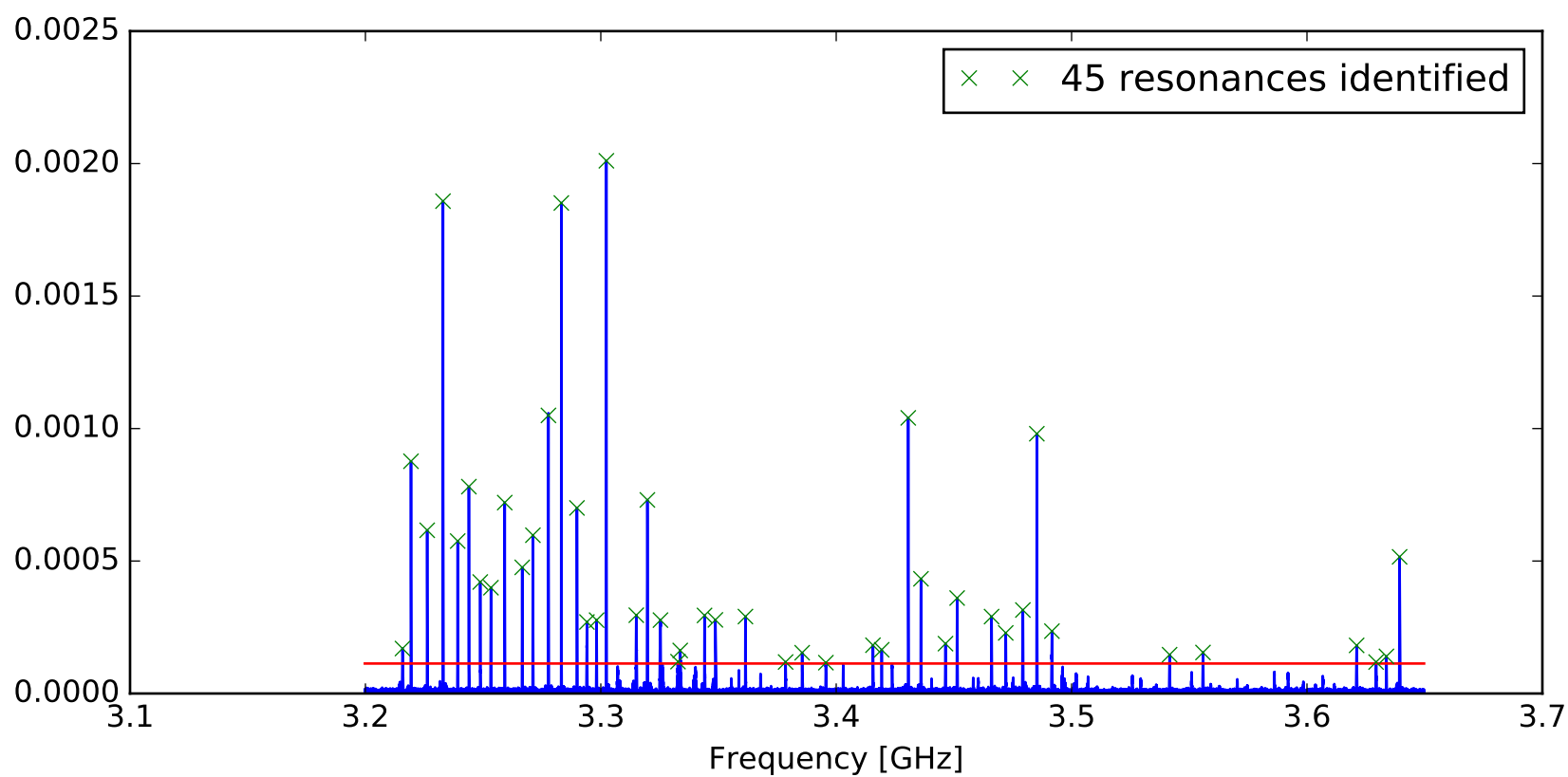
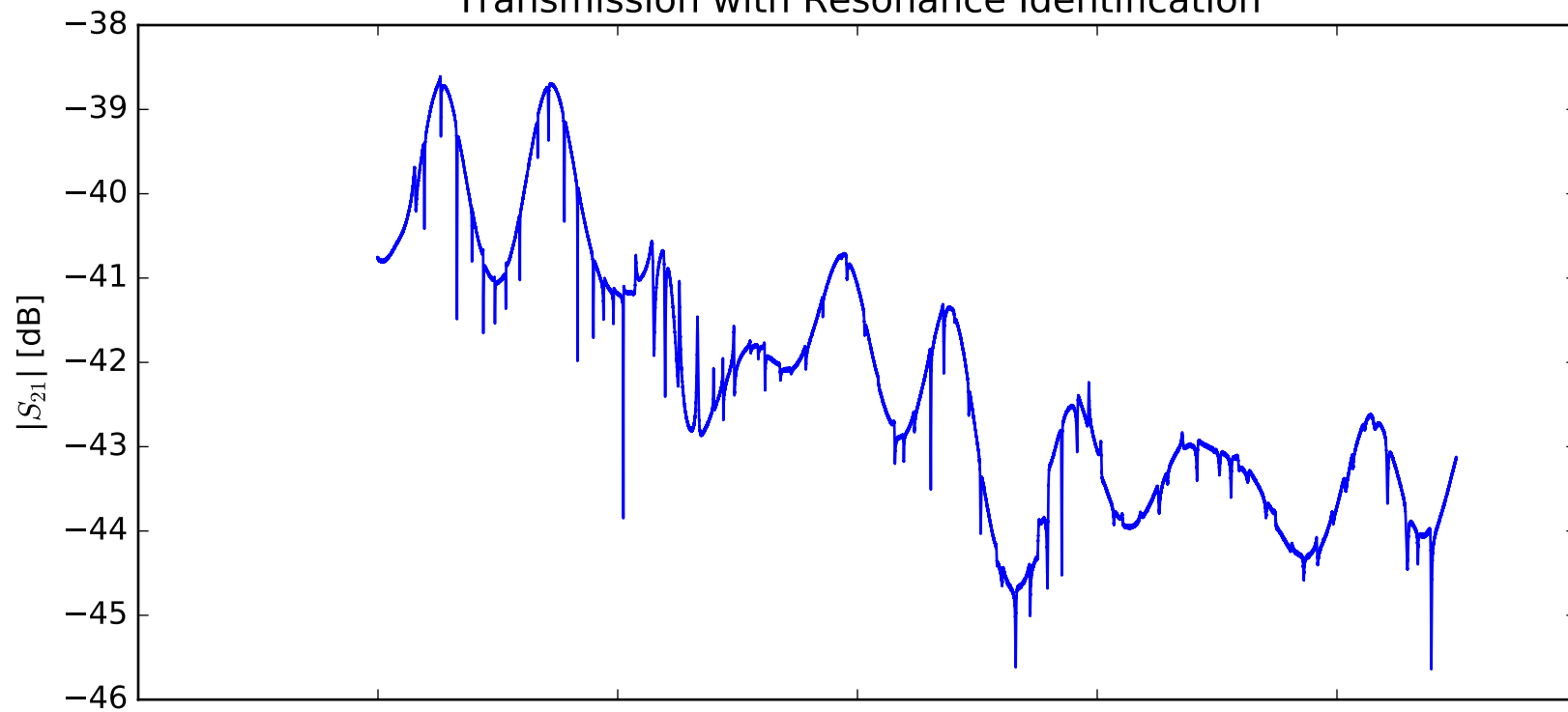
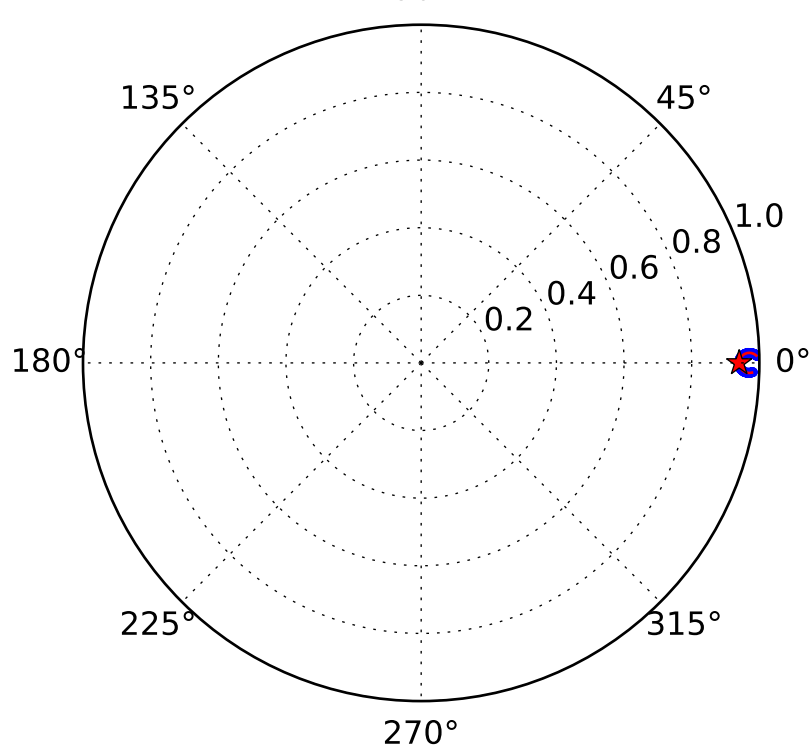
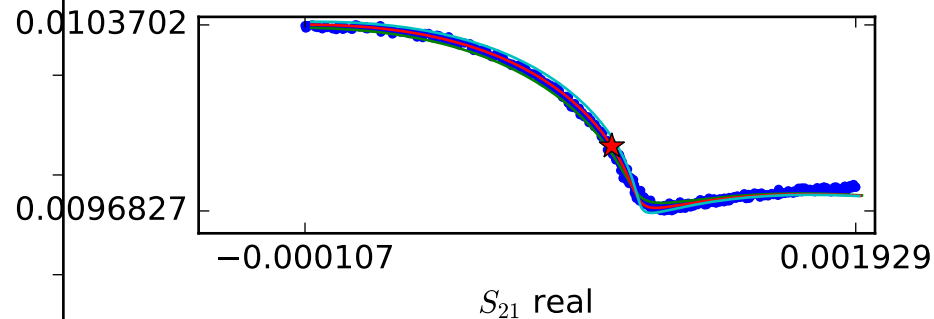
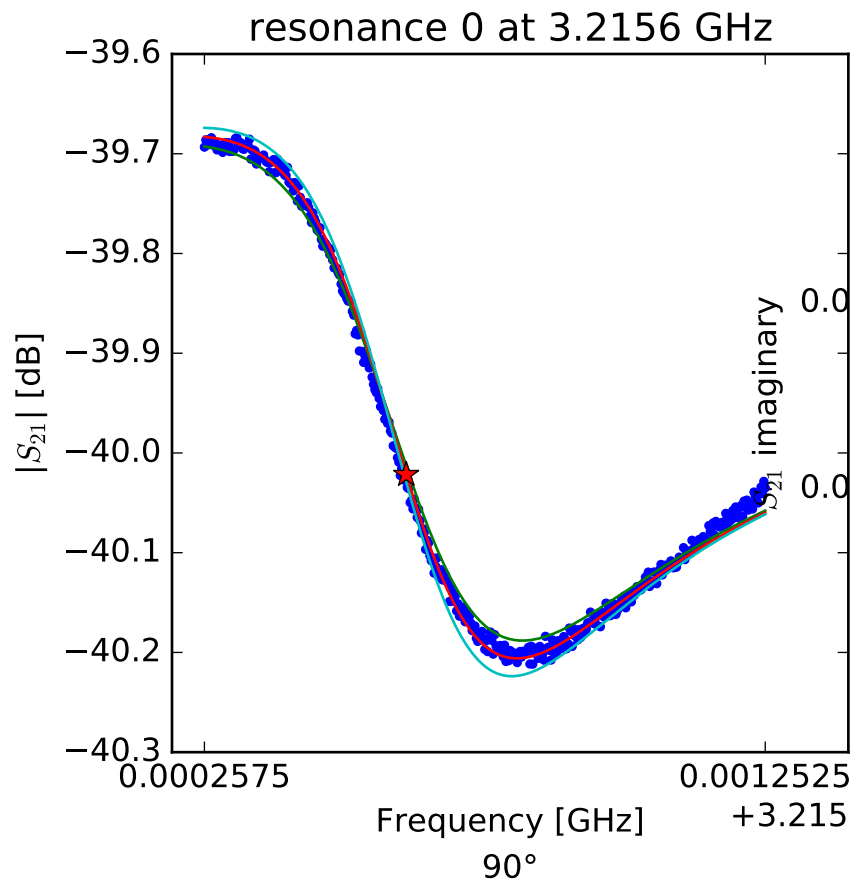


