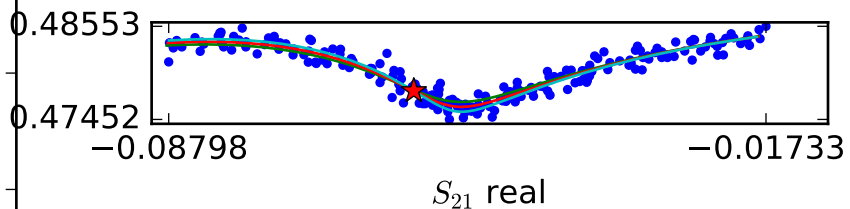
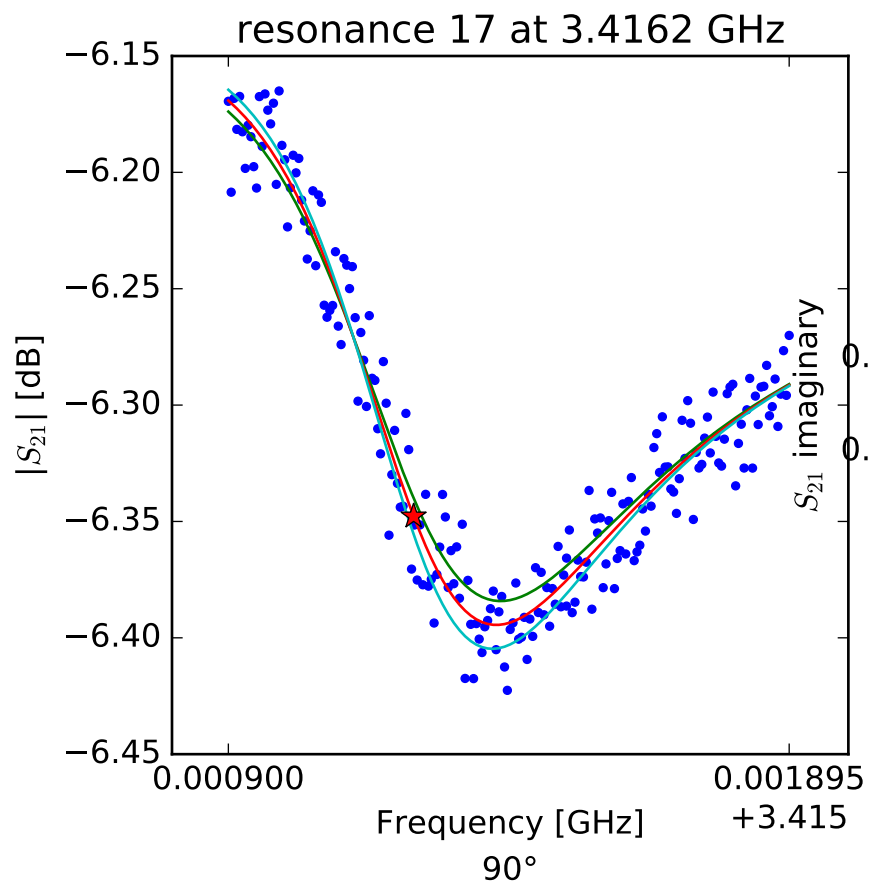
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.38926699743 \\ Q_r &= 19245.5430042 \\ Q_c &= 193294.36049 \\ a &= (0.413261390968 + 0.230846339616j) \\ \phi_0 &= -0.58218176495 \\ \tau &= 25.7103281073 \end{aligned}$$



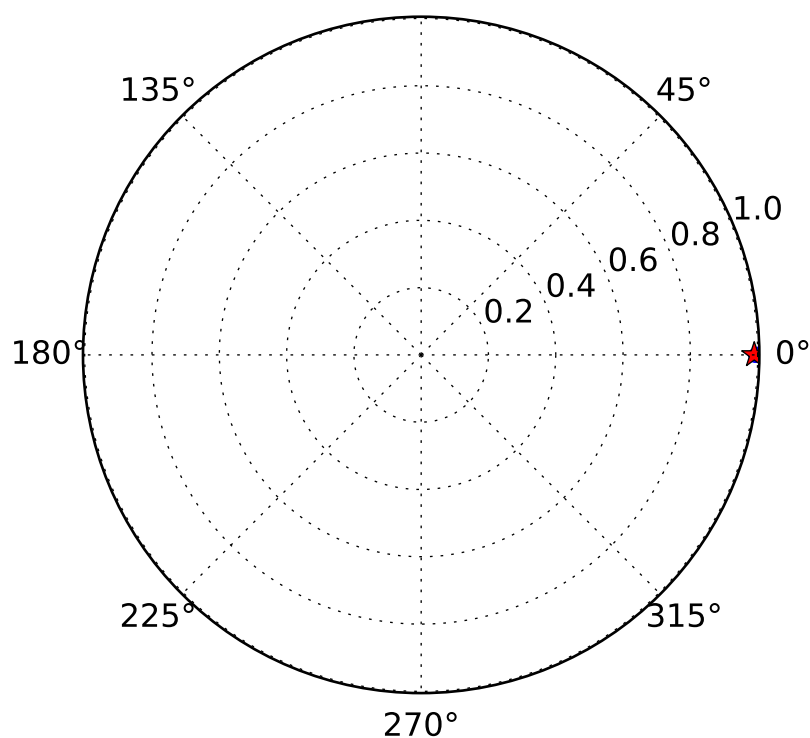
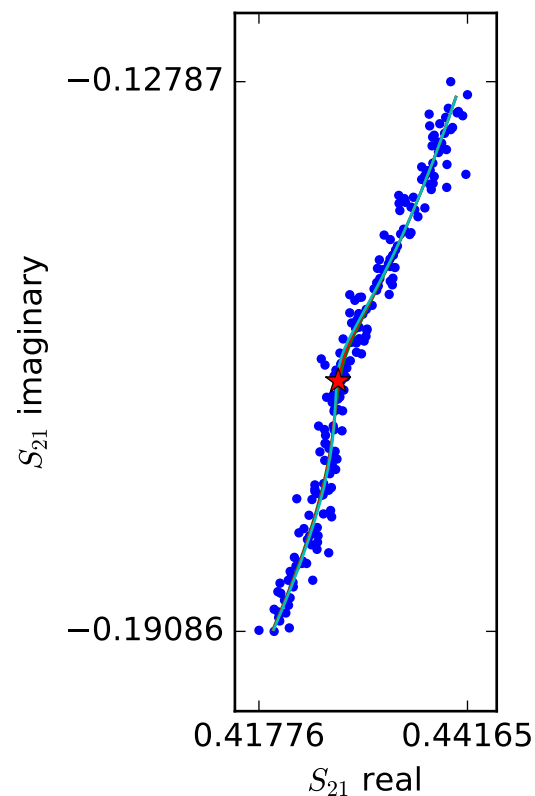
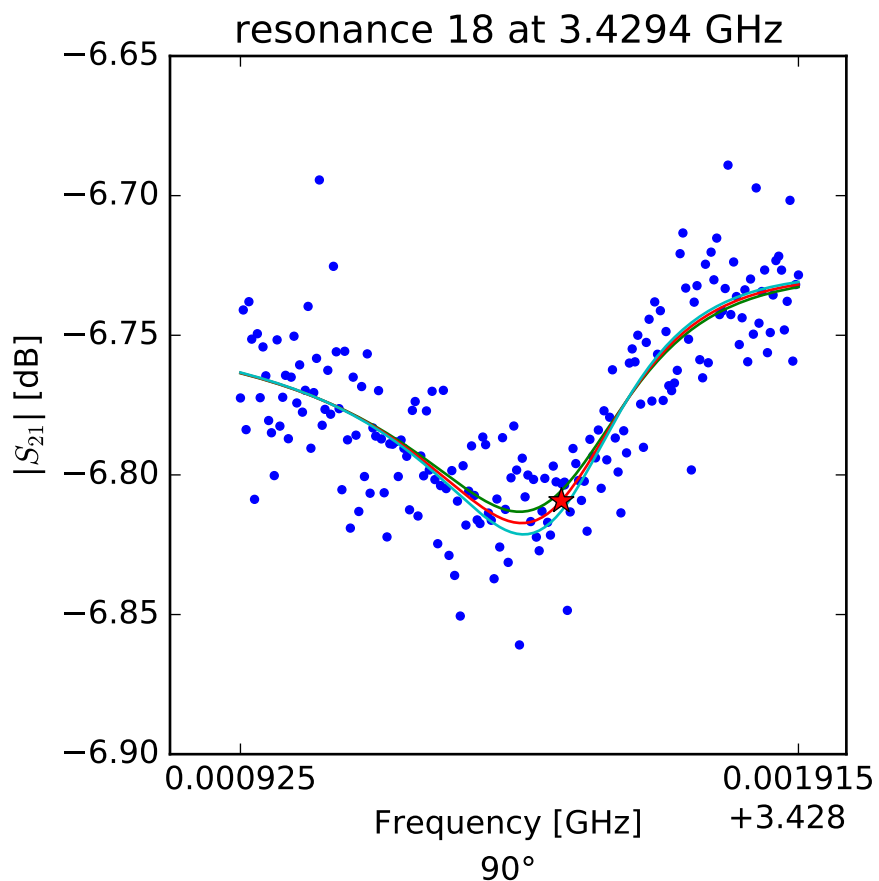
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.40149723632 \\ Q_r &= 9998.44513161 \\ Q_c &= 173336.426002 \\ a &= (0.169312867996 + 0.411680644666j) \\ \phi_0 &= 0.188187576949 \\ \tau &= 23.97197528 \end{aligned}$$



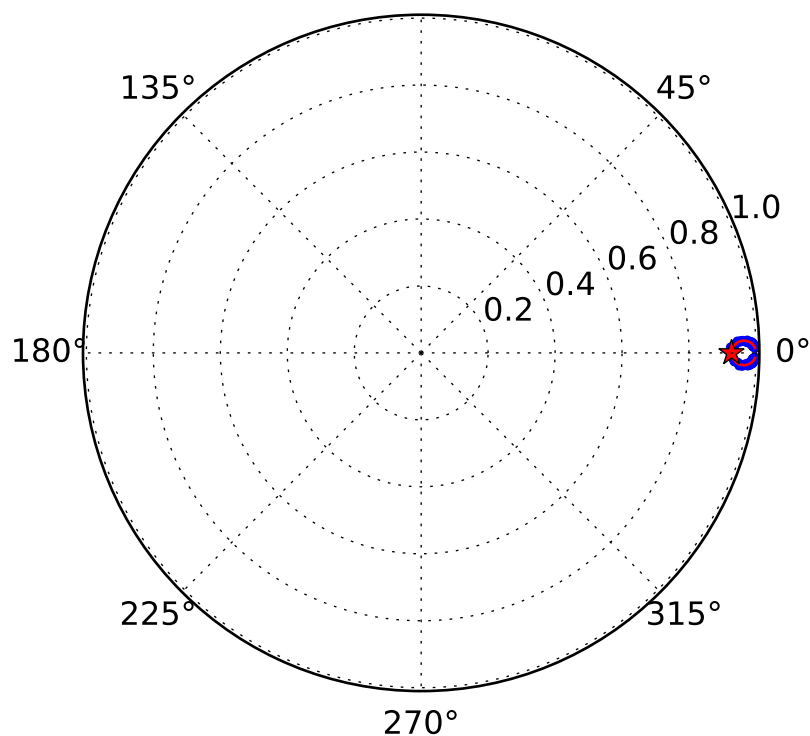
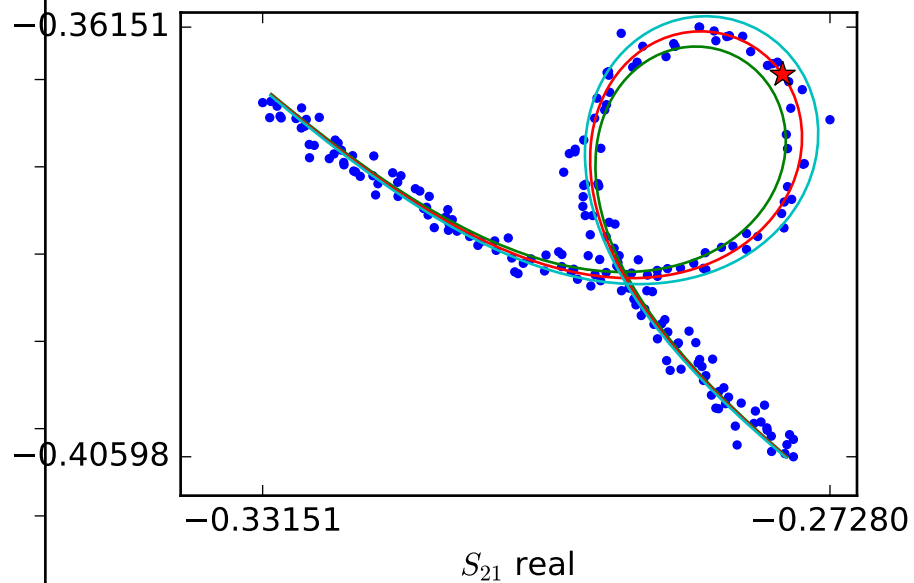
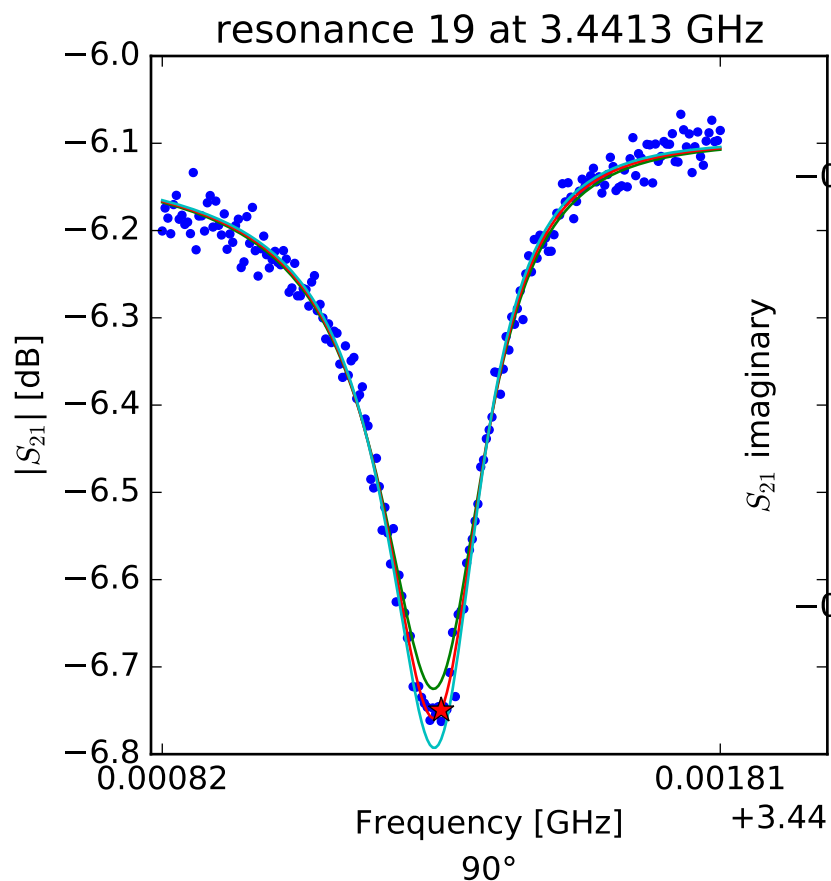
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.41622871399 \\ Q_r &= 5536.1801127 \\ Q_c &= 195806.44241 \\ a &= (0.0459903471795 + 0.488112772718j) \\ \phi_0 &= 0.875911315137 \\ \tau &= 26.3337114112 \end{aligned}$$



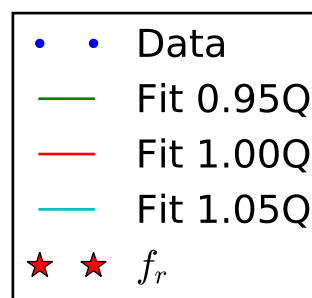
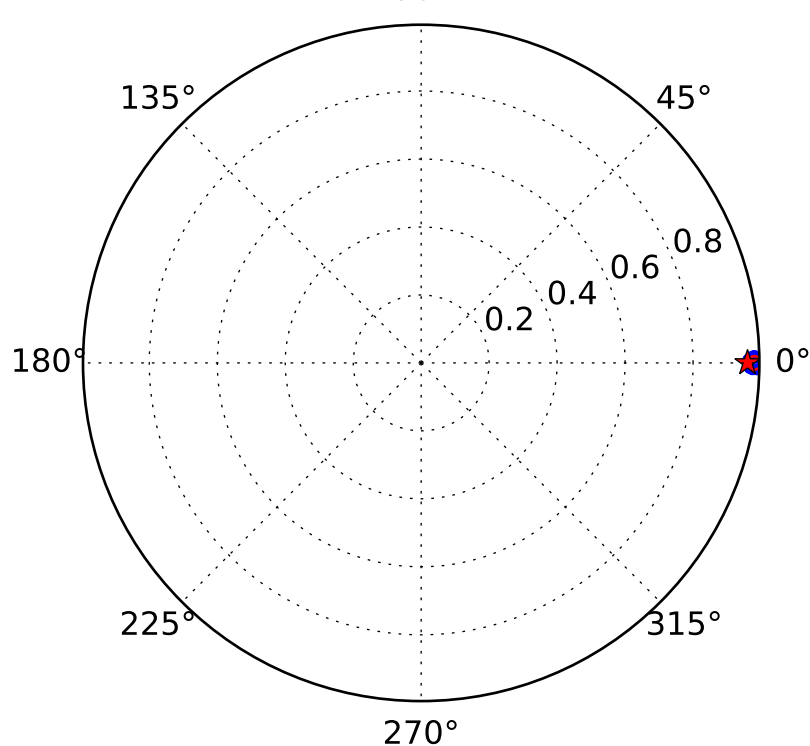
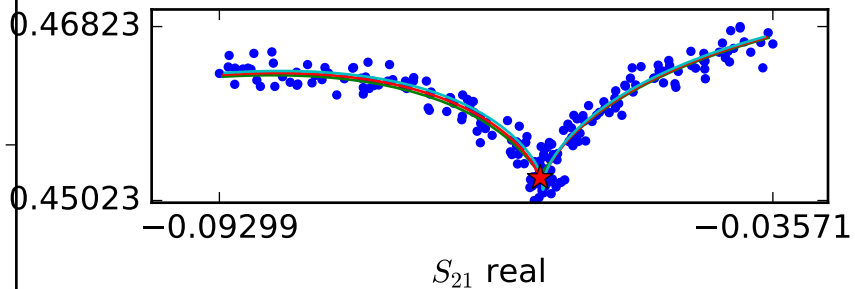
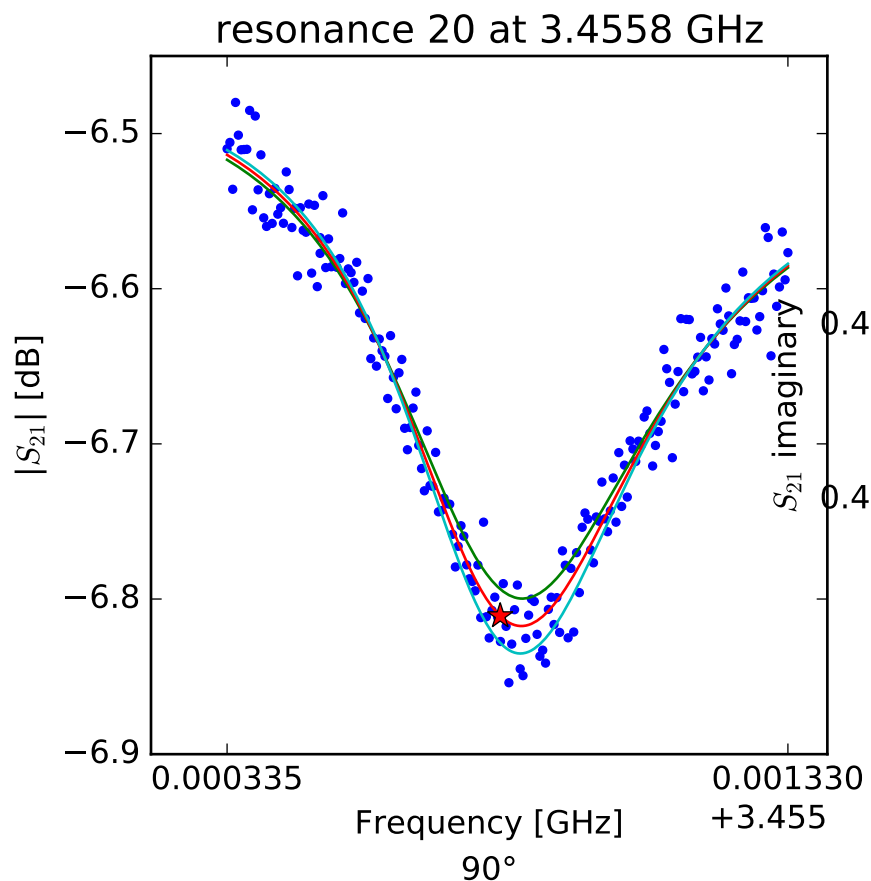
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$f_r = 3.42949438876$
 $Q_r = 7614.67124871$
 $Q_c = 750072.071964$
 $a = (0.415271458771 + 0.198886295155j)$
 $\phi_0 = -0.602990929671$
 $\tau = 23.6564898045$



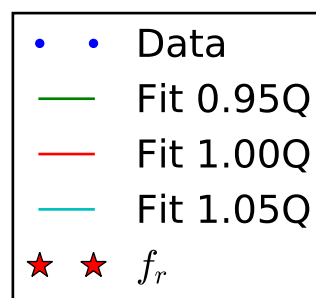
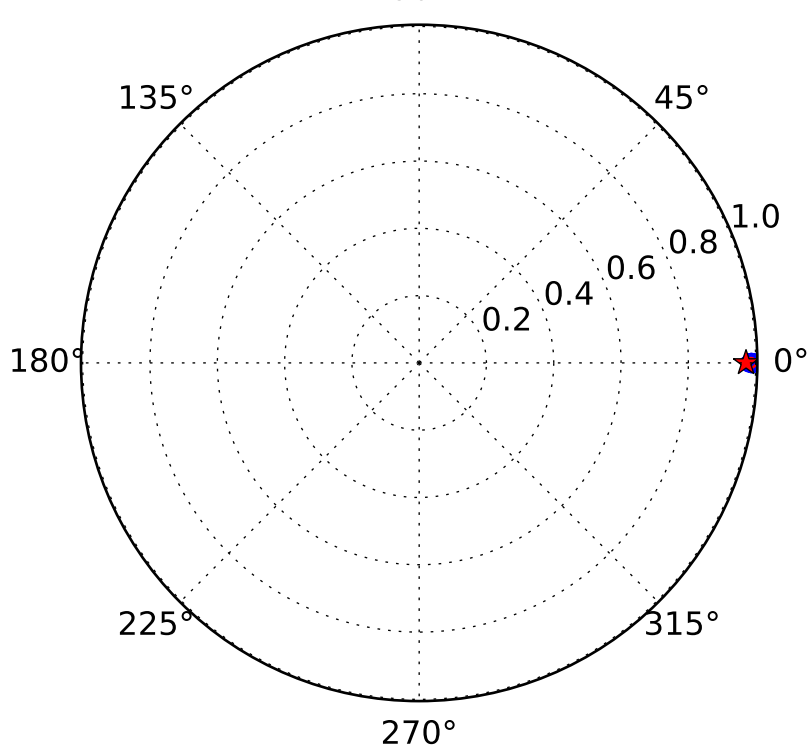
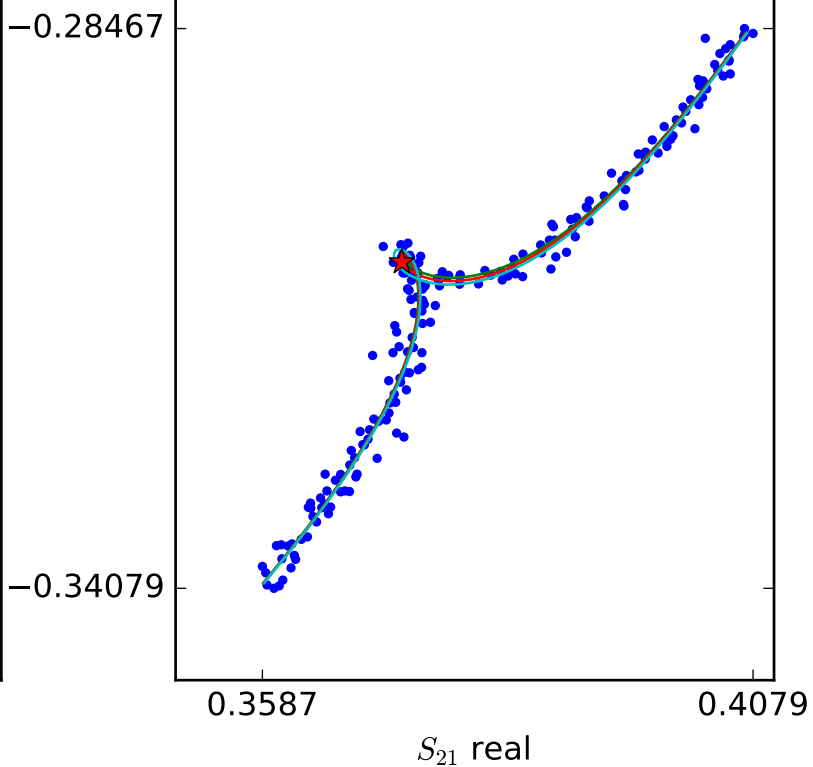
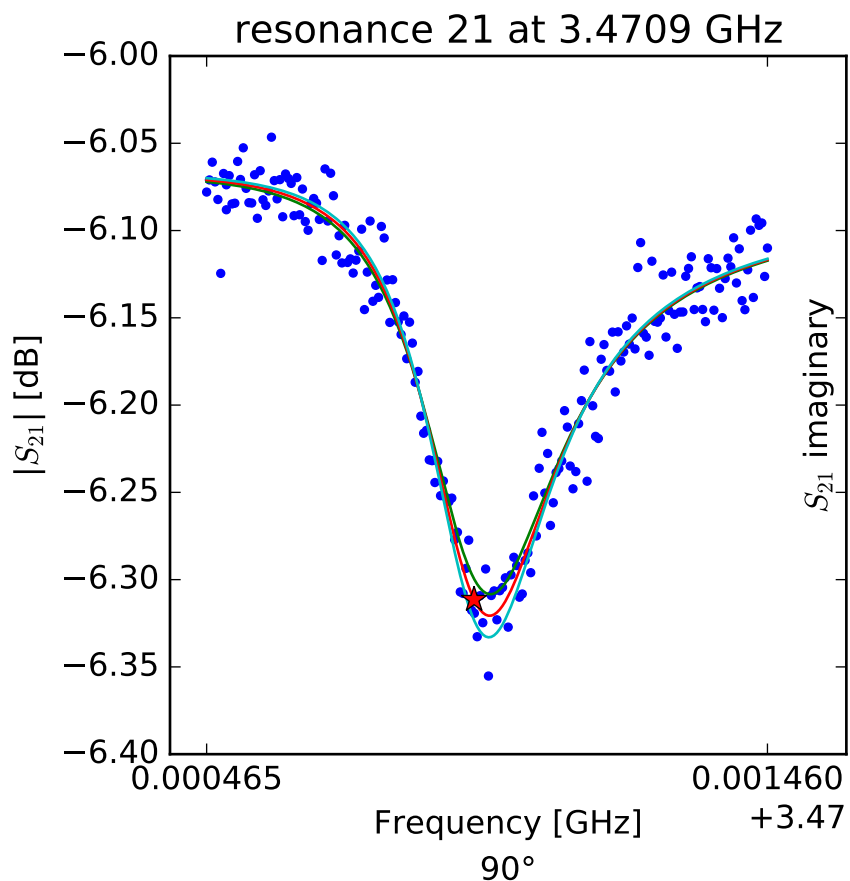
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.4413148659 \\ Q_r &= 15449.9944754 \\ Q_c &= 210910.397487 \\ a &= (-0.134831453793 - 0.476330087686j) \\ \phi_0 &= -0.222941285383 \\ \tau &= 26.1708367785 \end{aligned}$$