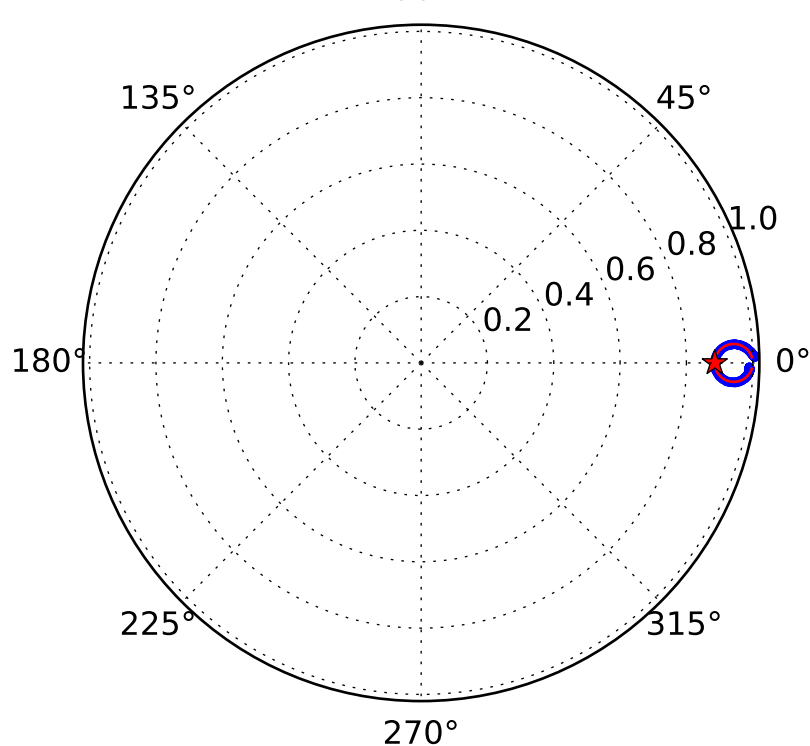
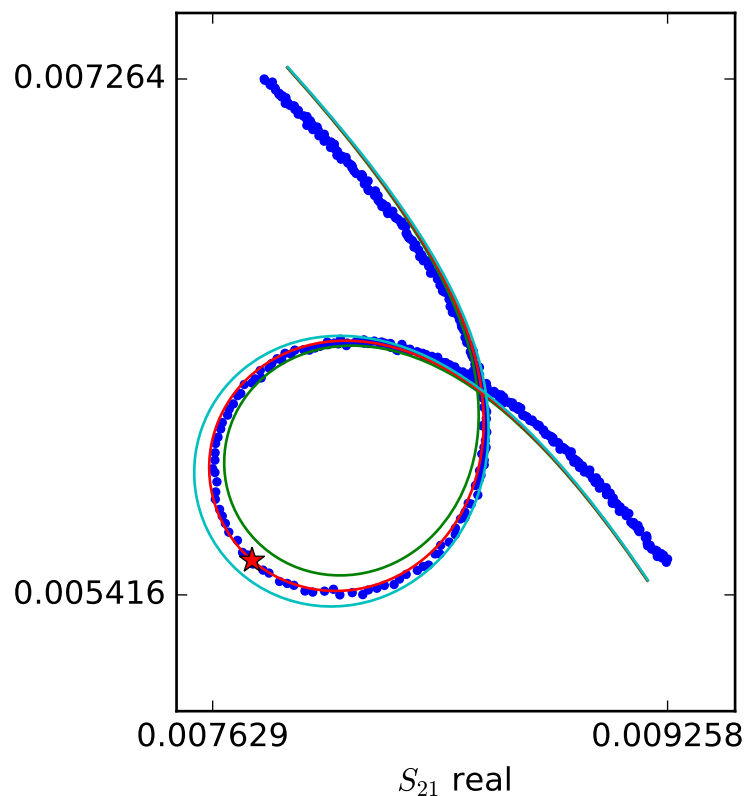
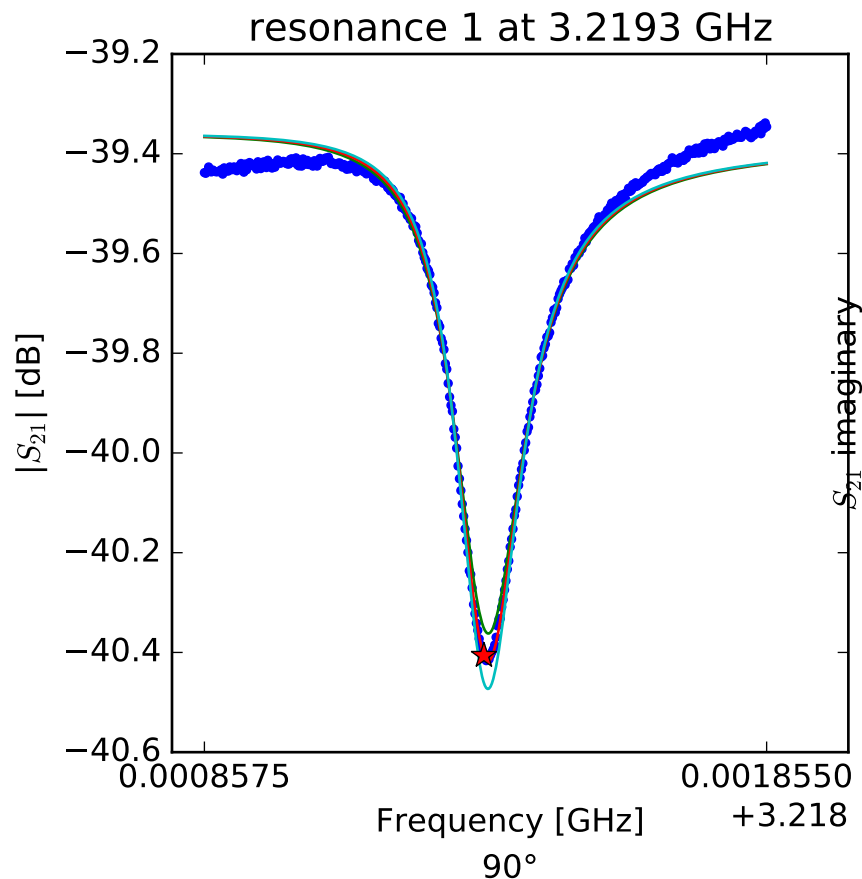
Transmission with Resonance Identification





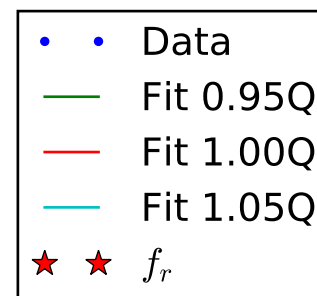
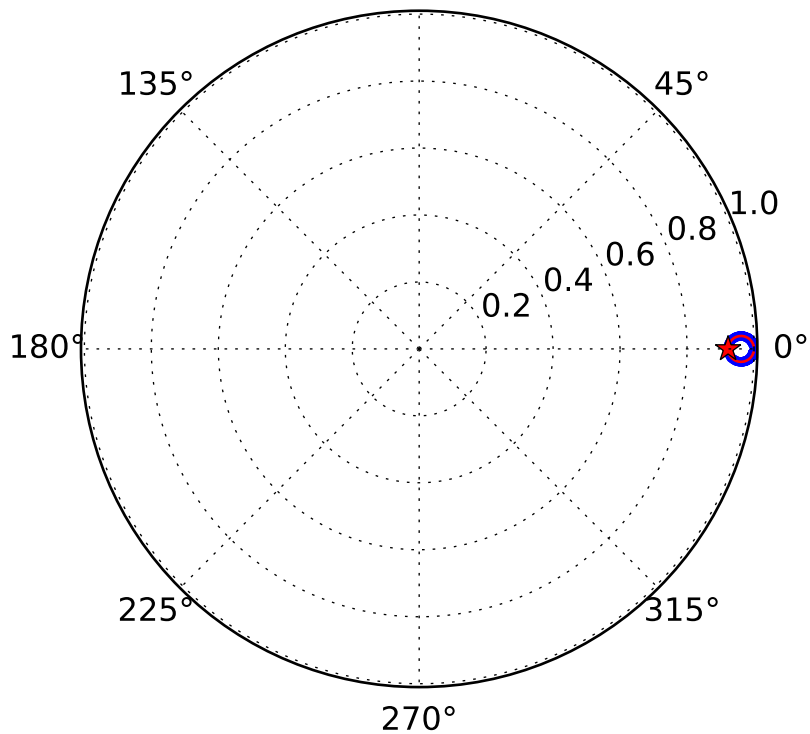
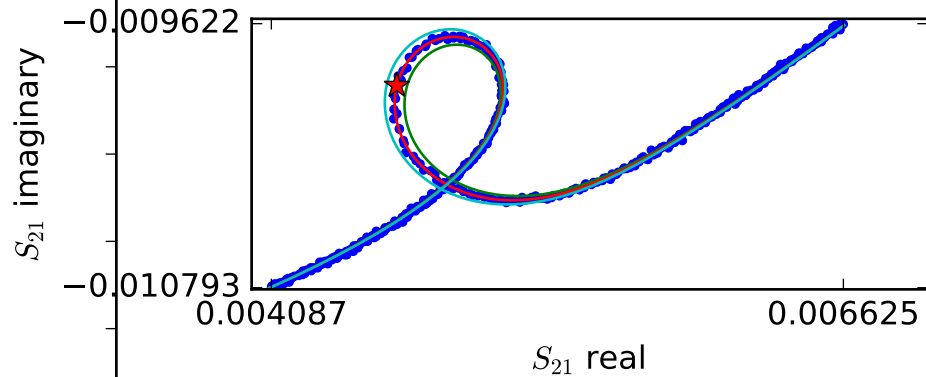
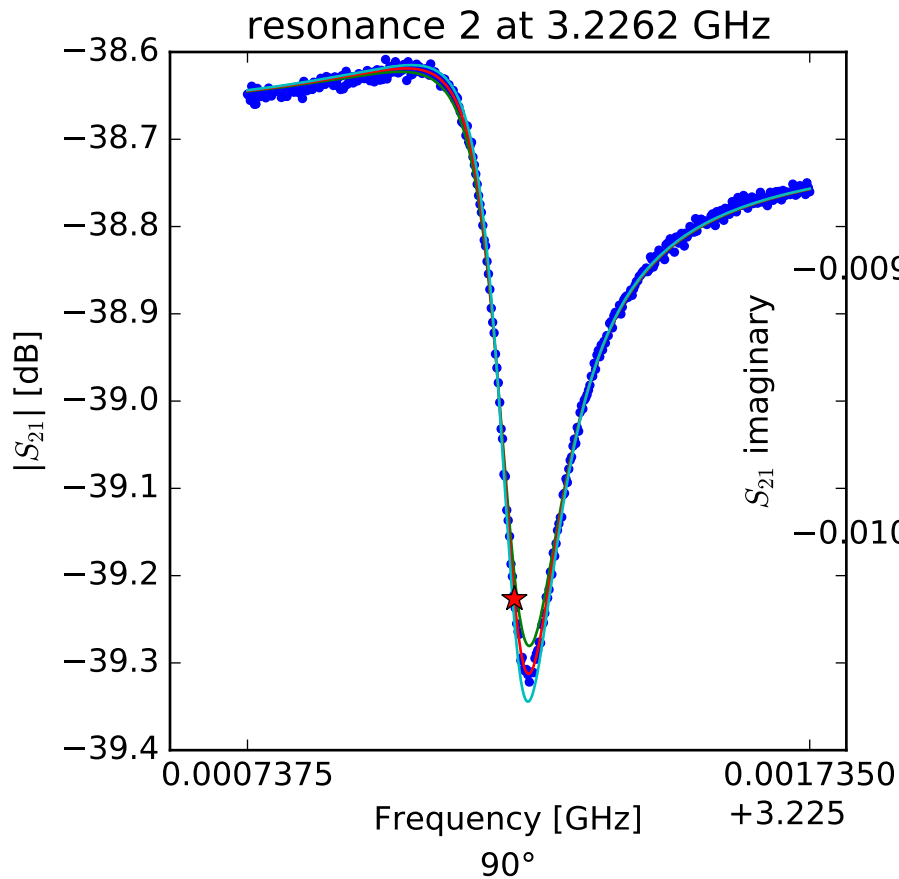
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})} \right]$$

$$\begin{aligned} f_r &= 3.21561558202 \\ Q_r &= 5861.36664723 \\ Q_c &= 98284.1969113 \\ a &= (-7.96486045357\text{e-}05 - 0.0101706700349j) \\ \phi_0 &= 1.21351679286 \\ \tau &= 37.4752815386 \end{aligned}$$



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

$$\begin{aligned} f_r &= 3.21935337016 \\ Q_r &= 20987.3882918 \\ Q_c &= 183269.44994 \\ a &= (0.00680372016678 + 0.00832401457507j) \\ \phi_0 &= 0.183500119883 \\ \tau &= 38.8396681823 \end{aligned}$$



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

$$f_r = 3.22621106772$$

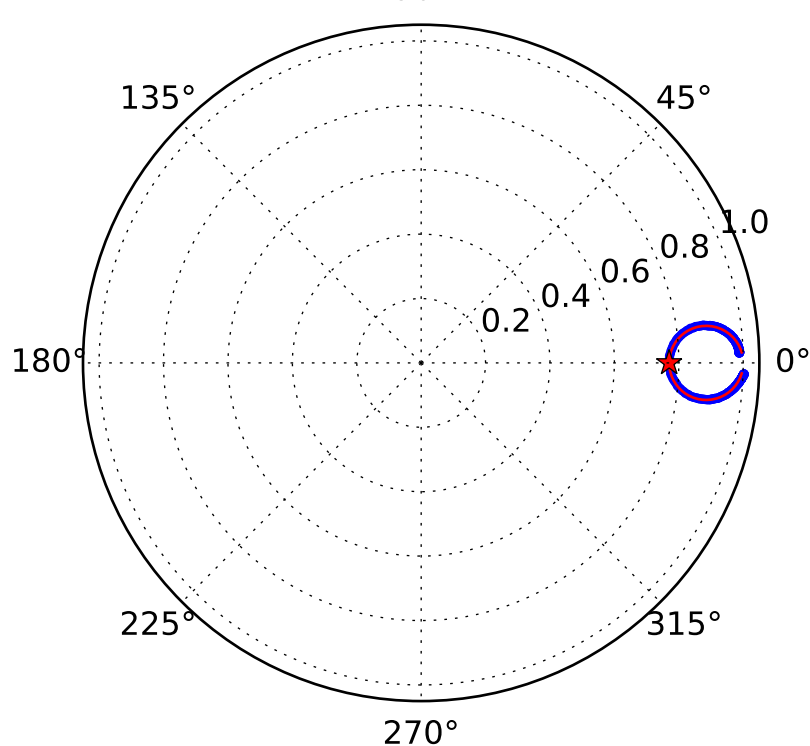
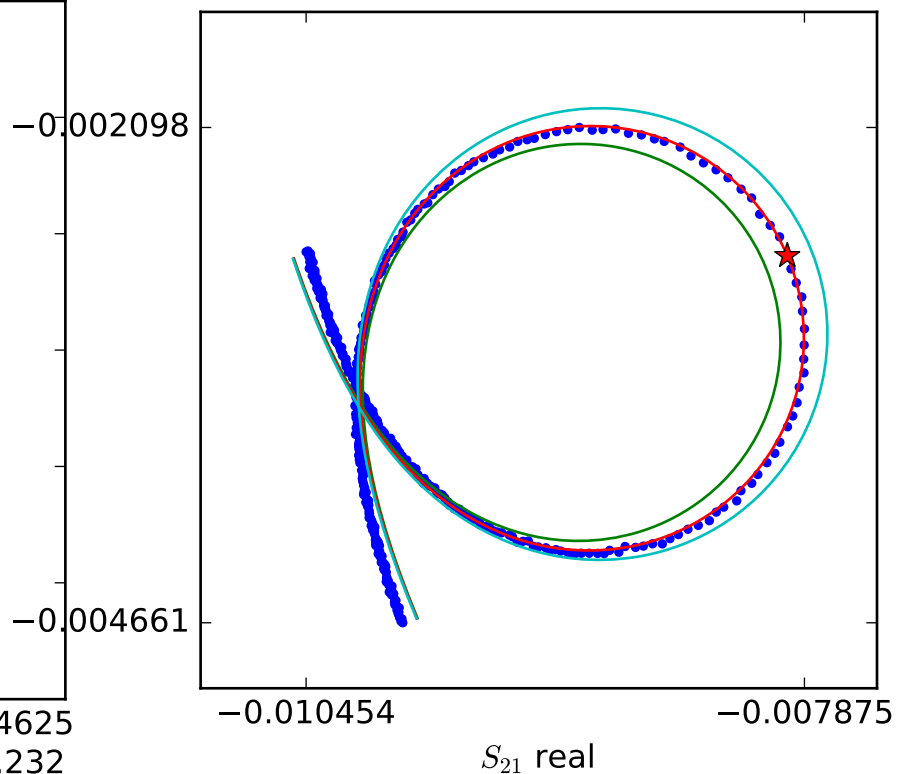
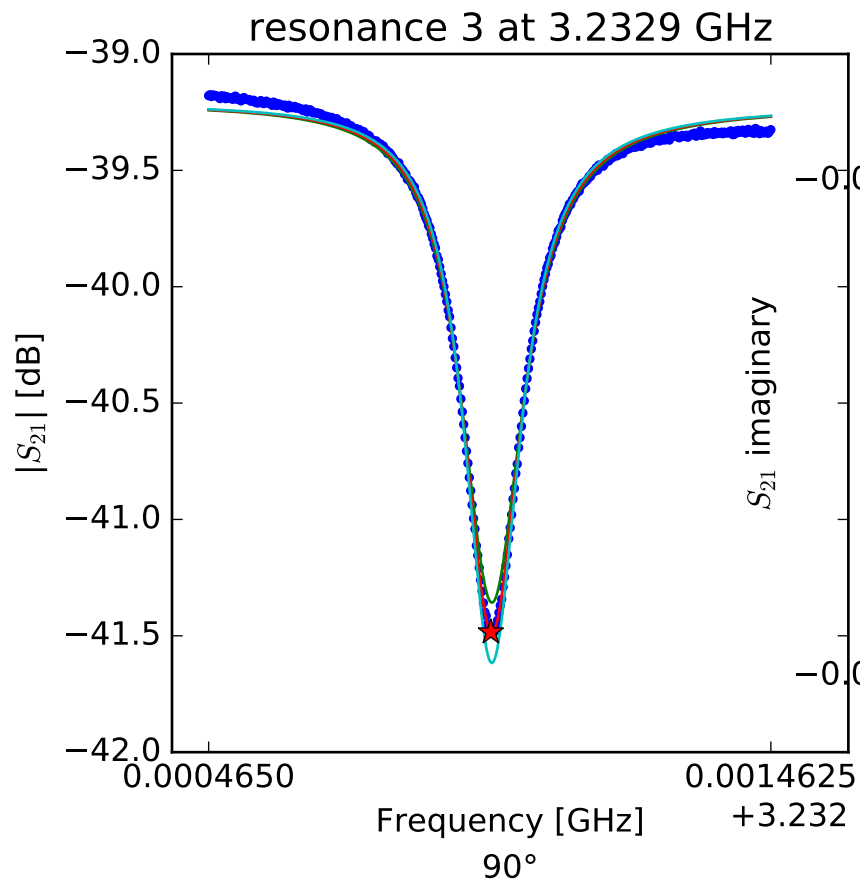
$$Q_r = 23215.1630047$$