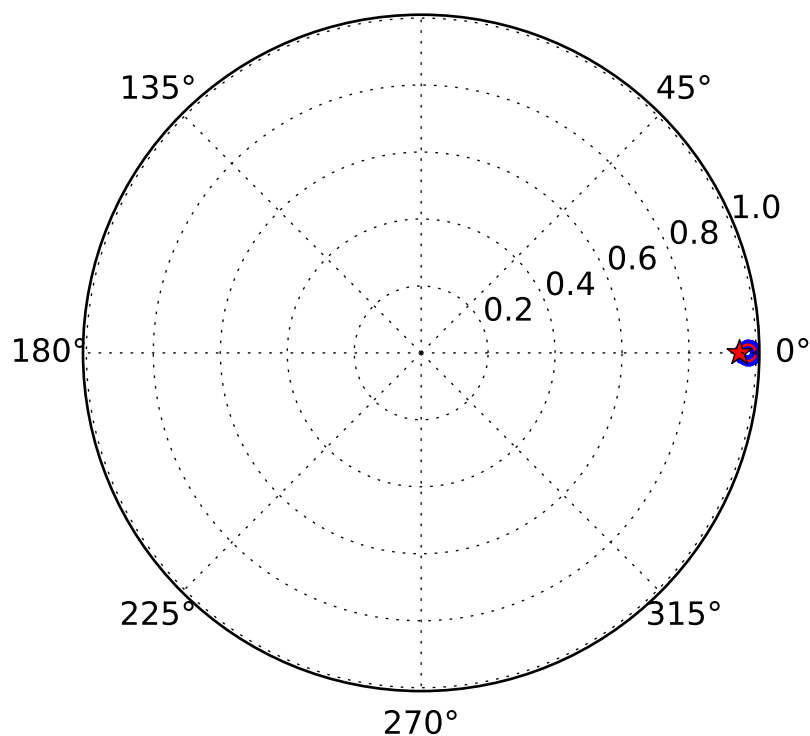
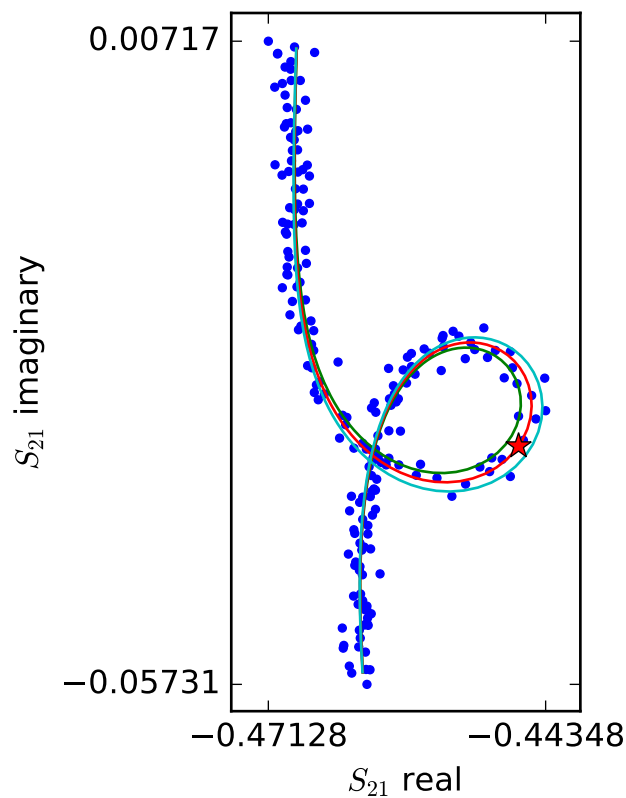
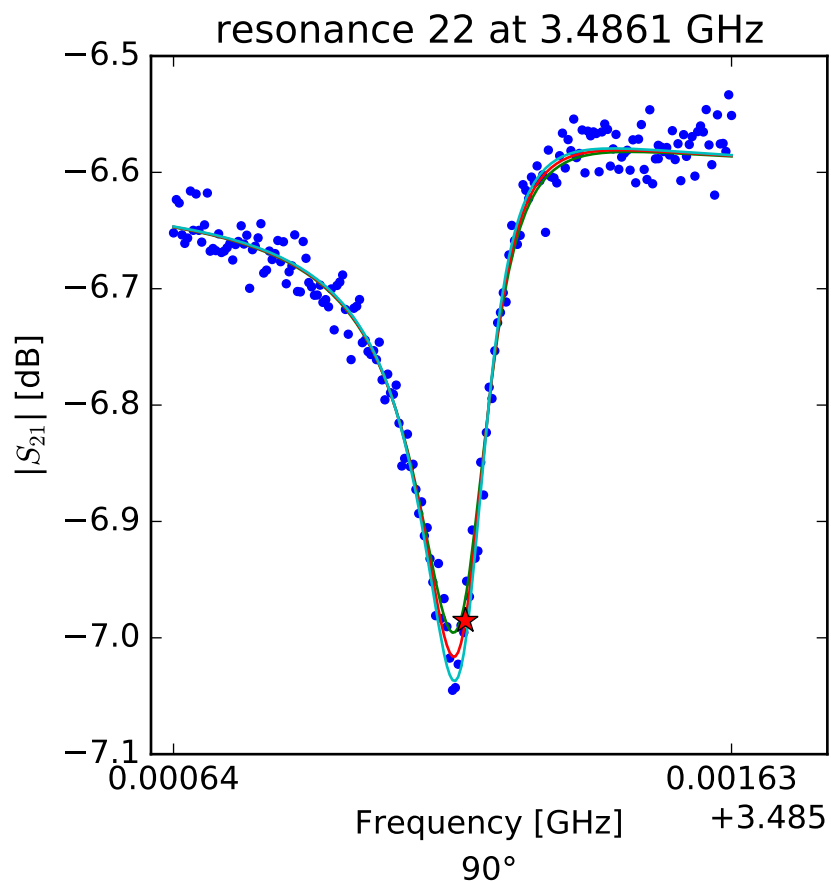
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.45581954857 \\ Q_r &= 6182.43235796 \\ Q_c &= 155174.241386 \\ a &= (0.0466250273862 - 0.472465078154j) \\ \phi_0 &= 0.261541522588 \\ \tau &= 24.4494954423 \end{aligned}$$



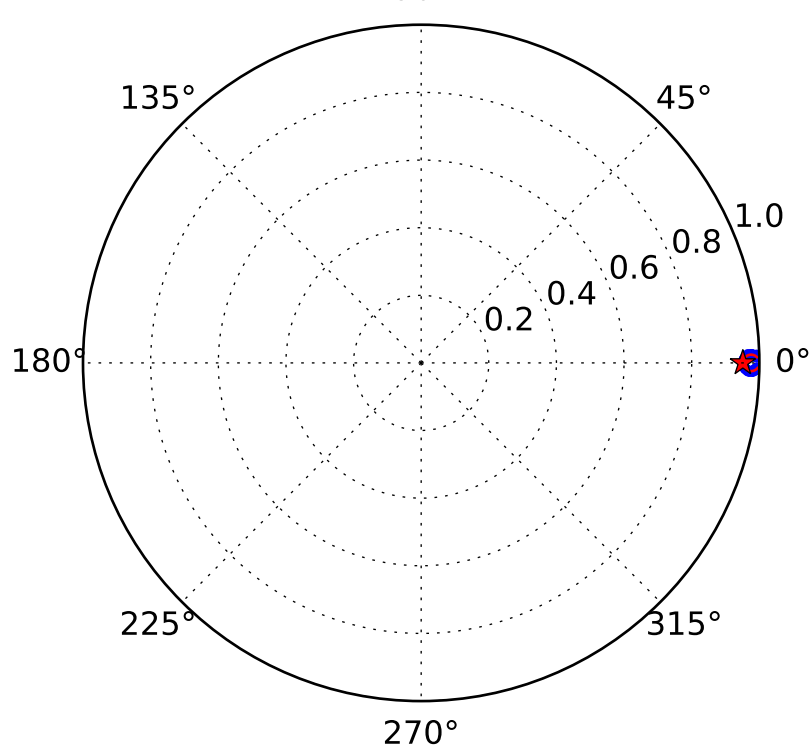
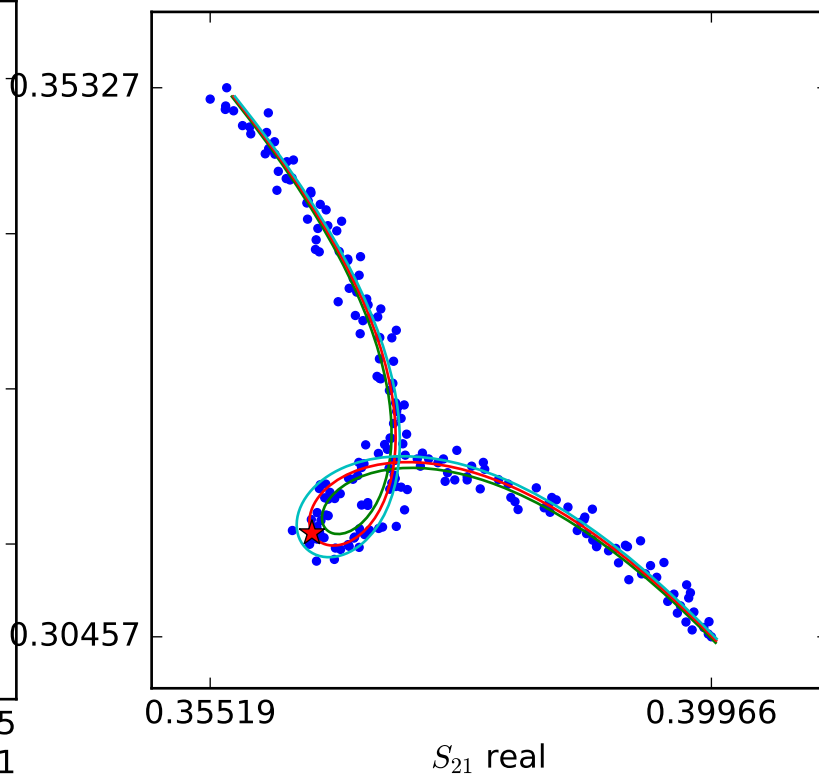
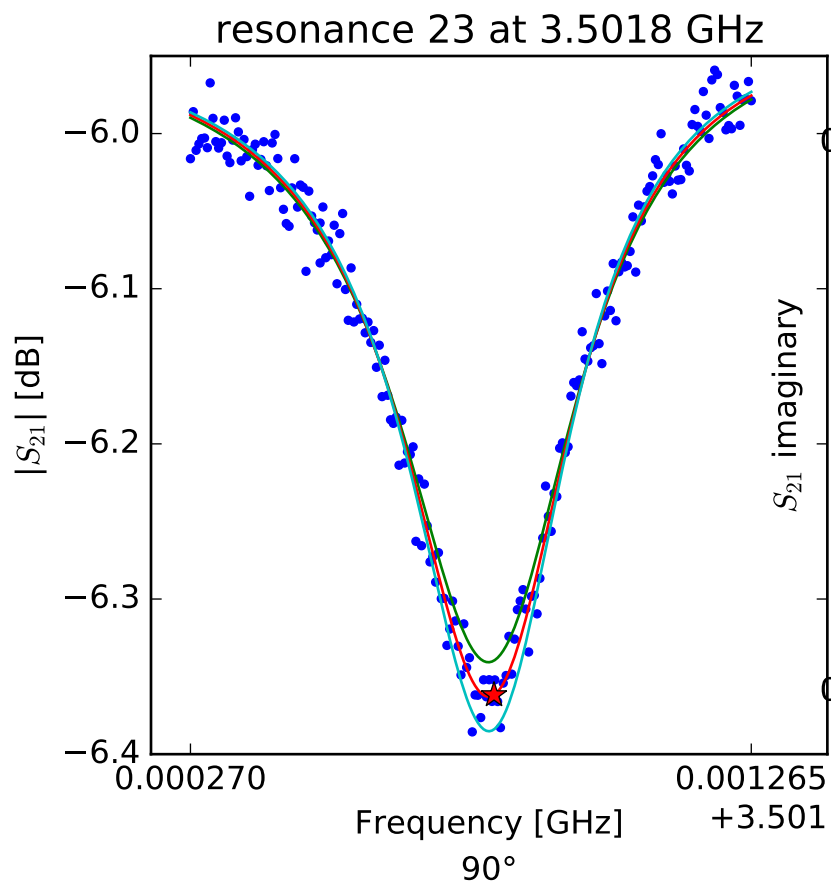
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.47093950383 \\ Q_r &= 12130.7549372 \\ Q_c &= 423277.120642 \\ a &= (0.487879687076 + 0.0934741131652j) \\ \phi_0 &= 0.375305027948 \\ \tau &= 25.9694391061 \end{aligned}$$



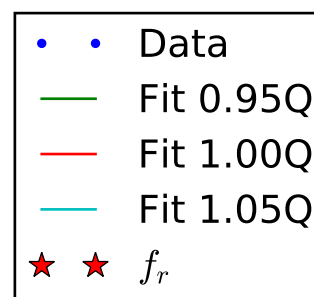
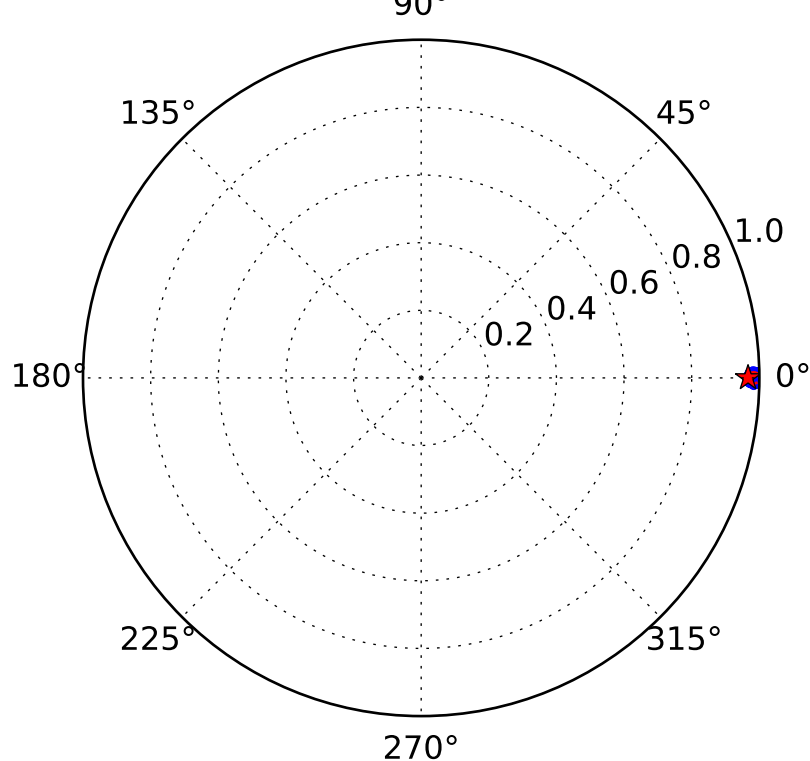
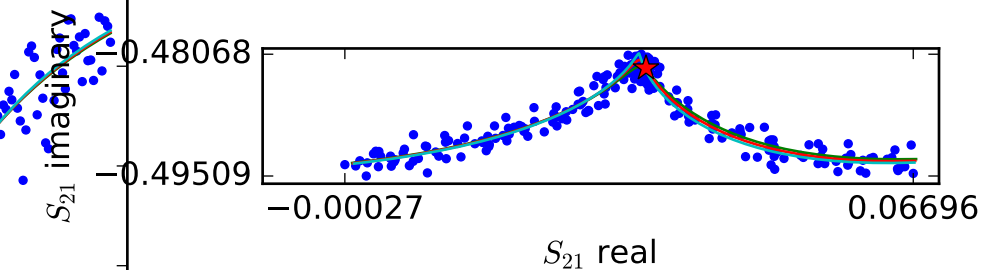
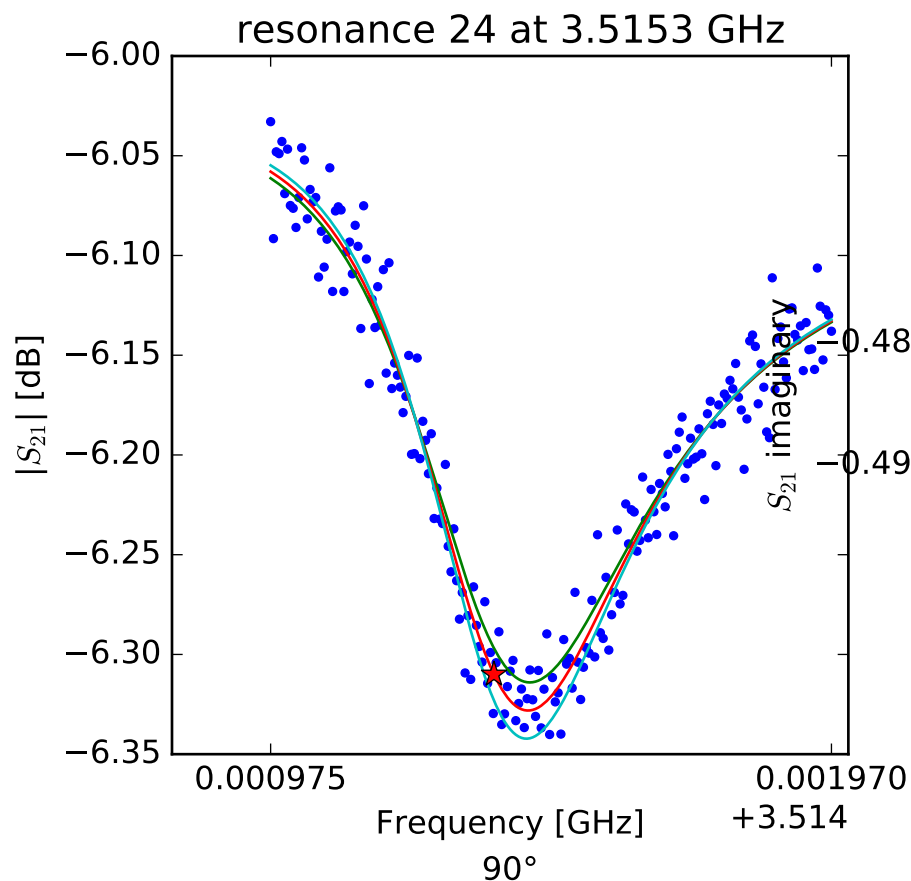
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.48615783574 \\ Q_r &= 23296.1687296 \\ Q_c &= 474667.933093 \\ a &= (0.436853131345 + 0.165712414752j) \\ \phi_0 &= -0.51773121175 \\ \tau &= 23.6793192785 \end{aligned}$$



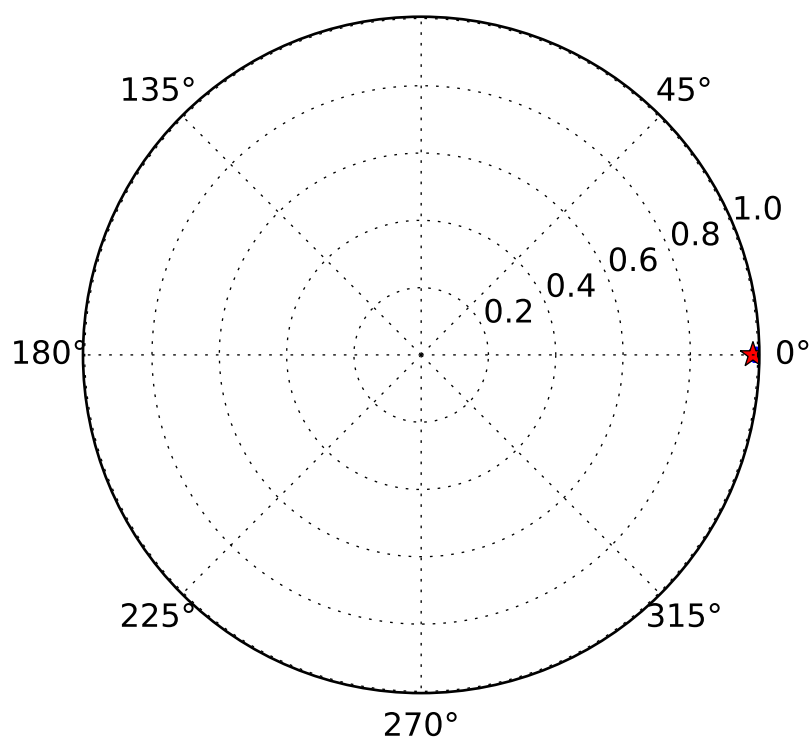
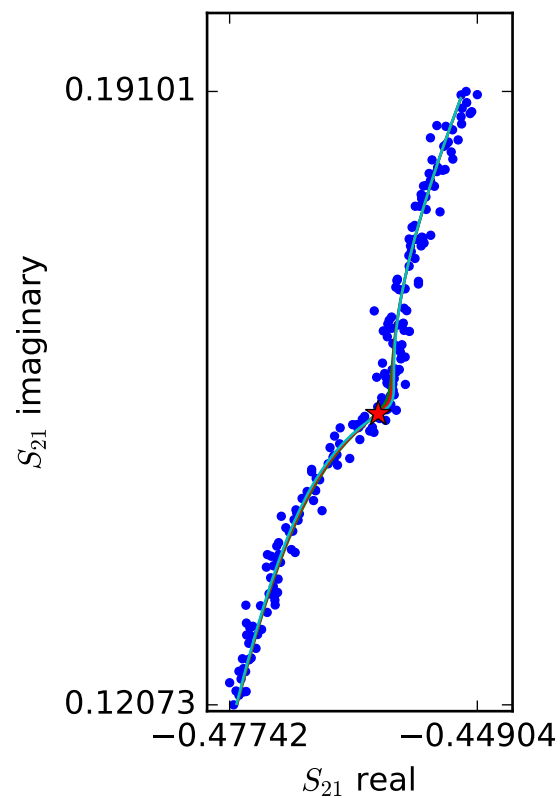
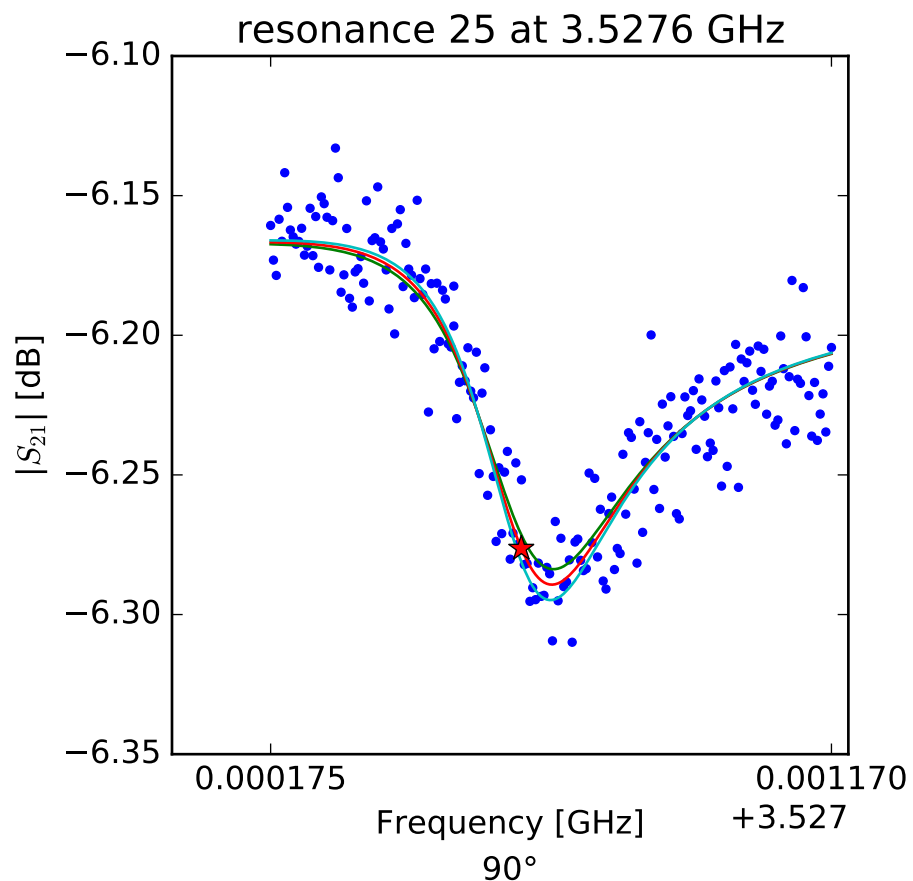
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.50180856914 \\ Q_r &= 9219.71382026 \\ Q_c &= 188772.071351 \\ a &= (-0.503113004253 - 0.0468955784323j) \\ \phi_0 &= -0.0973651000173 \\ \tau &= 25.8159192004 \end{aligned}$$



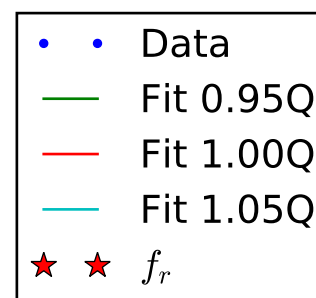
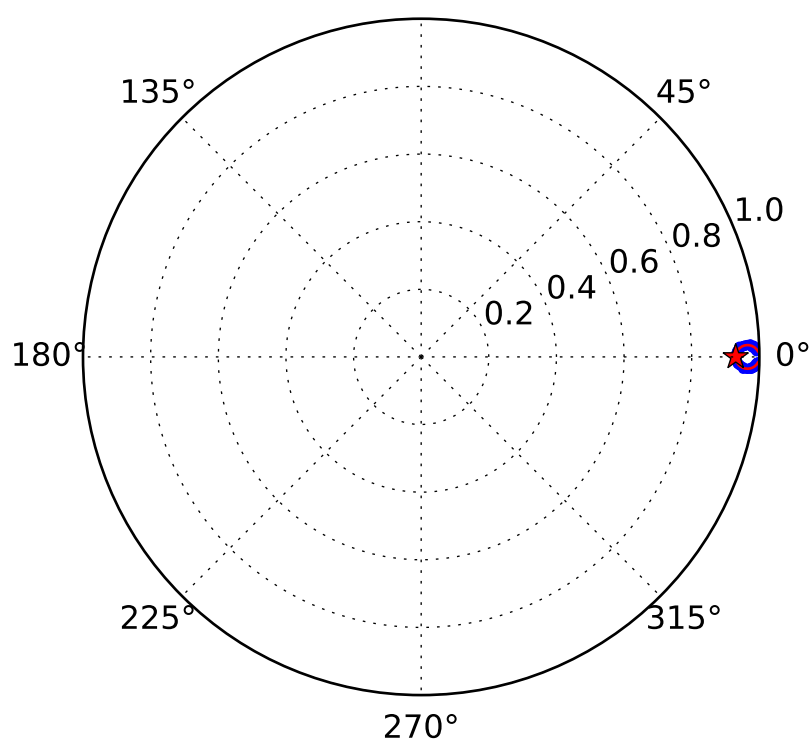
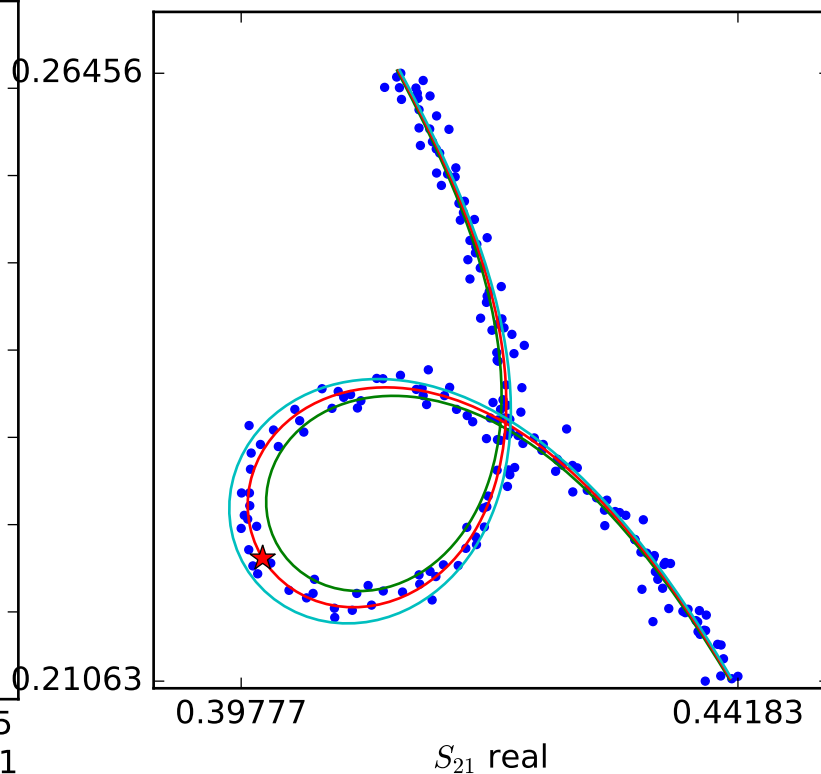
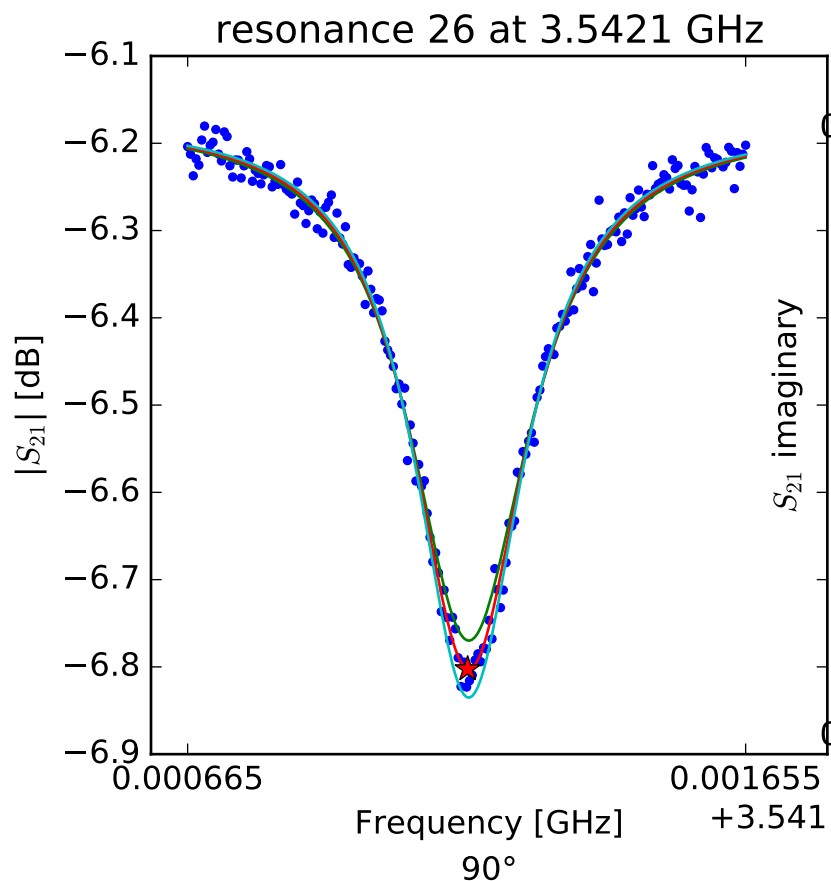
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.51537116713 \\ Q_r &= 7318.86671141 \\ Q_c &= 218850.500061 \\ a &= (-0.381328605273 + 0.32075775561j) \\ \phi_0 &= 0.485236230093 \\ \tau &= 25.4950311595 \end{aligned}$$