$$Q_c = 299815.55349$$

$$a = (0.00973810567291 - 0.00634573478049j)$$

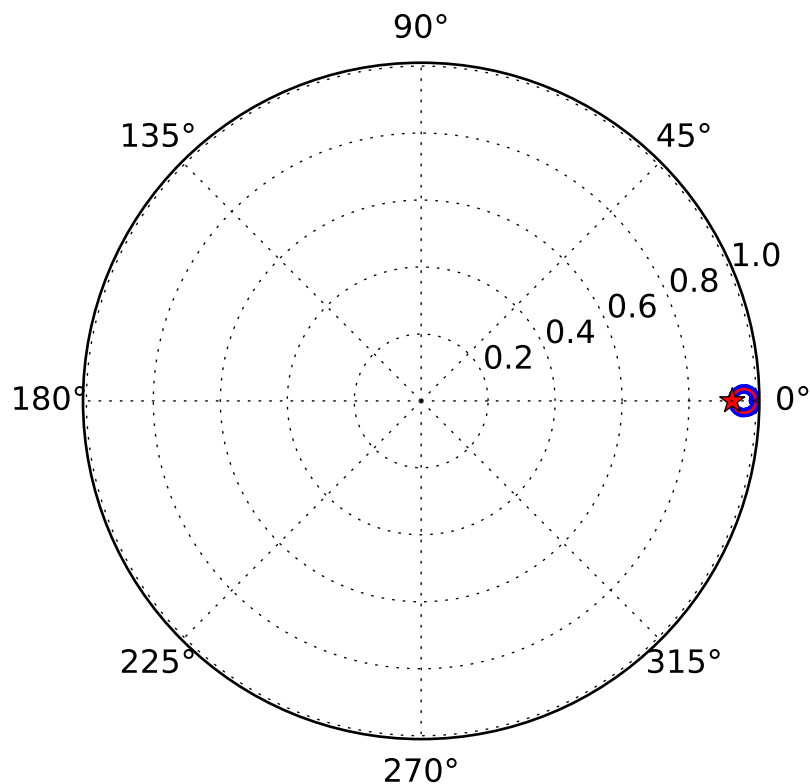
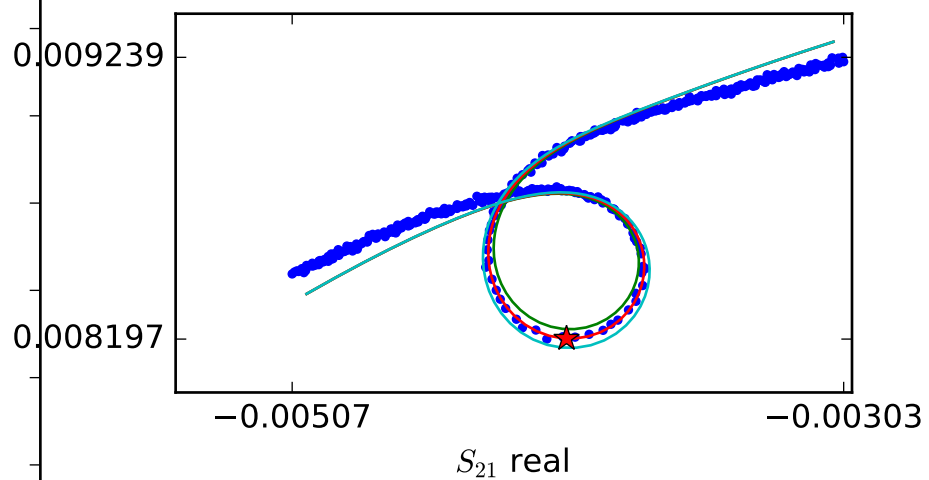
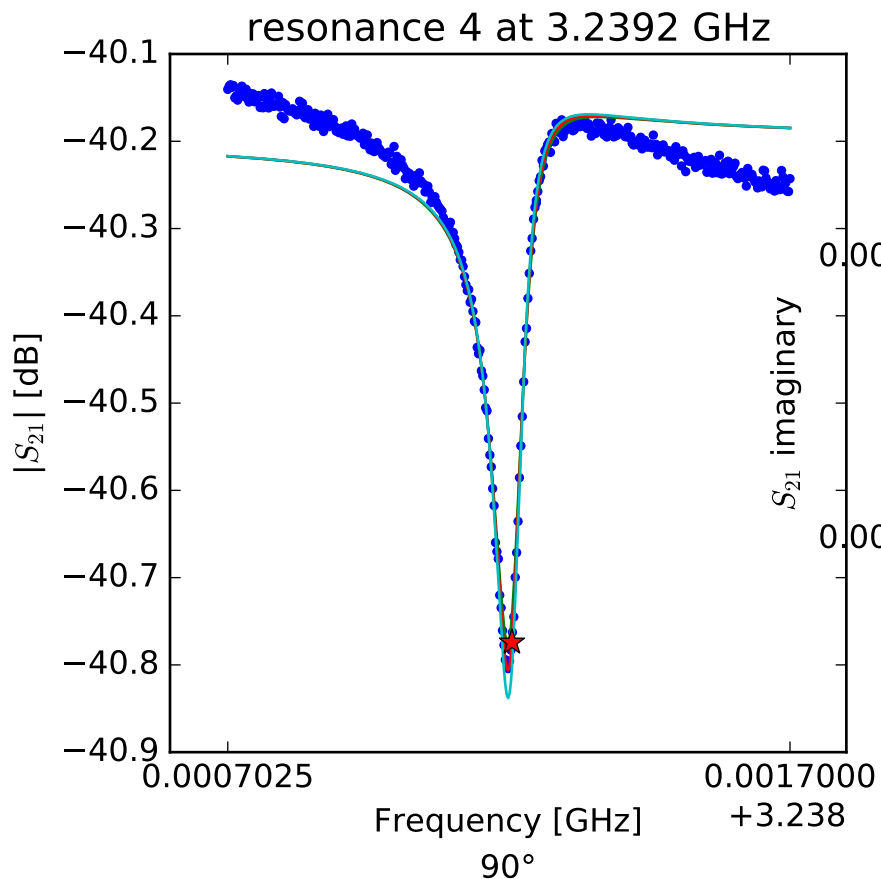
$$\phi_0 = 0.668671926668$$

$$\tau = 41.2496646335$$



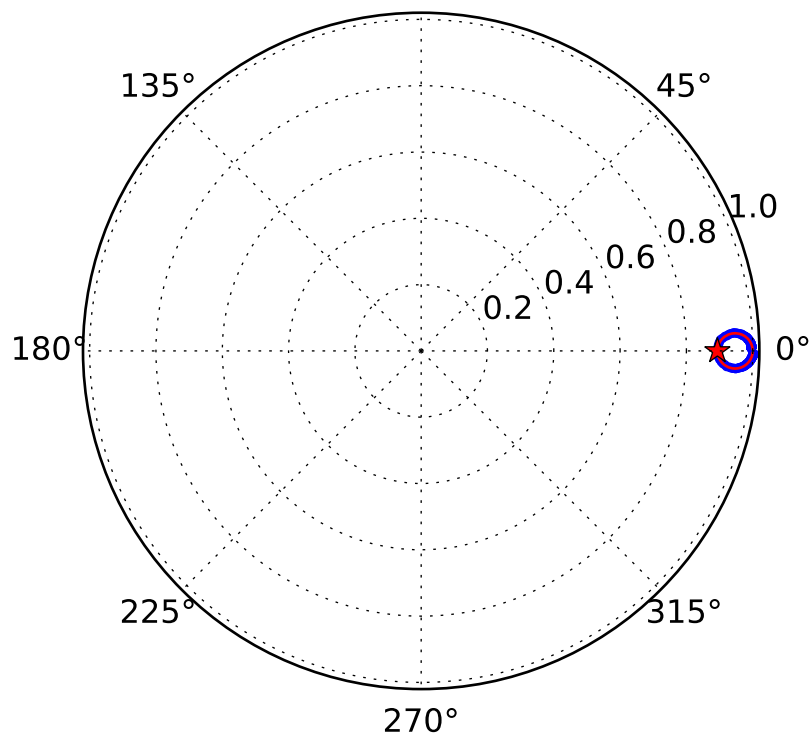
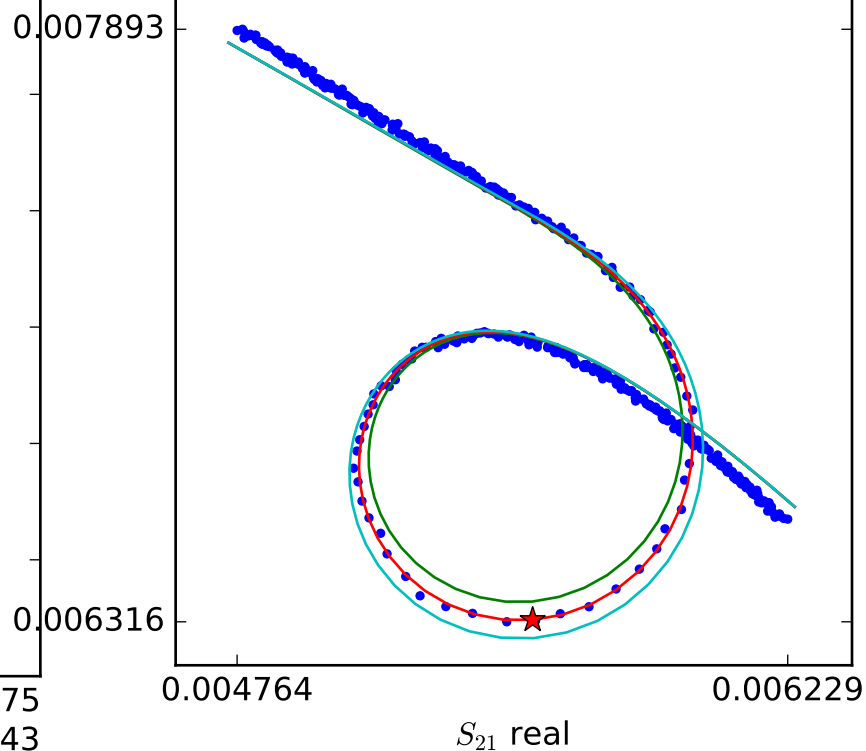
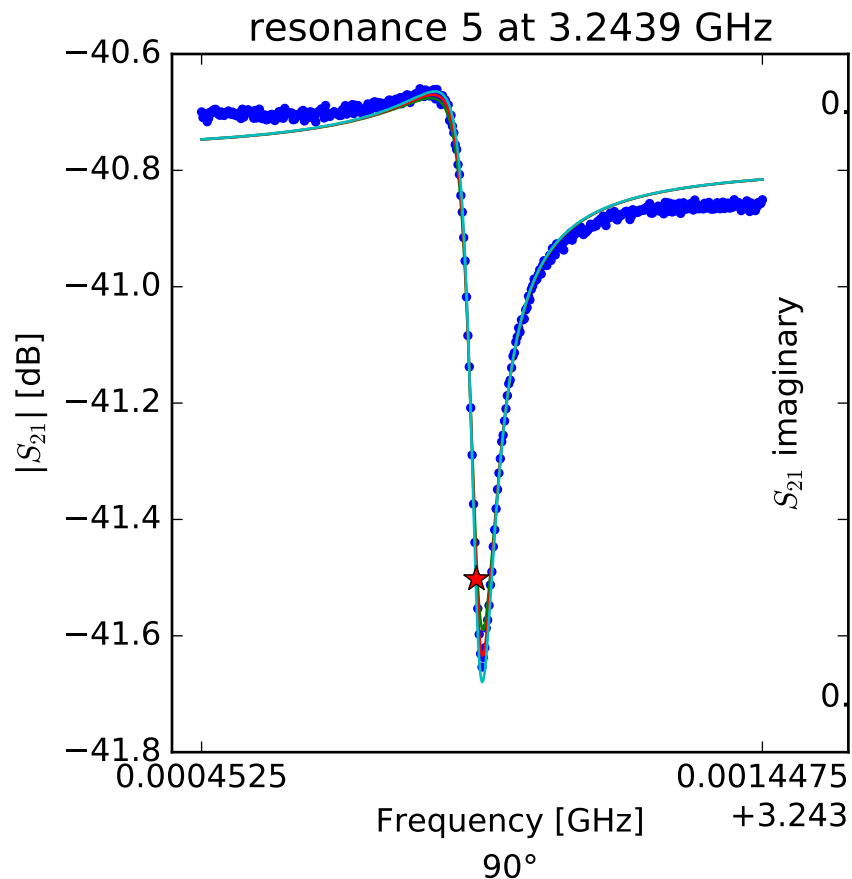
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.23296559841 \\ Q_r &= 22332.3337846 \\ Q_c &= 97062.4367509 \\ a &= (-0.00811570027774 - 0.00734145187447j) \\ \phi_0 &= 0.047849369698 \\ \tau &= 39.3018824741 \end{aligned}$$



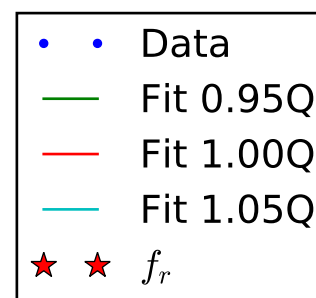
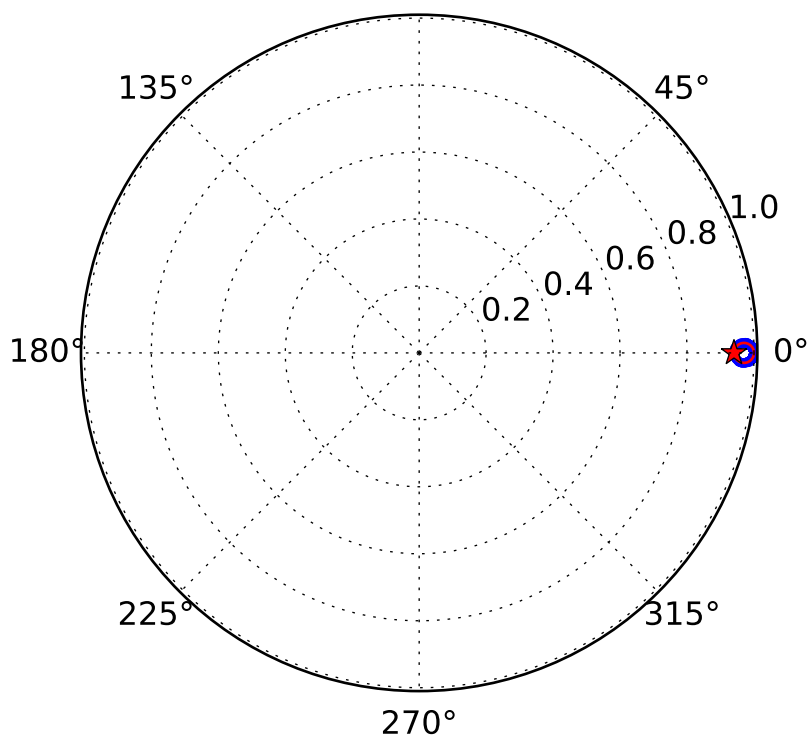
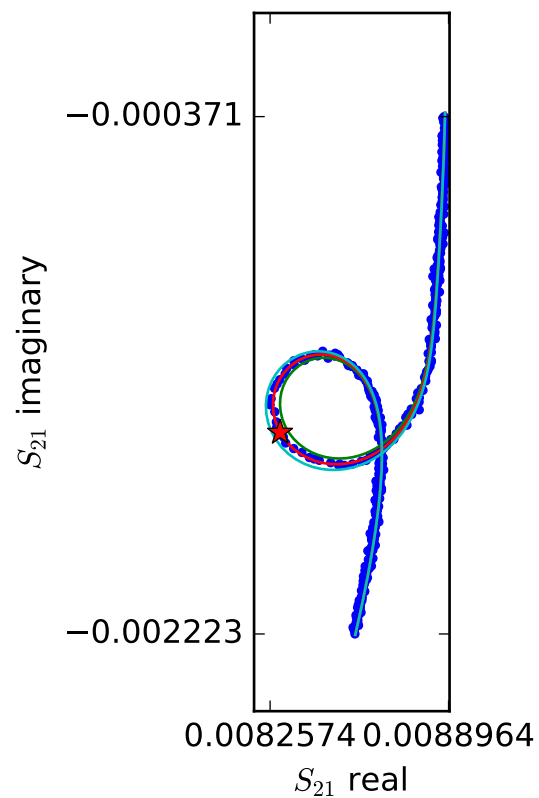
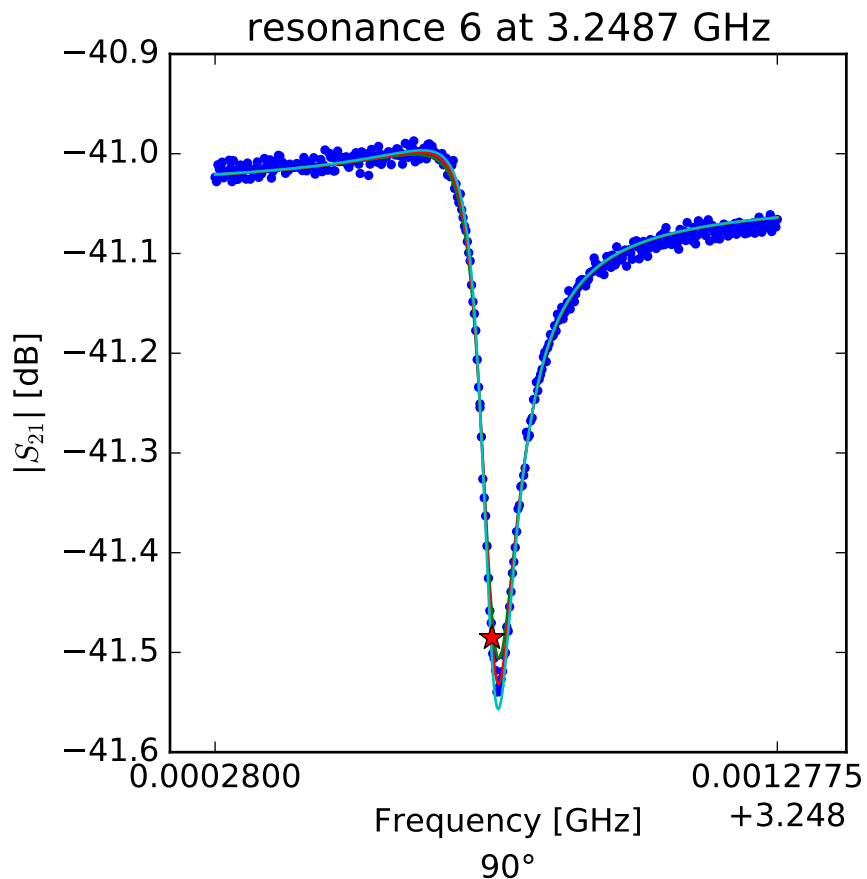
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.23920666909 \\ Q_r &= 50525.0924628 \\ Q_c &= 713301.553469 \\ a &= (0.00976161440826 - 0.000485008291559j) \\ \phi_0 &= -0.424748661498 \\ \tau &= 36.6367373458 \end{aligned}$$



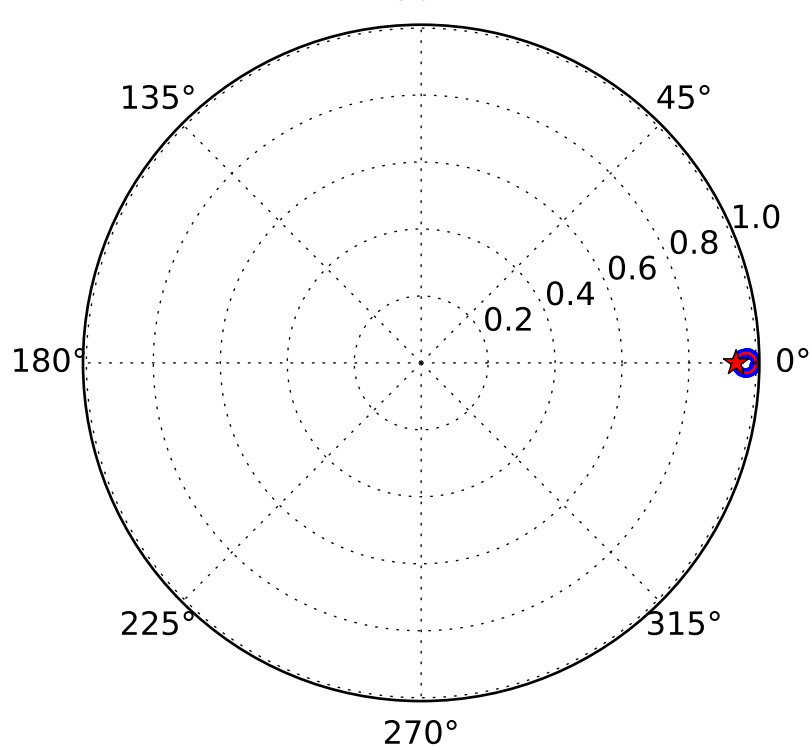
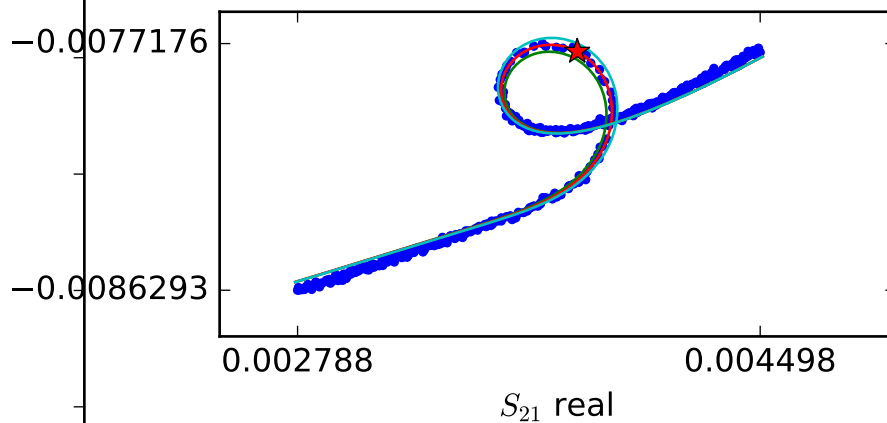
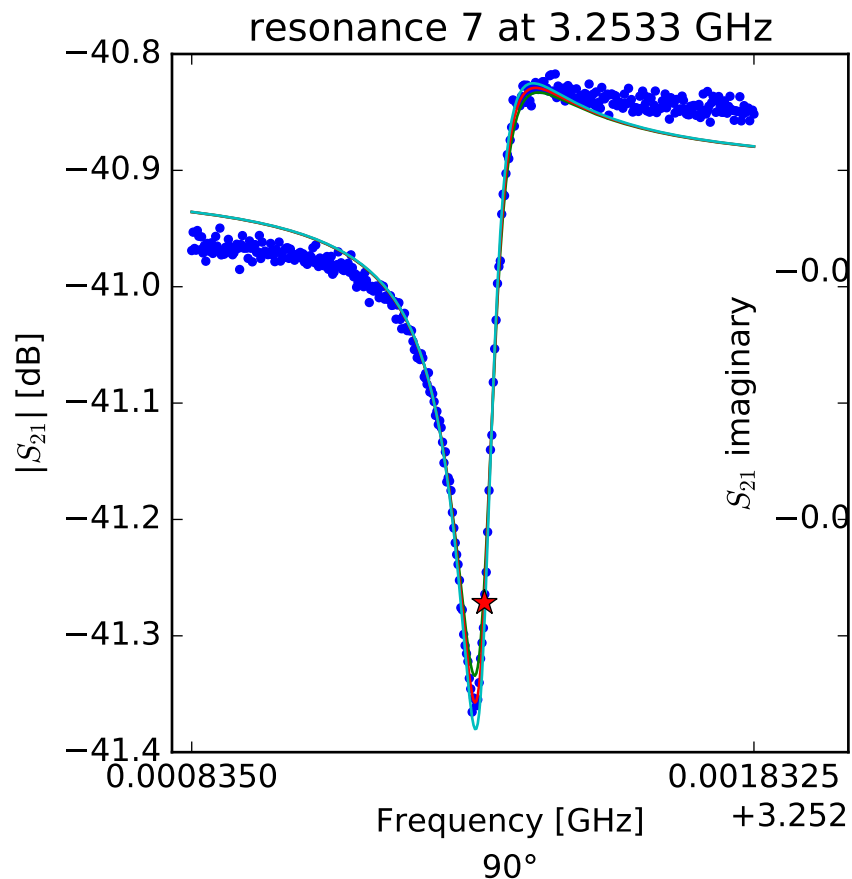
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.24394003514 \\ Q_r &= 55406.2647547 \\ Q_c &= 520190.576667 \\ a &= (0.00746045369674 - 0.005283236135j) \\ \phi_0 &= 0.687144719391 \\ \tau &= 35.6834330611 \end{aligned}$$