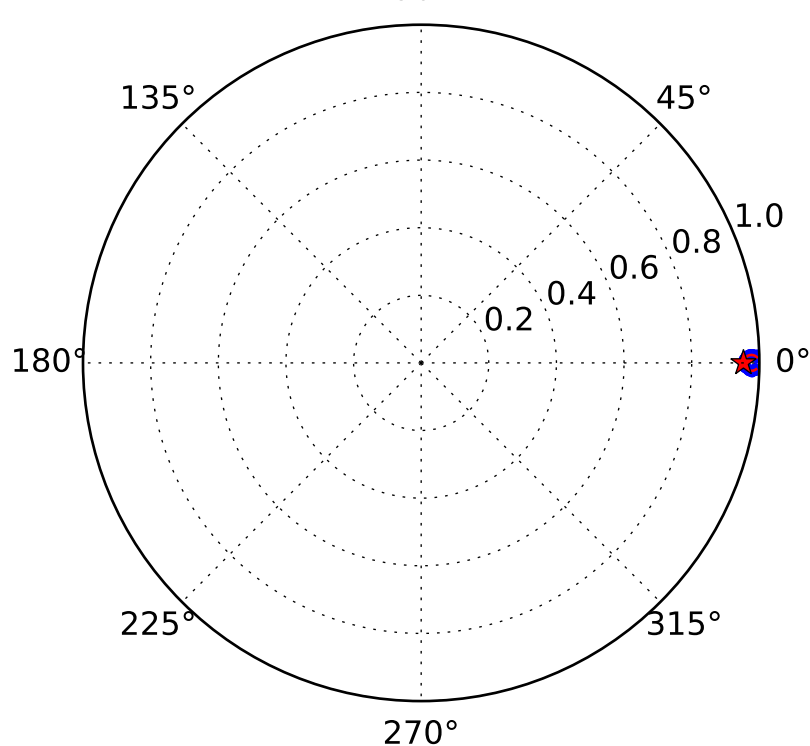
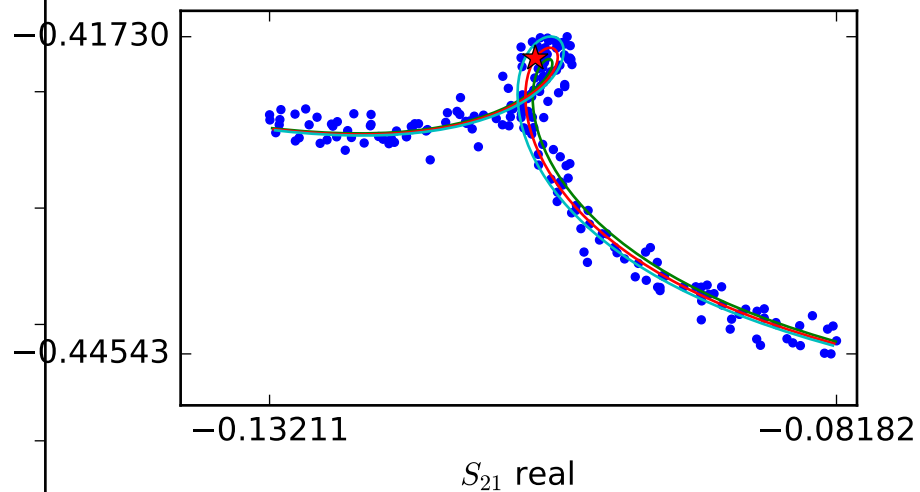
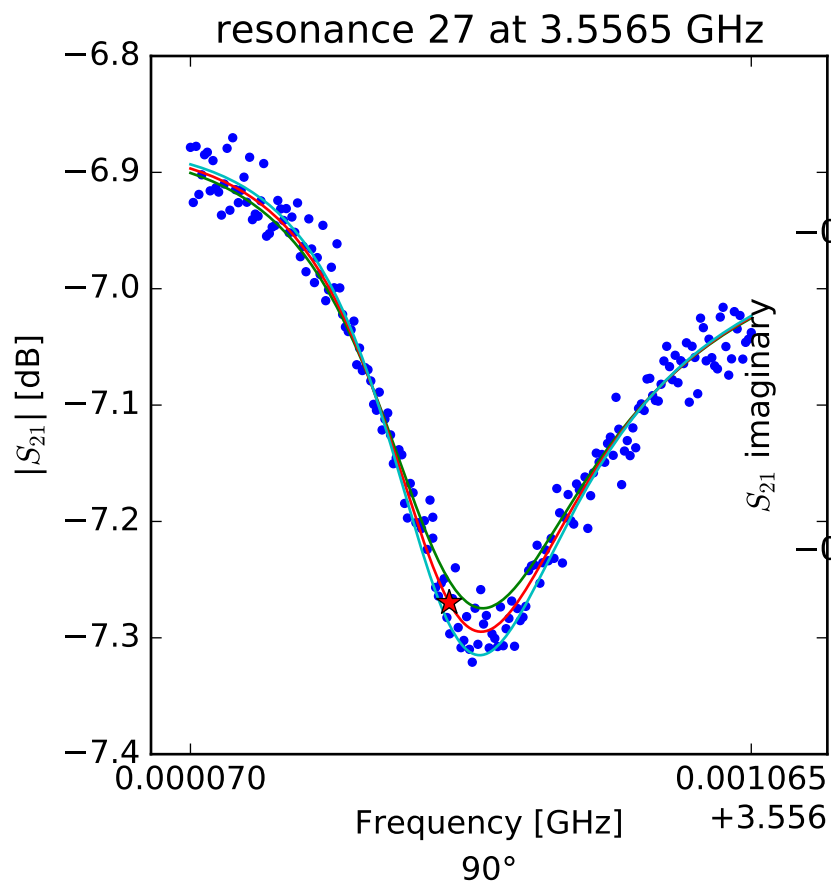
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.52761976622 \\ Q_r &= 11115.0611174 \\ Q_c &= 791655.565639 \\ a &= (-0.43720611897 + 0.223339595355j) \\ \phi_0 &= 0.65345749297 \\ \tau &= 25.22235082 \end{aligned}$$



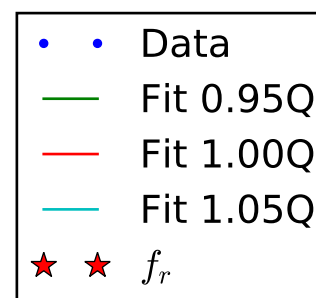
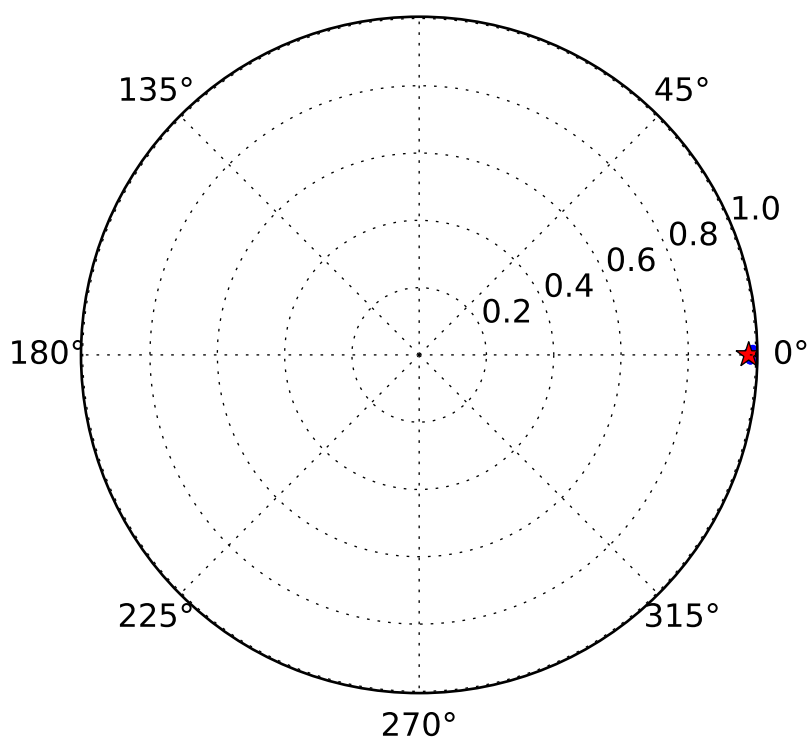
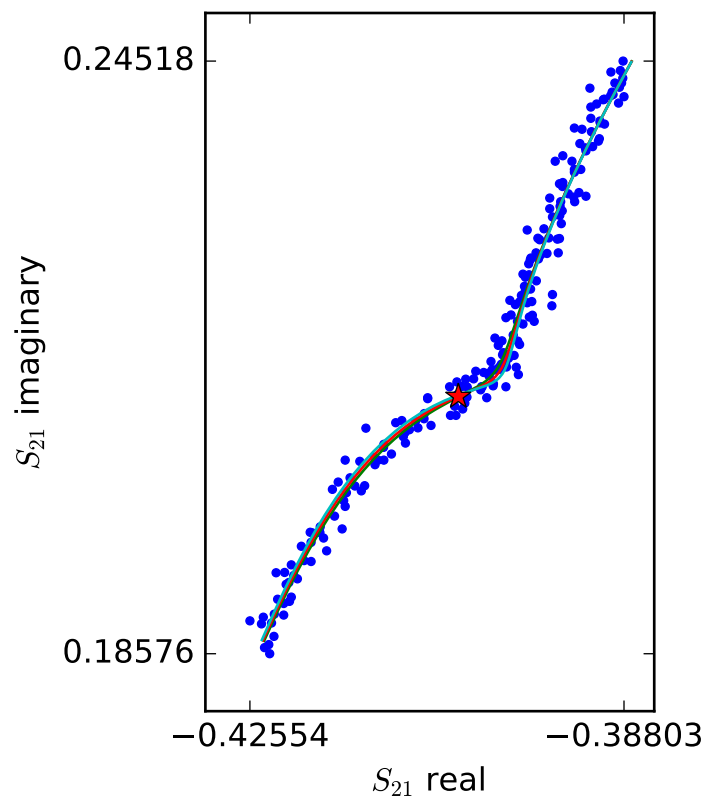
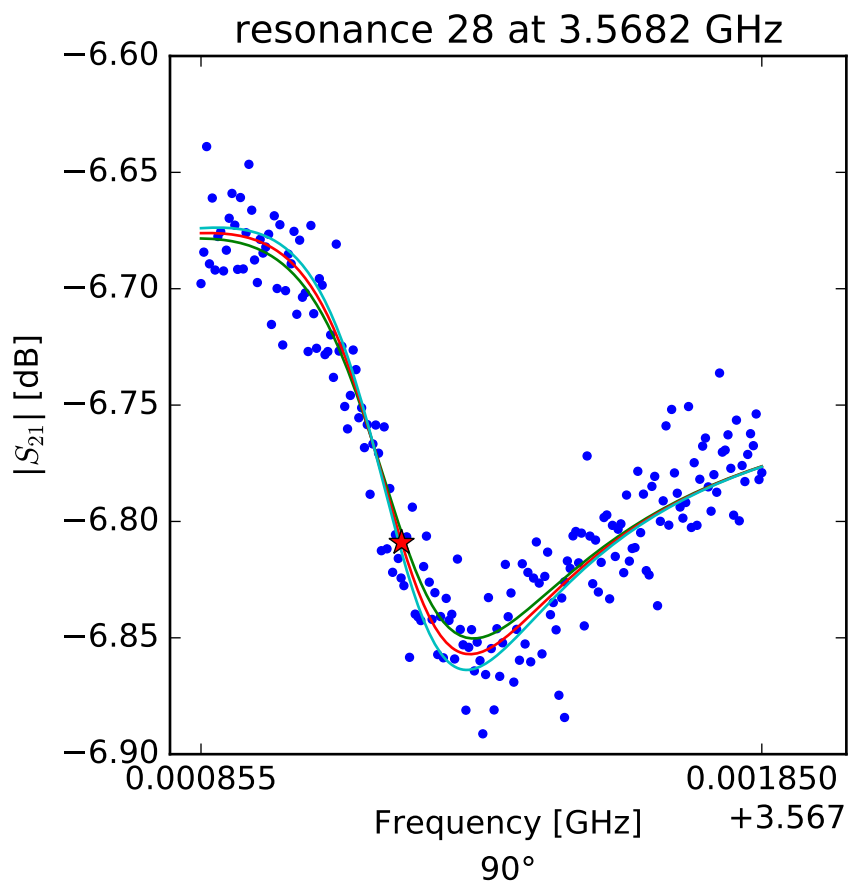
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.54216175303 \\ Q_r &= 13830.8386115 \\ Q_c &= 197643.286741 \\ a &= (0.485463872658 + 0.0756788672477j) \\ \phi_0 &= 0.0319723189318 \\ \tau &= 25.6746253781 \end{aligned}$$



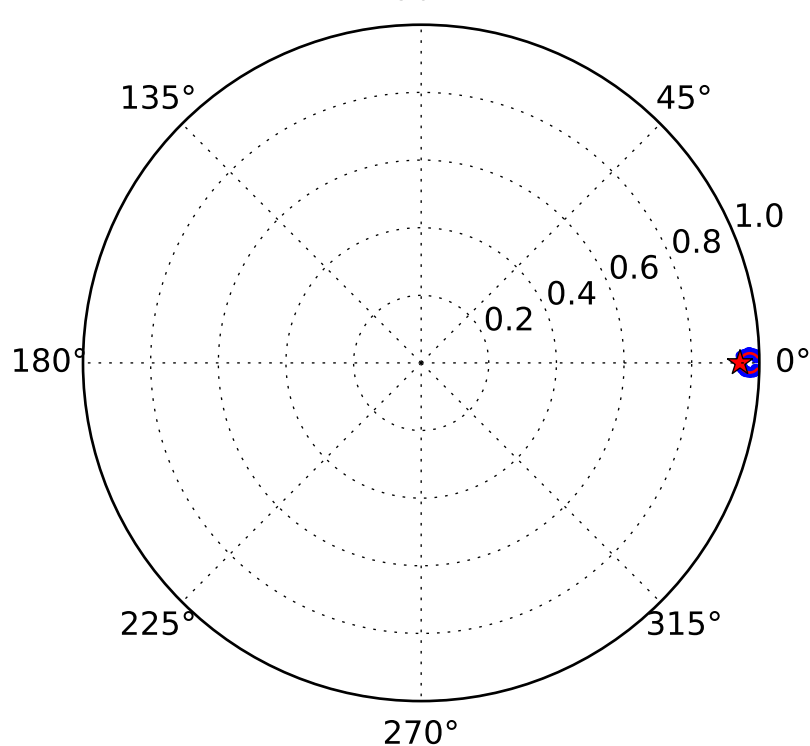
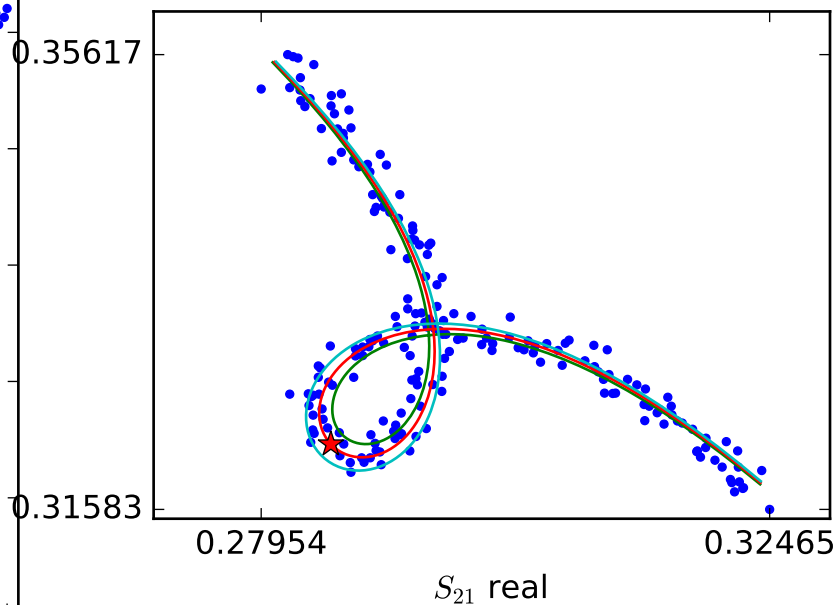
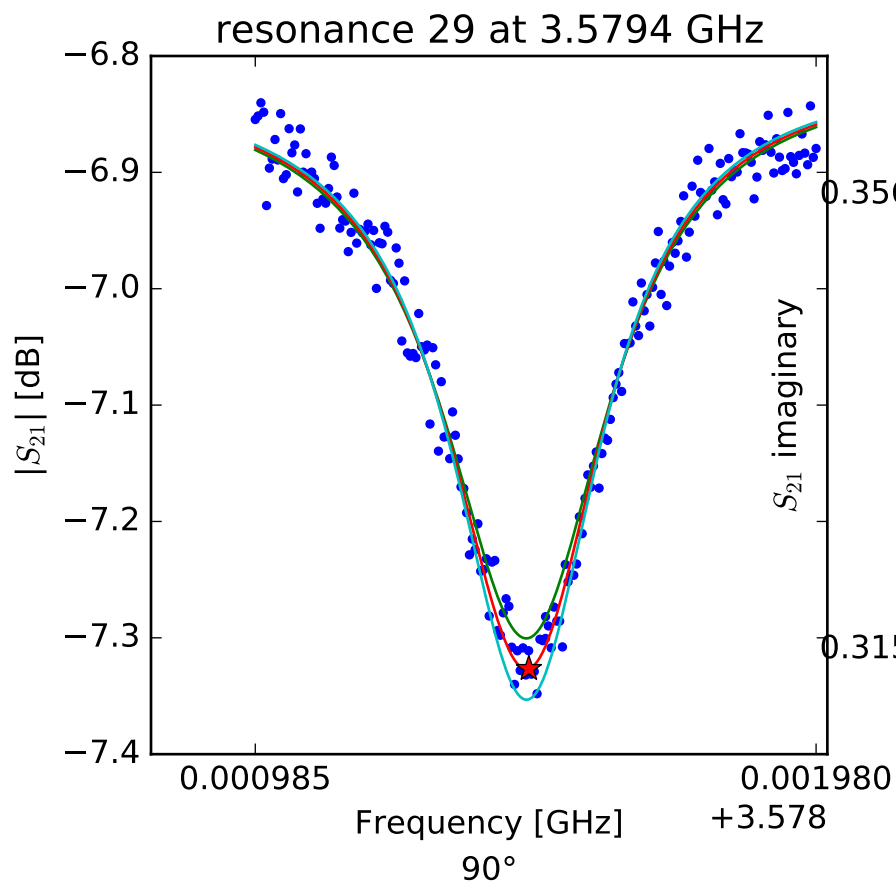
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.55652914587 \\ Q_r &= 7734.08400503 \\ Q_c &= 164362.86182 \\ a &= (-0.43522120182 - 0.121459263305j) \\ \phi_0 &= 0.472139691238 \\ \tau &= 24.1331022786 \end{aligned}$$



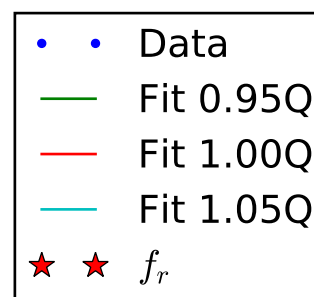
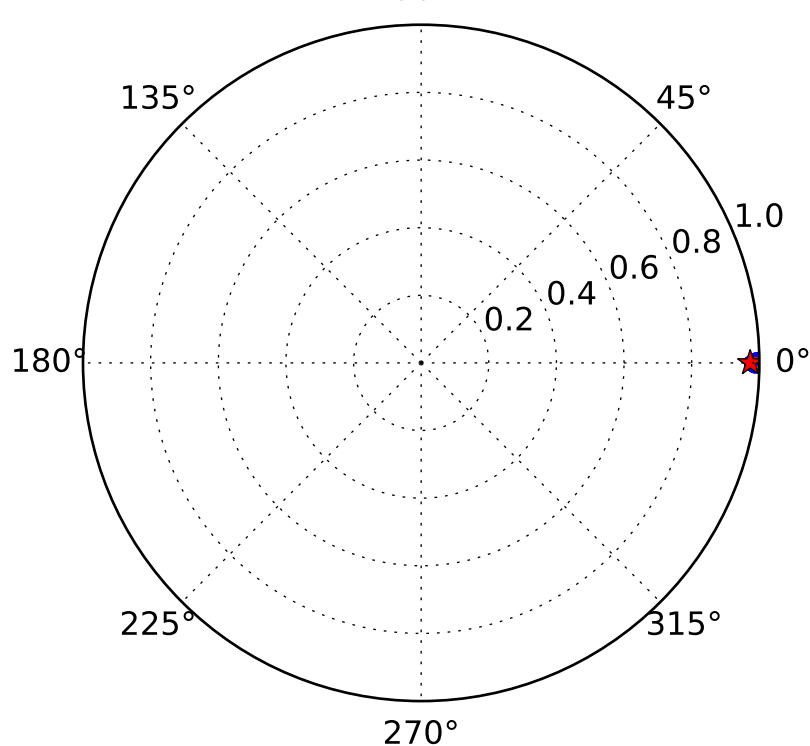
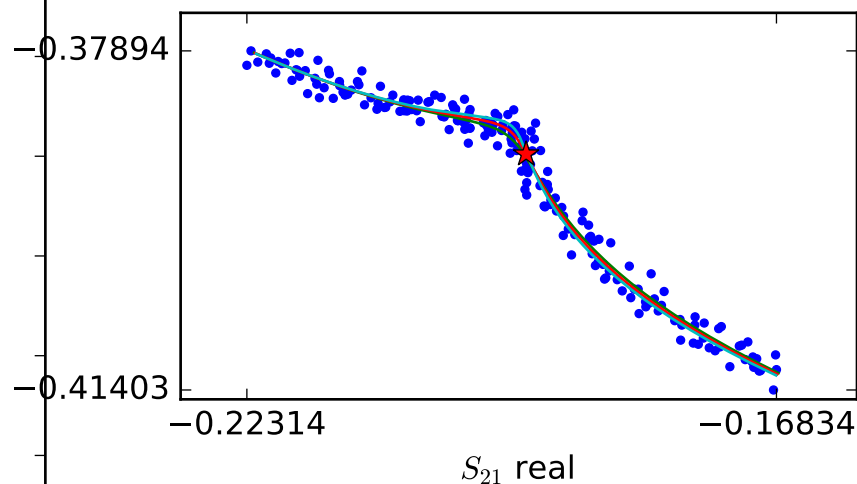
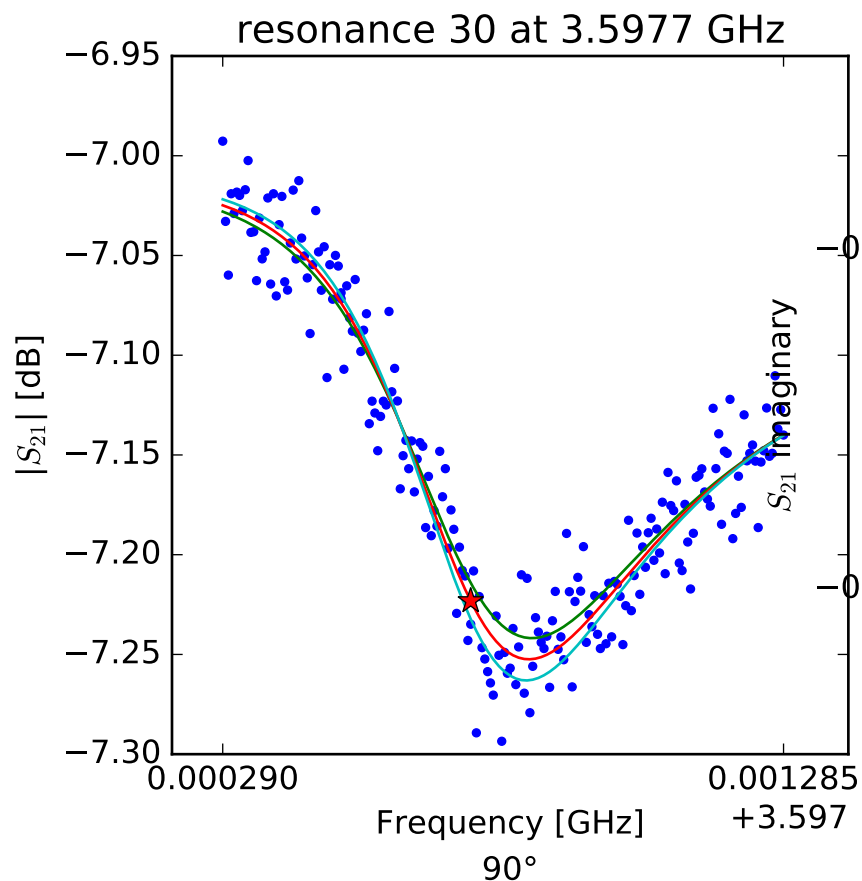
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.56821093497 \\ Q_r &= 8748.80947727 \\ Q_c &= 422019.327461 \\ a &= (0.334950531106 + 0.317009554463j) \\ \phi_0 &= 1.06341184058 \\ \tau &= 25.4173260499 \end{aligned}$$



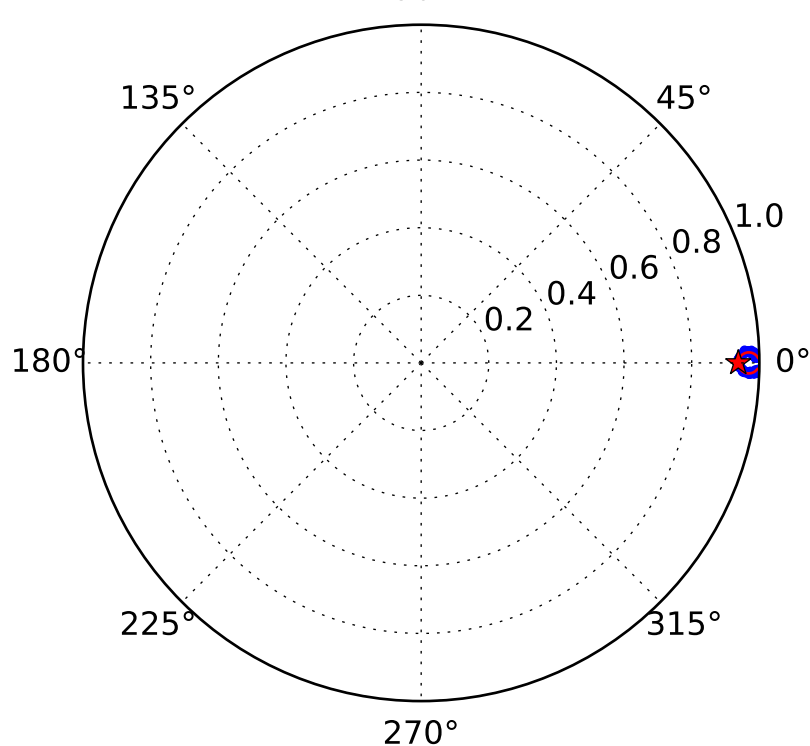
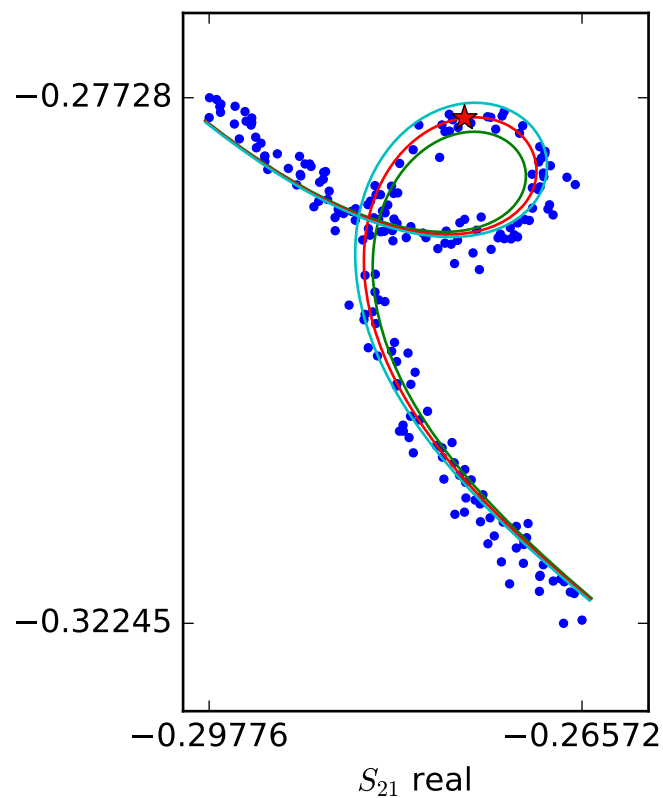
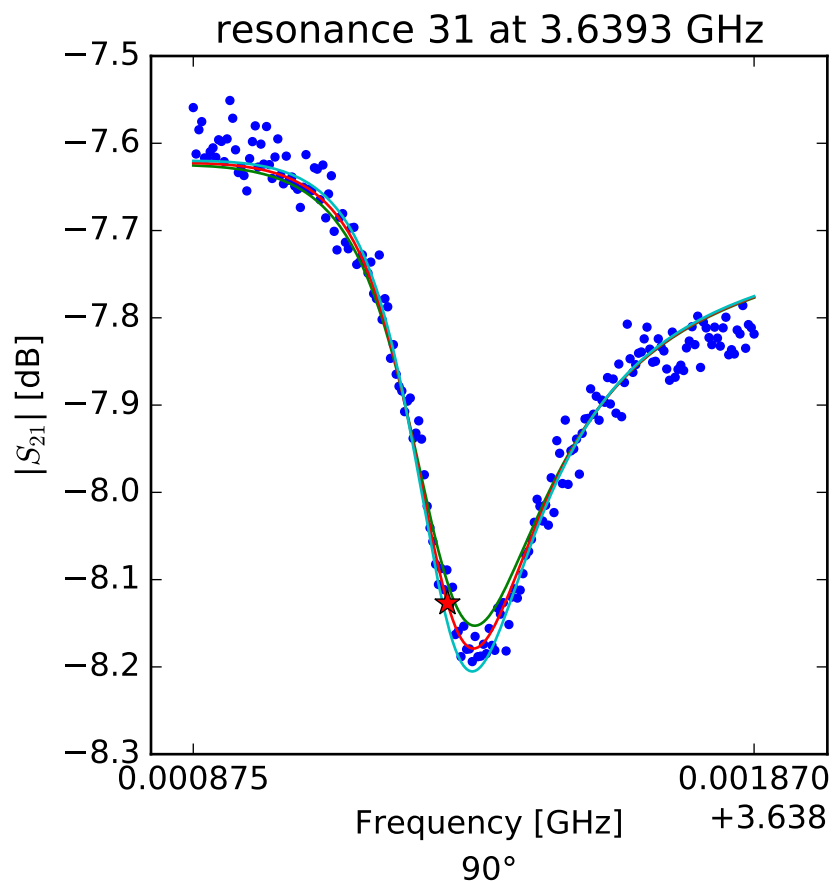
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.57947039381 \\ Q_r &= 10236.115056 \\ Q_c &= 178793.344152 \\ a &= (0.0324448369405 - 0.455139490485j) \\ \phi_0 &= -0.0475058103642 \\ \tau &= 25.877400507 \end{aligned}$$