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

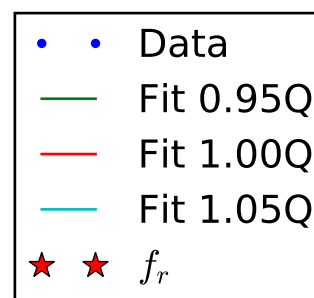
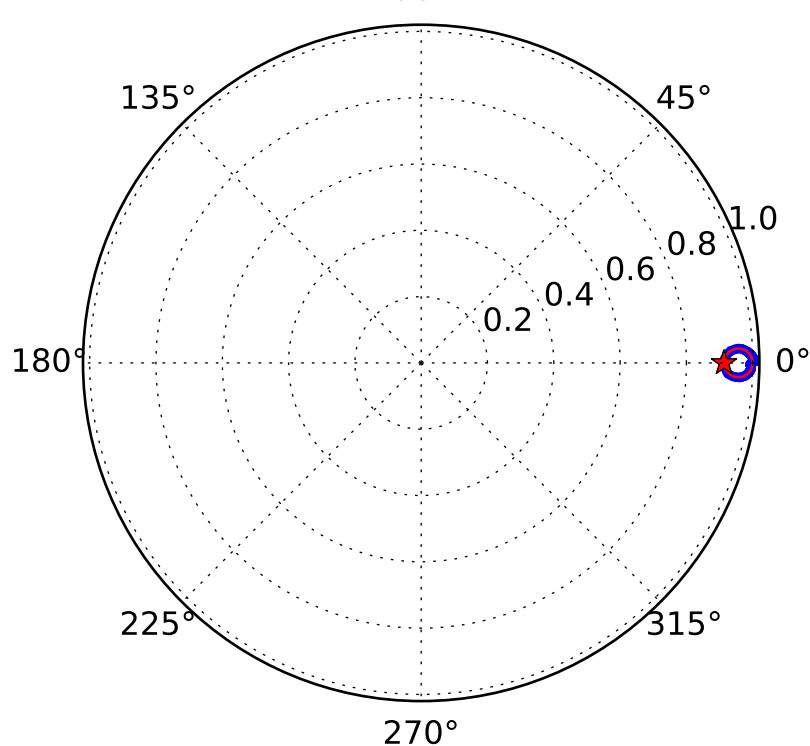
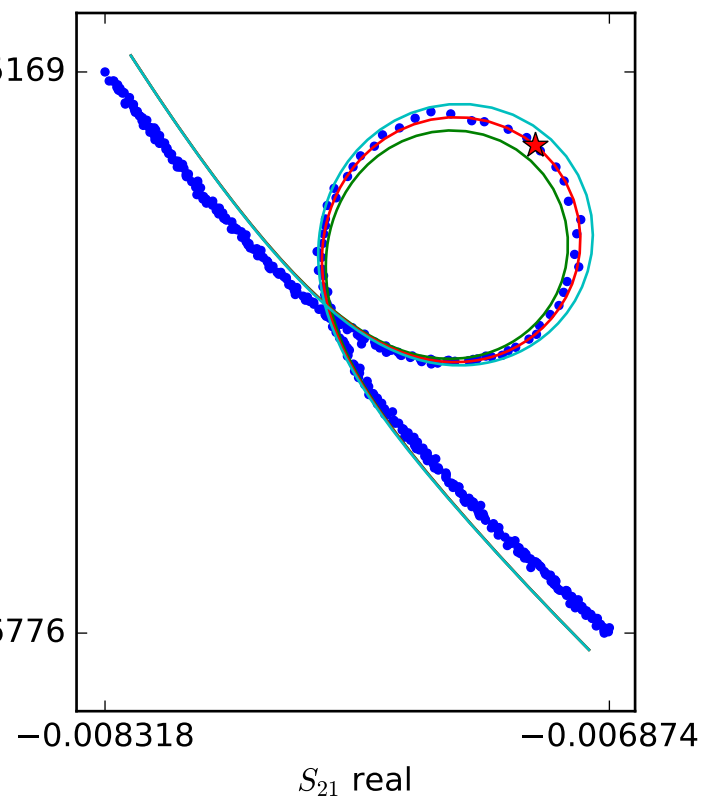
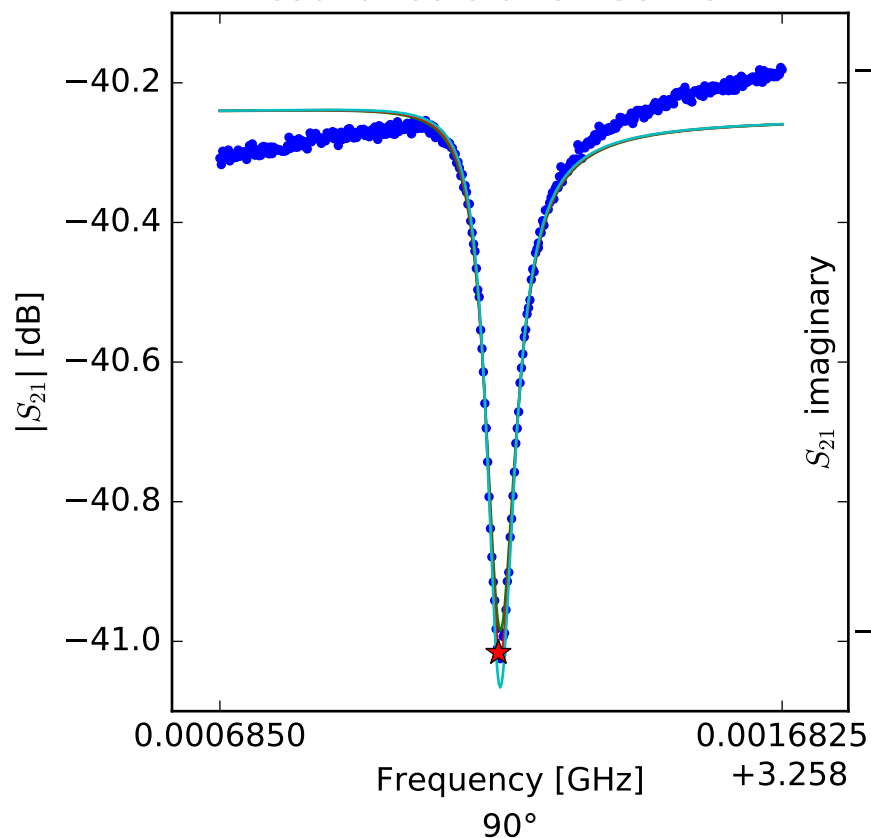
$$\begin{aligned} f_r &= 3.24877125508 \\ Q_r &= 41708.5680196 \\ Q_c &= 697275.622852 \\ a &= (0.00837478775304 + 0.00292657166478j) \\ \phi_0 &= 0.565531668194 \\ \tau &= 35.4215917863 \end{aligned}$$



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

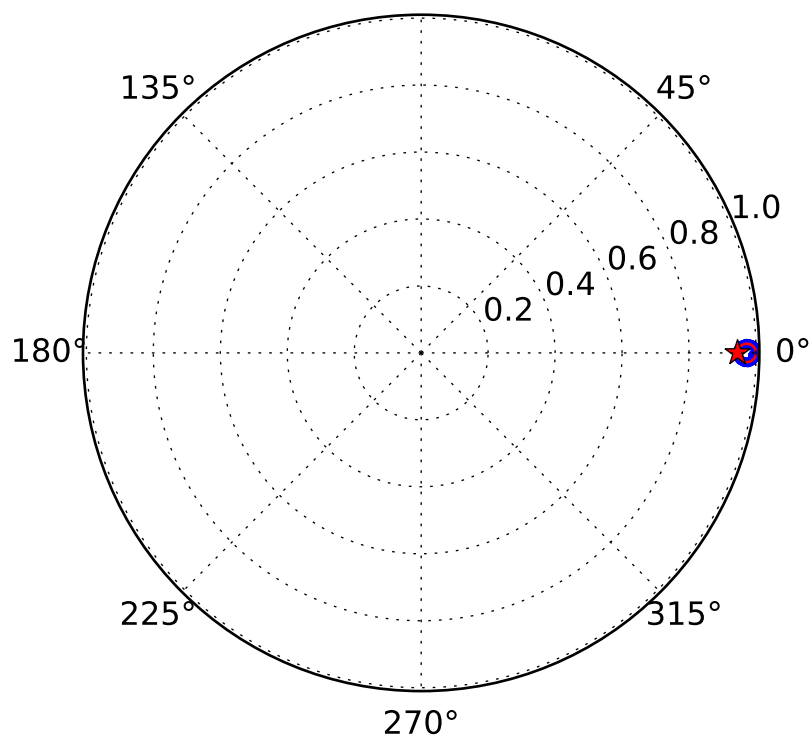
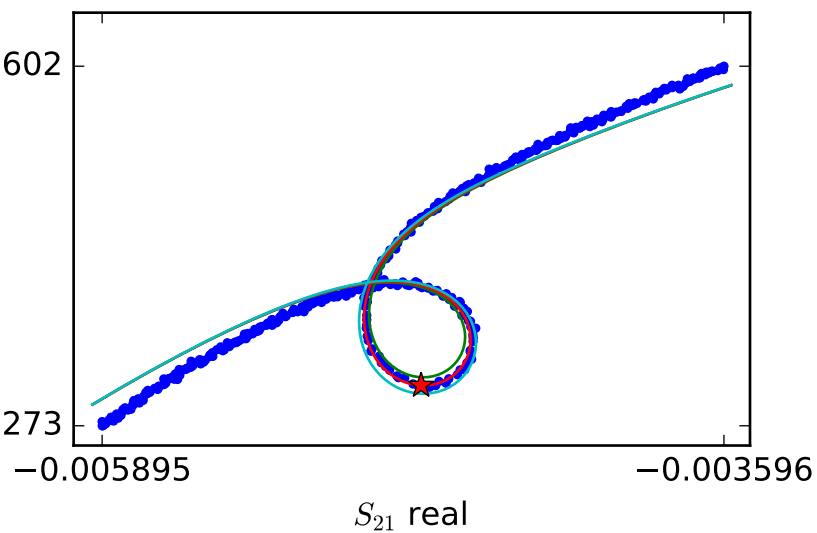
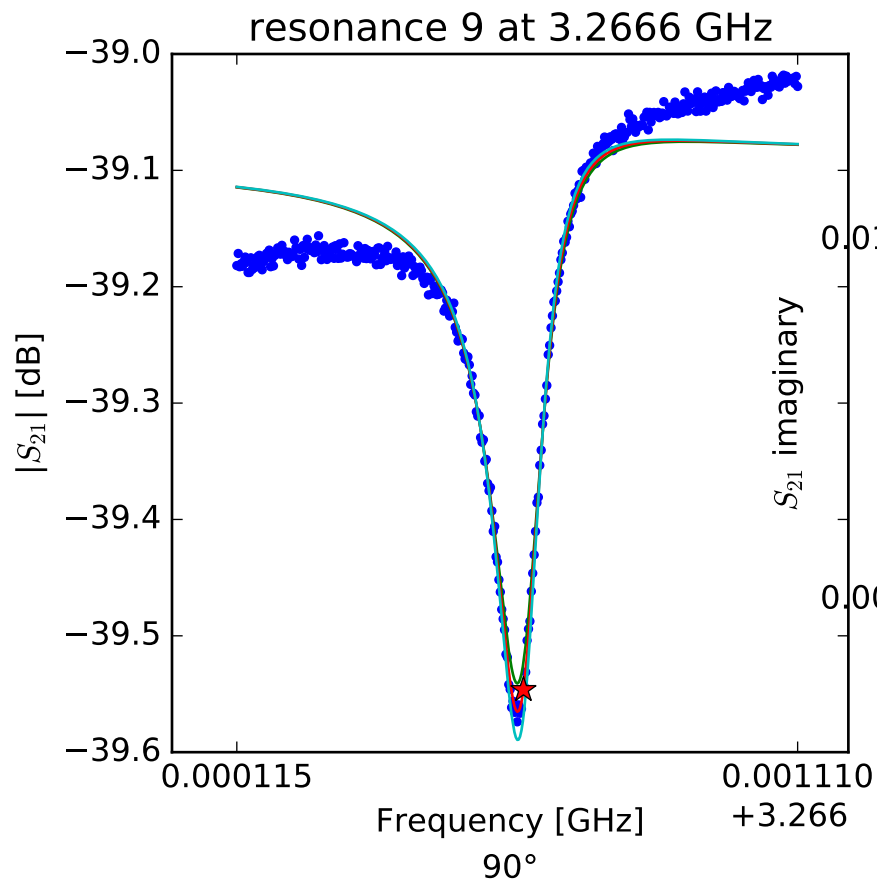
$$\begin{aligned} f_r &= 3.25335437967 \\ Q_r &= 41997.1182697 \\ Q_c &= 705328.552864 \\ a &= (0.0075409895555 - 0.00492883234839j) \\ \phi_0 &= -0.786076947713 \\ \tau &= 35.0690103738 \end{aligned}$$