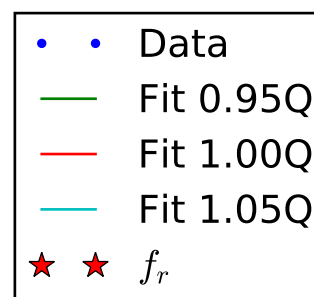
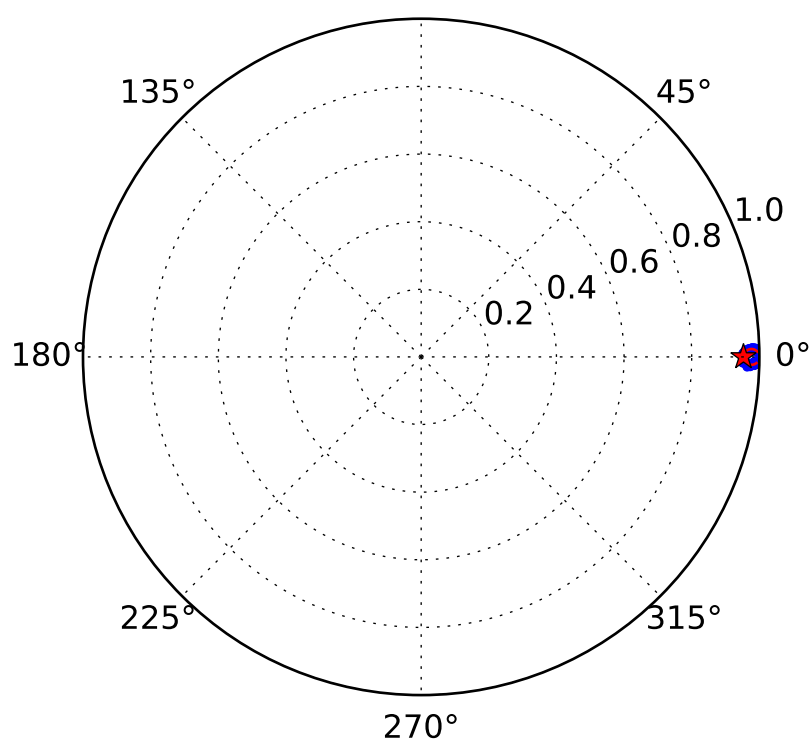
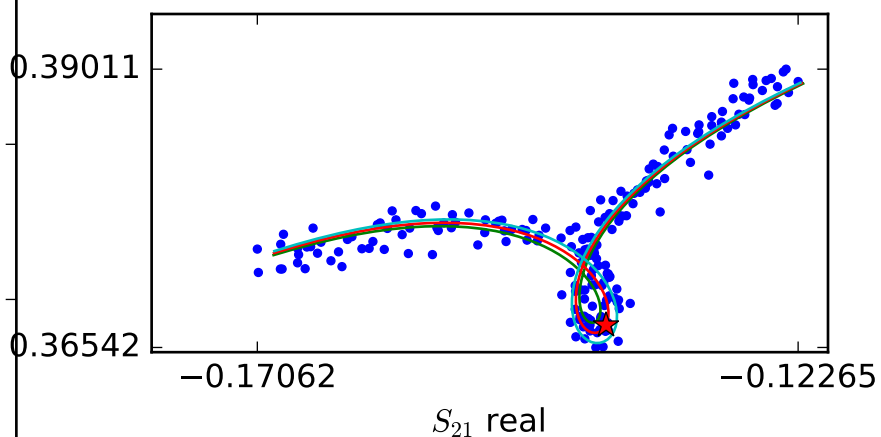
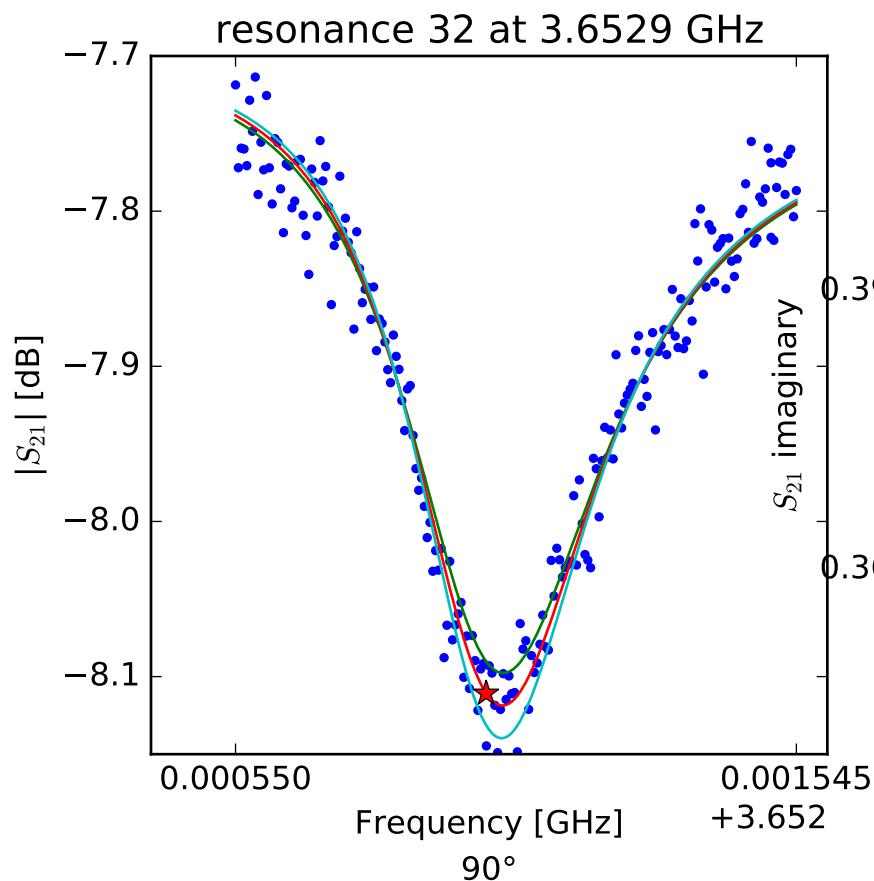
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.59772991188 \\ Q_r &= 6446.27408042 \\ Q_c &= 237944.621297 \\ a &= (0.421566196964 - 0.140936026166j) \\ \phi_0 &= 0.699148709074 \\ \tau &= 25.9245208579 \end{aligned}$$



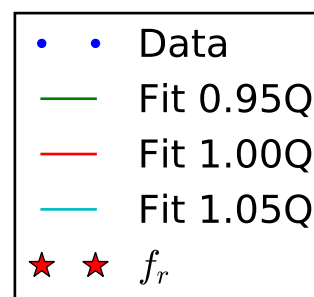
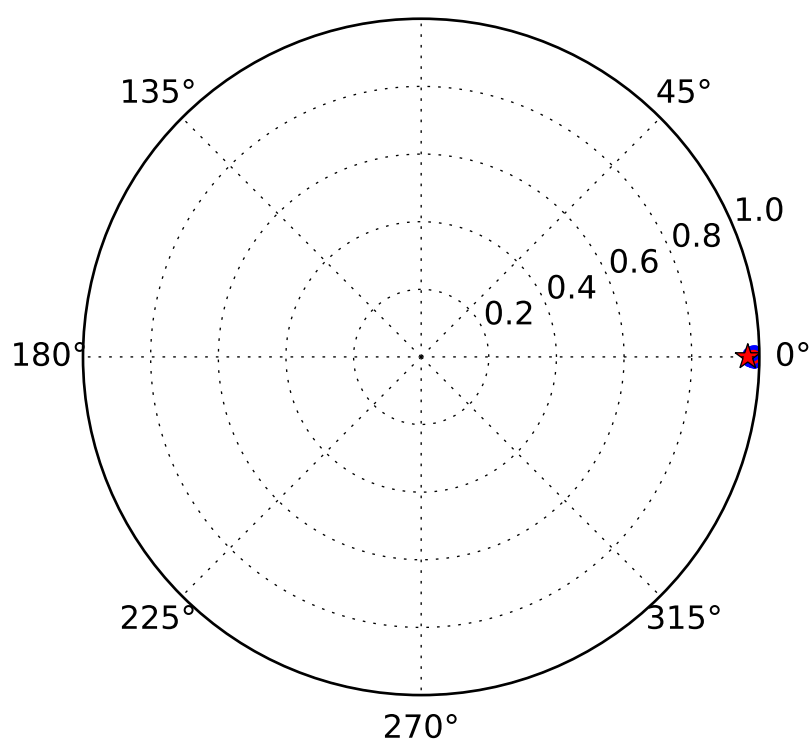
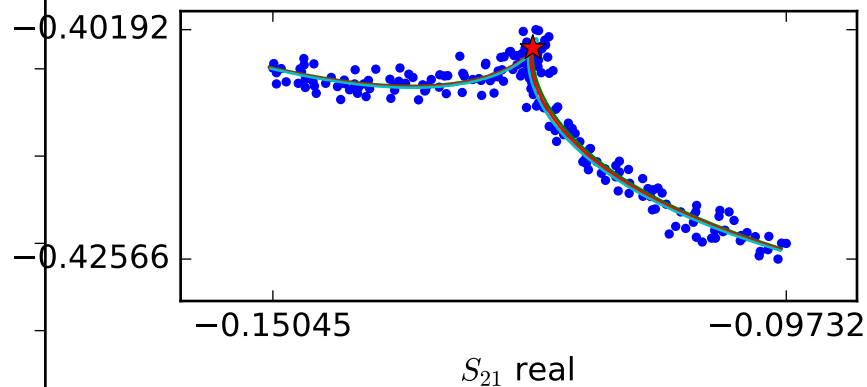
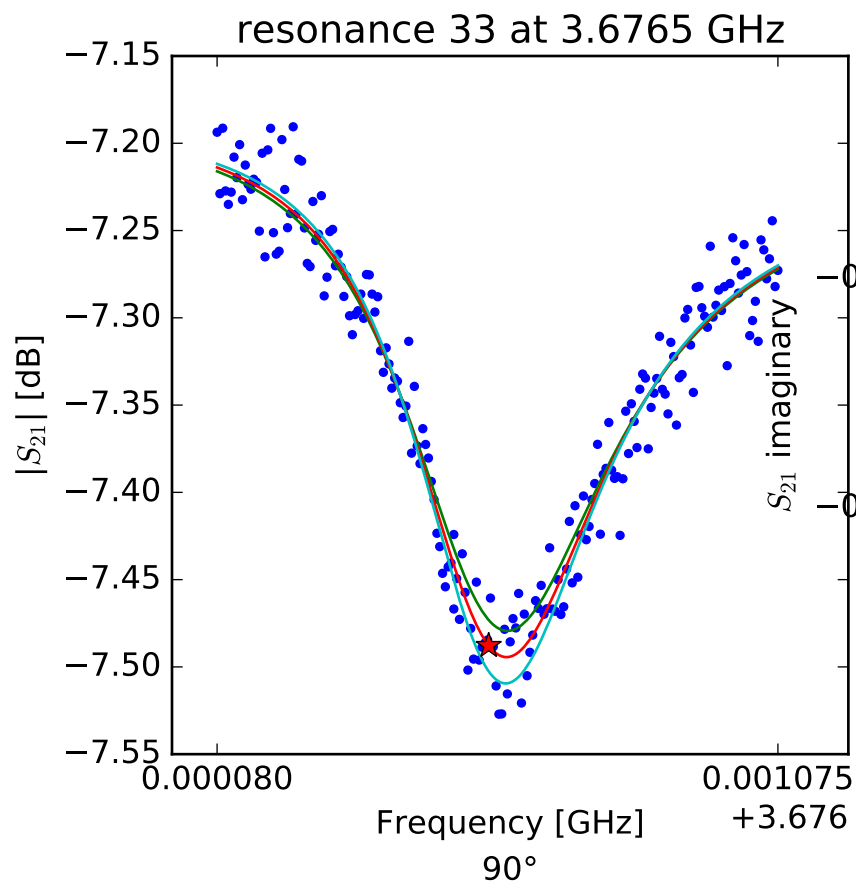
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.63932603388 \\ Q_r &= 12291.8349962 \\ Q_c &= 197029.853484 \\ a &= (-0.154378768001 - 0.3836818215j) \\ \phi_0 &= 0.585449497585 \\ \tau &= 25.0204054312 \end{aligned}$$



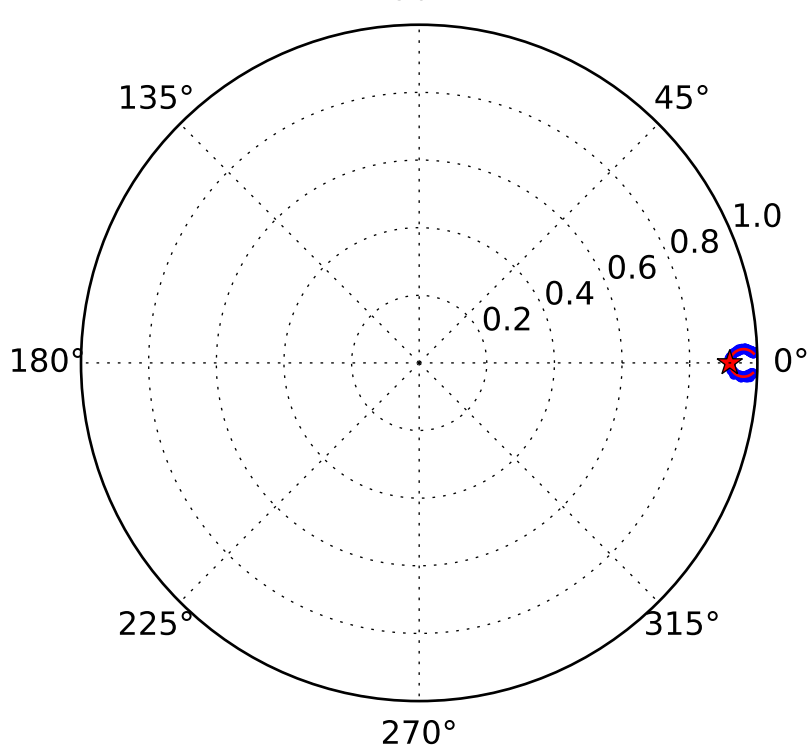
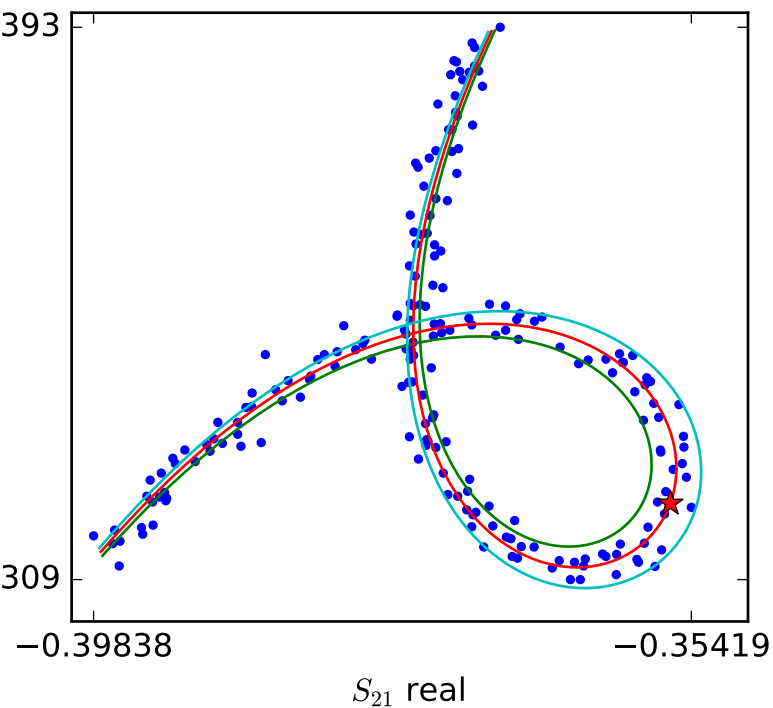
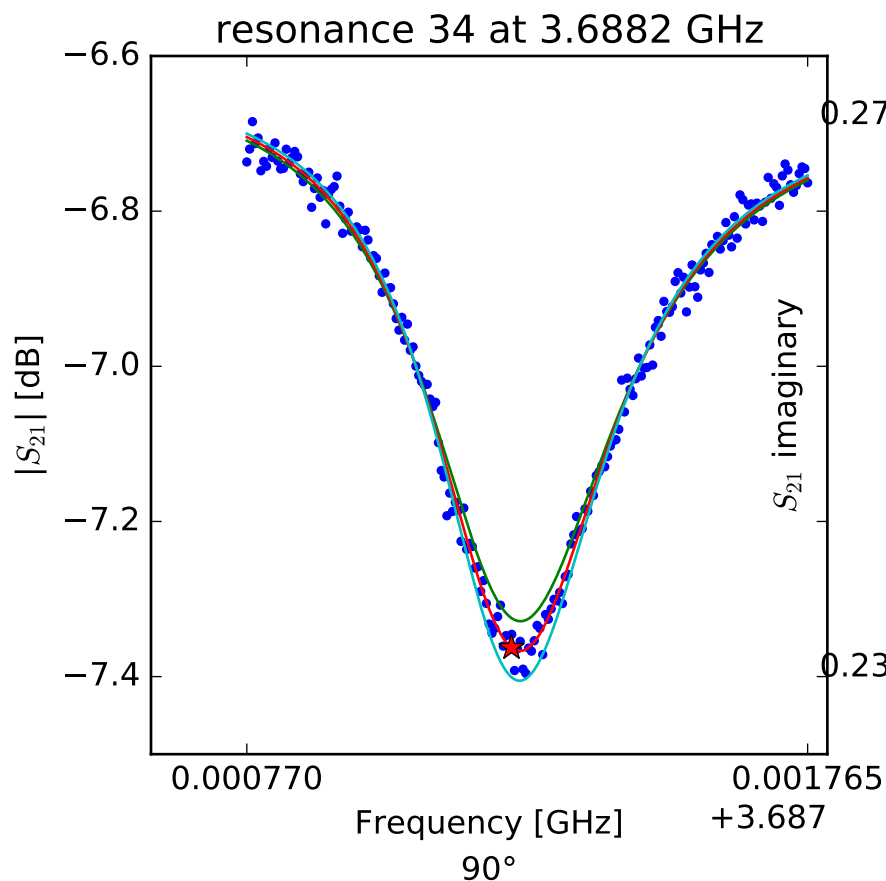
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.65299467937 \\ Q_r &= 8612.02188341 \\ Q_c &= 183245.473898 \\ a &= (0.0567913889687 + 0.407779162947j) \\ \phi_0 &= 0.262613857159 \\ \tau &= 24.6149044947 \end{aligned}$$



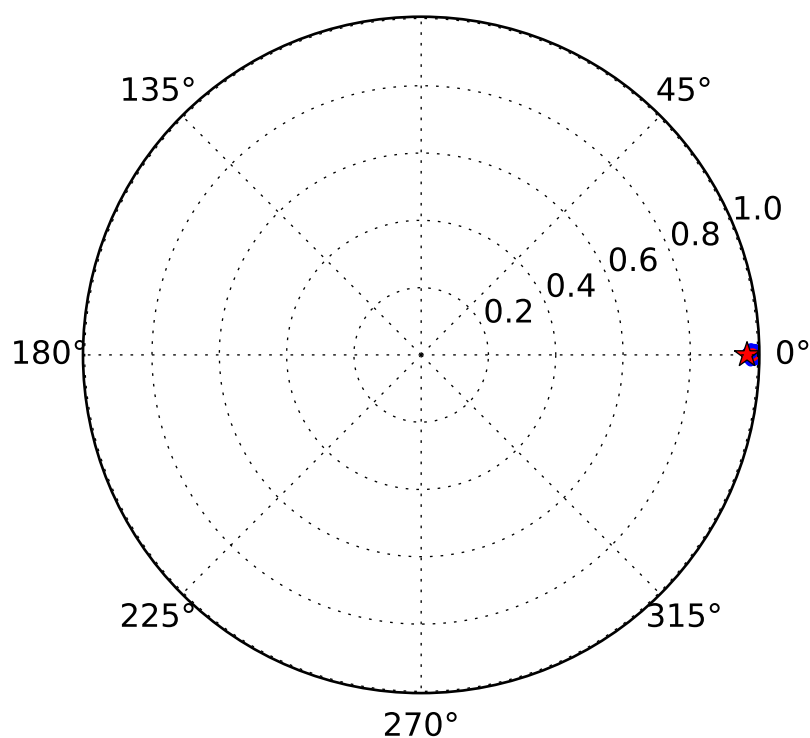
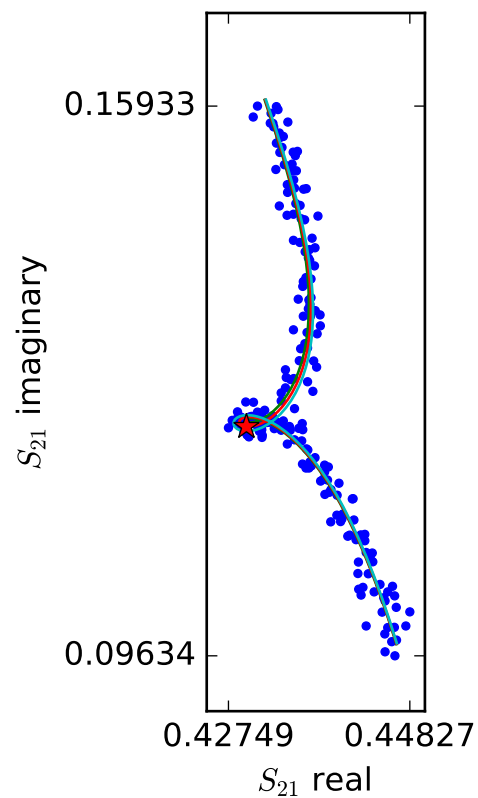
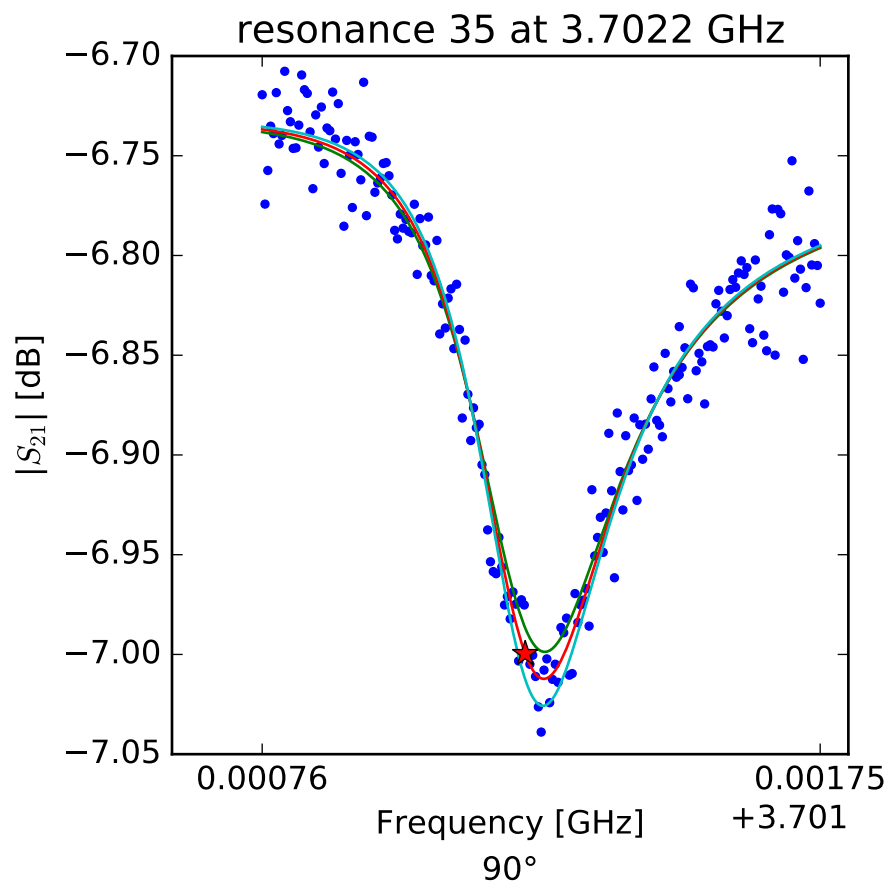
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.67656184722 \\ Q_r &= 8506.23336724 \\ Q_c &= 248511.095565 \\ a &= (0.393965830633 - 0.188185229628j) \\ \phi_0 &= 0.286066153181 \\ \tau &= 24.5405214767 \end{aligned}$$



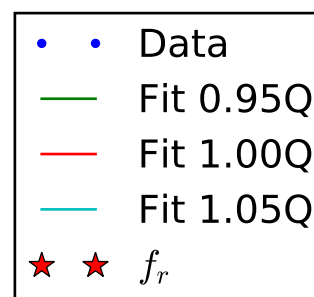
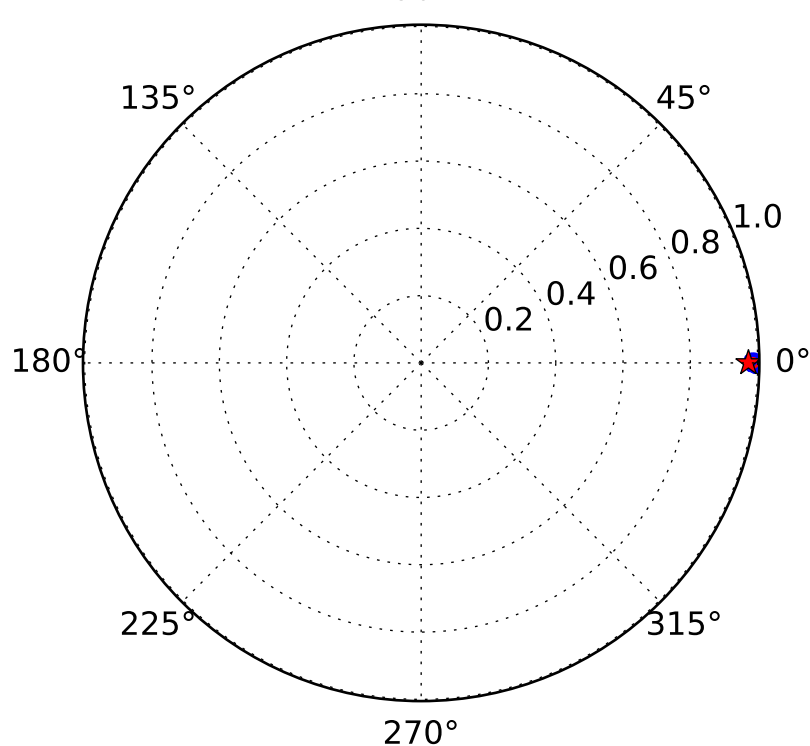
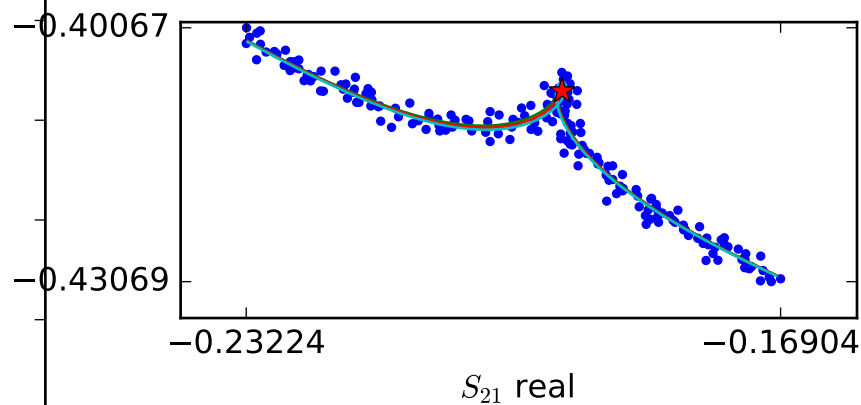
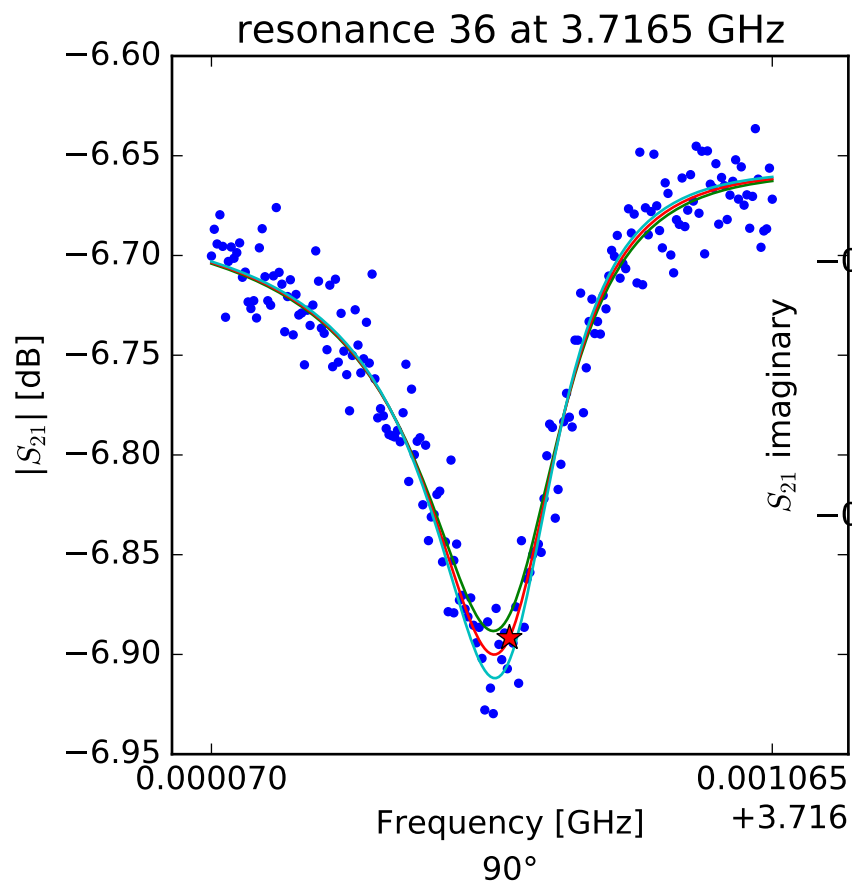
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.68823957608 \\ Q_r &= 8929.03778435 \\ Q_c &= 109398.560302 \\ a &= (-0.174290255444 + 0.432233181828j) \\ \phi_0 &= 0.140295238647 \\ \tau &= 26.0024042563 \end{aligned}$$



$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.7022266378 \\ Q_r &= 12008.0029166 \\ Q_c &= 379859.529949 \\ a &= (0.352709217841 + 0.295233681472j) \\ \phi_0 &= 0.415992351891 \\ \tau &= 25.137460448 \end{aligned}$$



$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.71659869355 \\ Q_r &= 12915.3718716 \\ Q_c &= 470541.410758 \\ a &= (-0.0968003845411 - 0.453956229882j) \\ \phi_0 &= -0.366537661218 \\ \tau &= 25.8405807509 \end{aligned}$$