resonance 8 at 3.2591 GHz



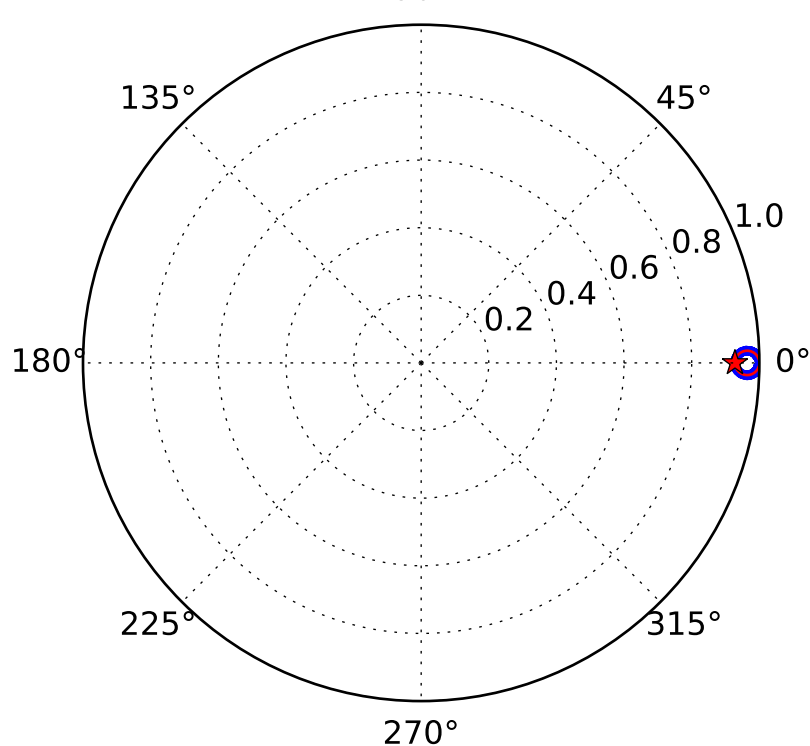
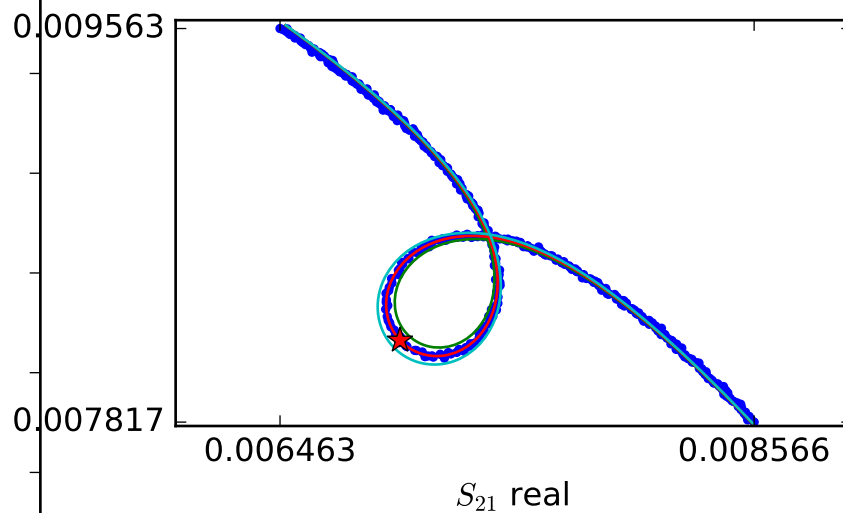
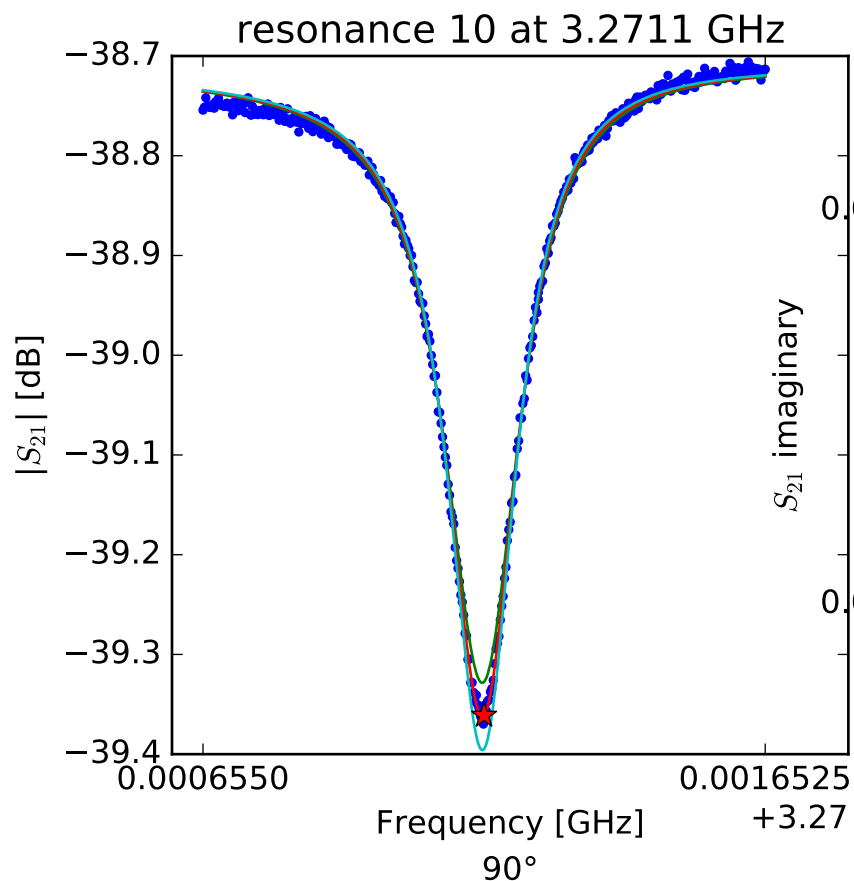
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.25917913142 \\ Q_r &= 49514.5648026 \\ Q_c &= 571701.77647 \\ a &= (-0.00478542449857 - 0.00846031841204j) \\ \phi_0 &= 0.197223583645 \\ \tau &= 37.1448650776 \end{aligned}$$



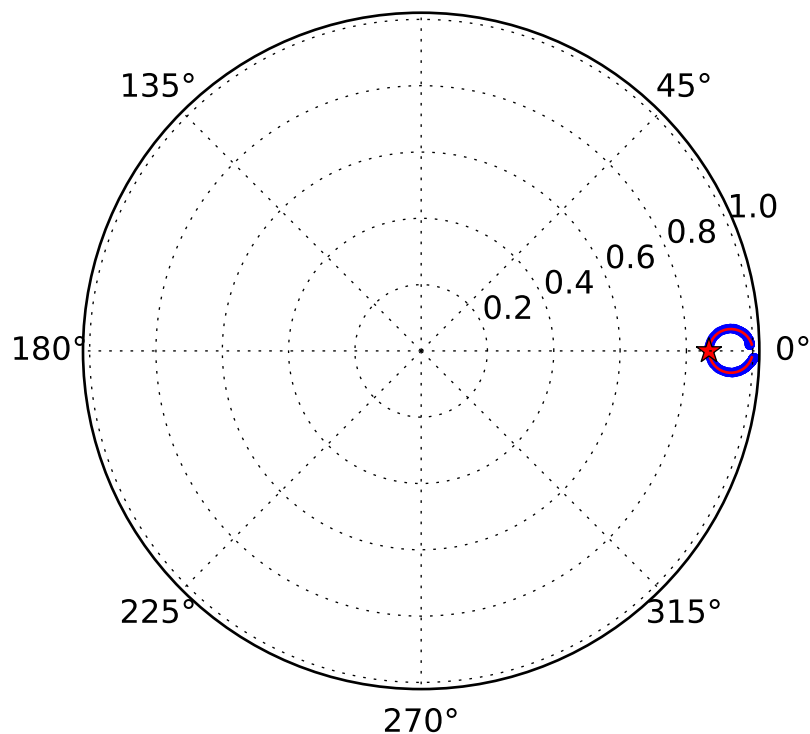
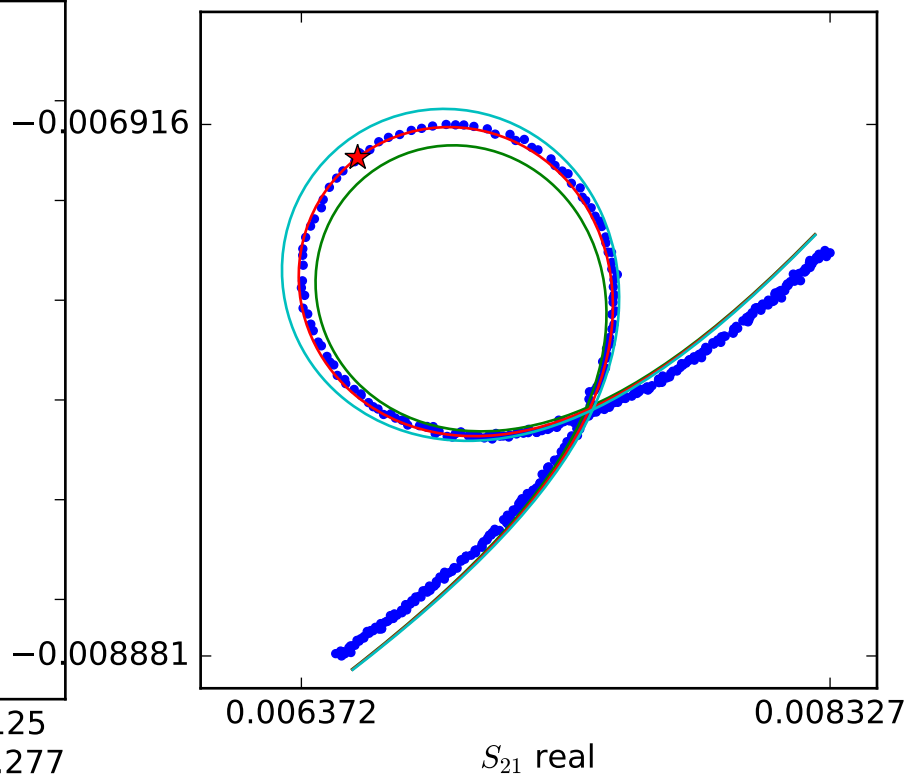
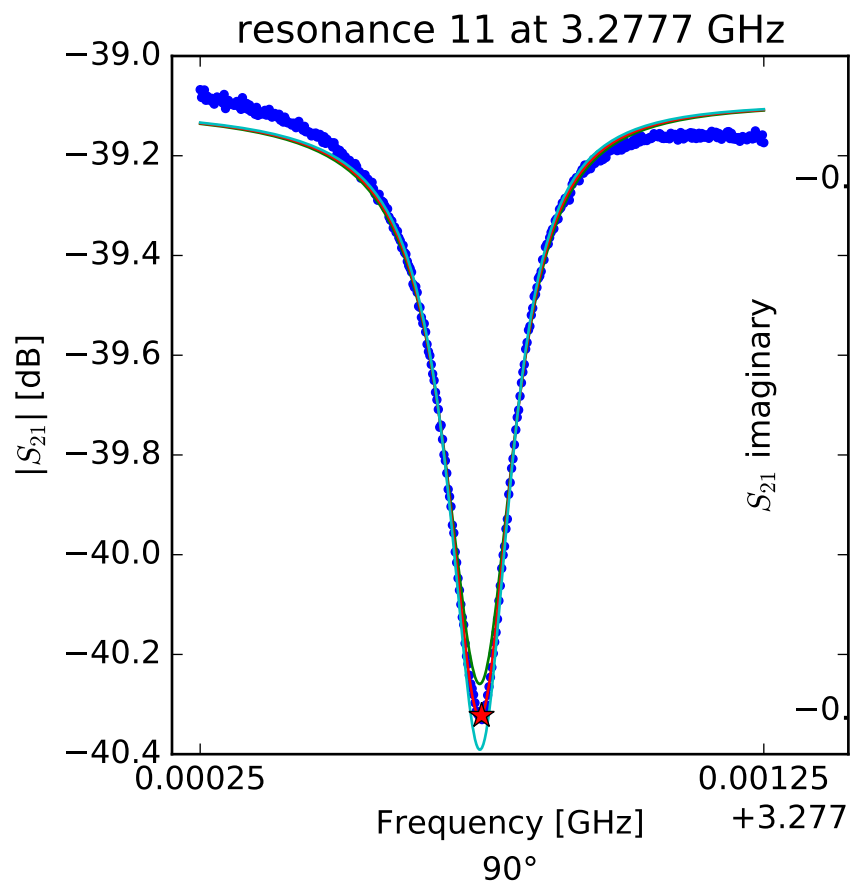
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.2666235173 \\ Q_r &= 30598.3562948 \\ Q_c &= 555892.67957 \\ a &= (-0.0101408387595 - 0.00452019560367j) \\ \phi_0 &= -0.374216372354 \\ \tau &= 39.8718289362 \end{aligned}$$



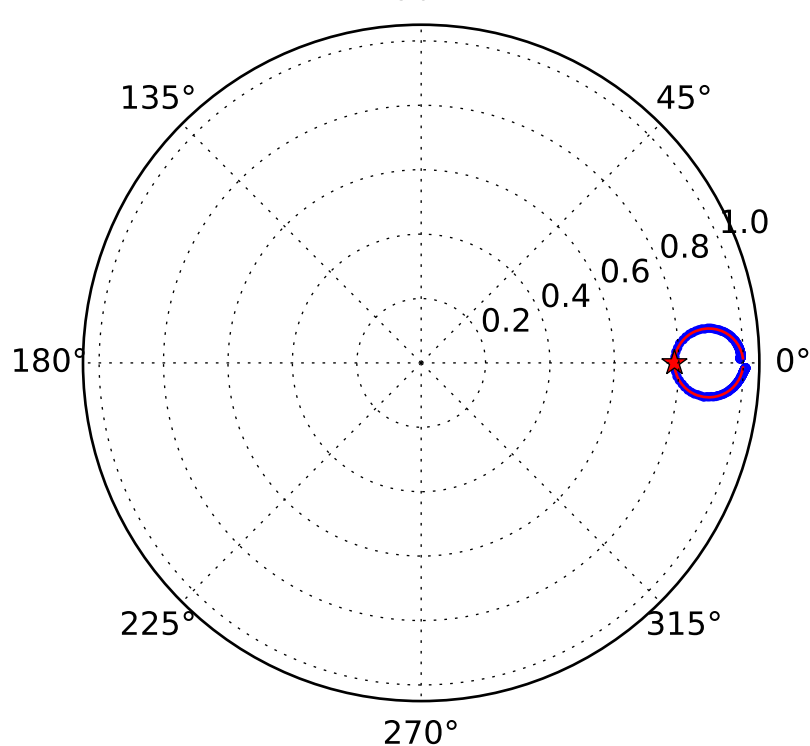
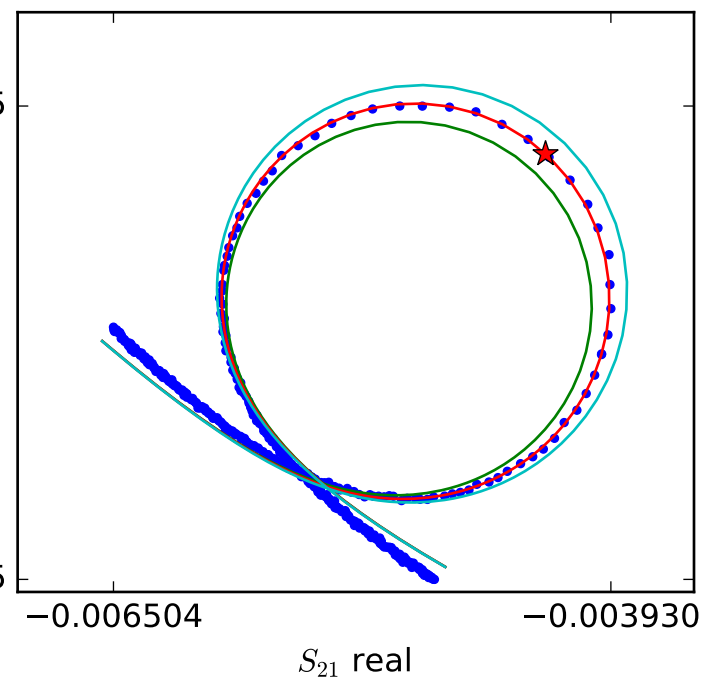
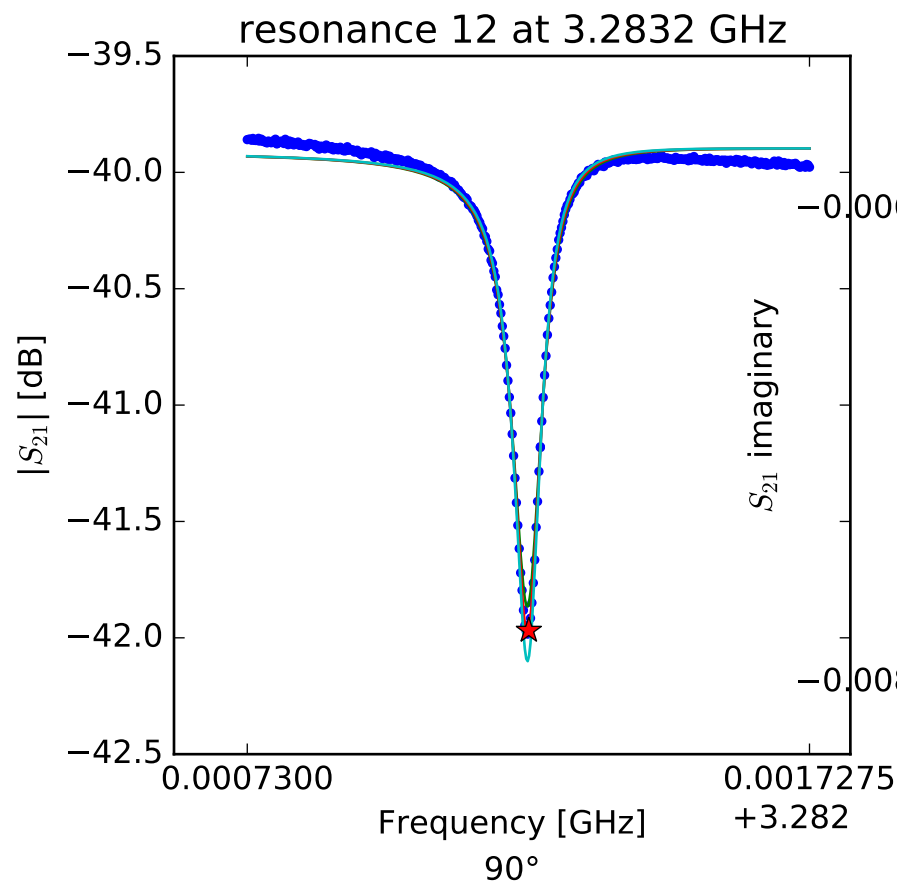
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.27115369709 \\ Q_r &= 20365.500102 \\ Q_c &= 282047.013872 \\ a &= (0.0107174234263 - 0.0044331721841j) \\ \phi_0 &= -0.075423712385 \\ \tau &= 41.2090417284 \end{aligned}$$



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

$$\begin{aligned} f_r &= 3.27774925144 \\ Q_r &= 21685.0540156 \\ Q_c &= 164240.94213 \\ a &= (0.00967084301068 + 0.00543845311856j) \\ \phi_0 &= -0.0782050573612 \\ \tau &= 40.0316697858 \end{aligned}$$



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

$$f_r = 3.28322945953$$

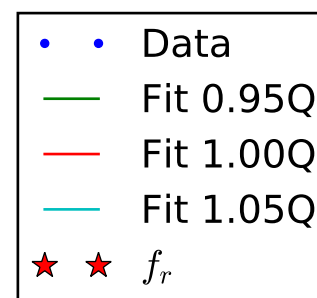
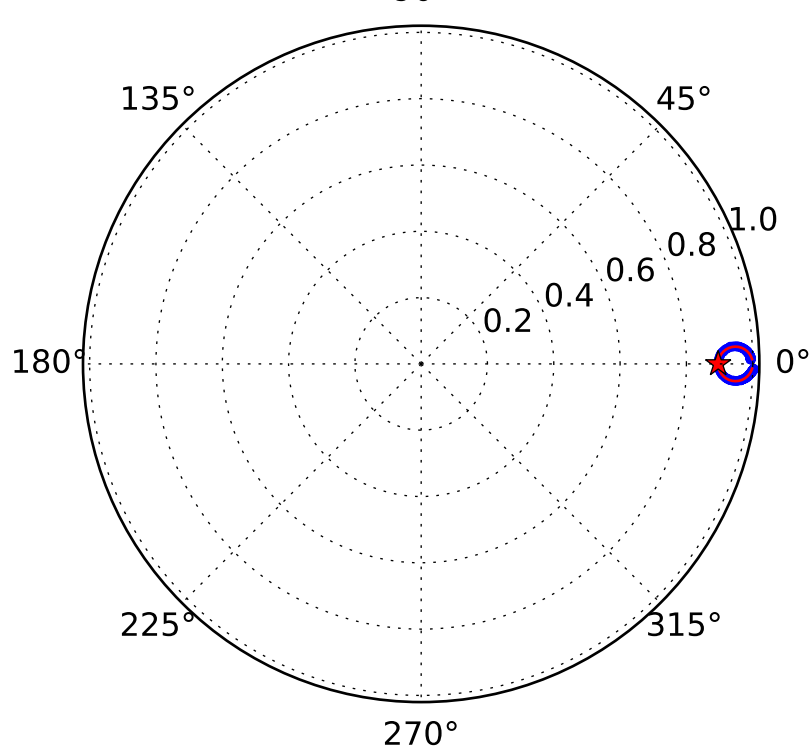
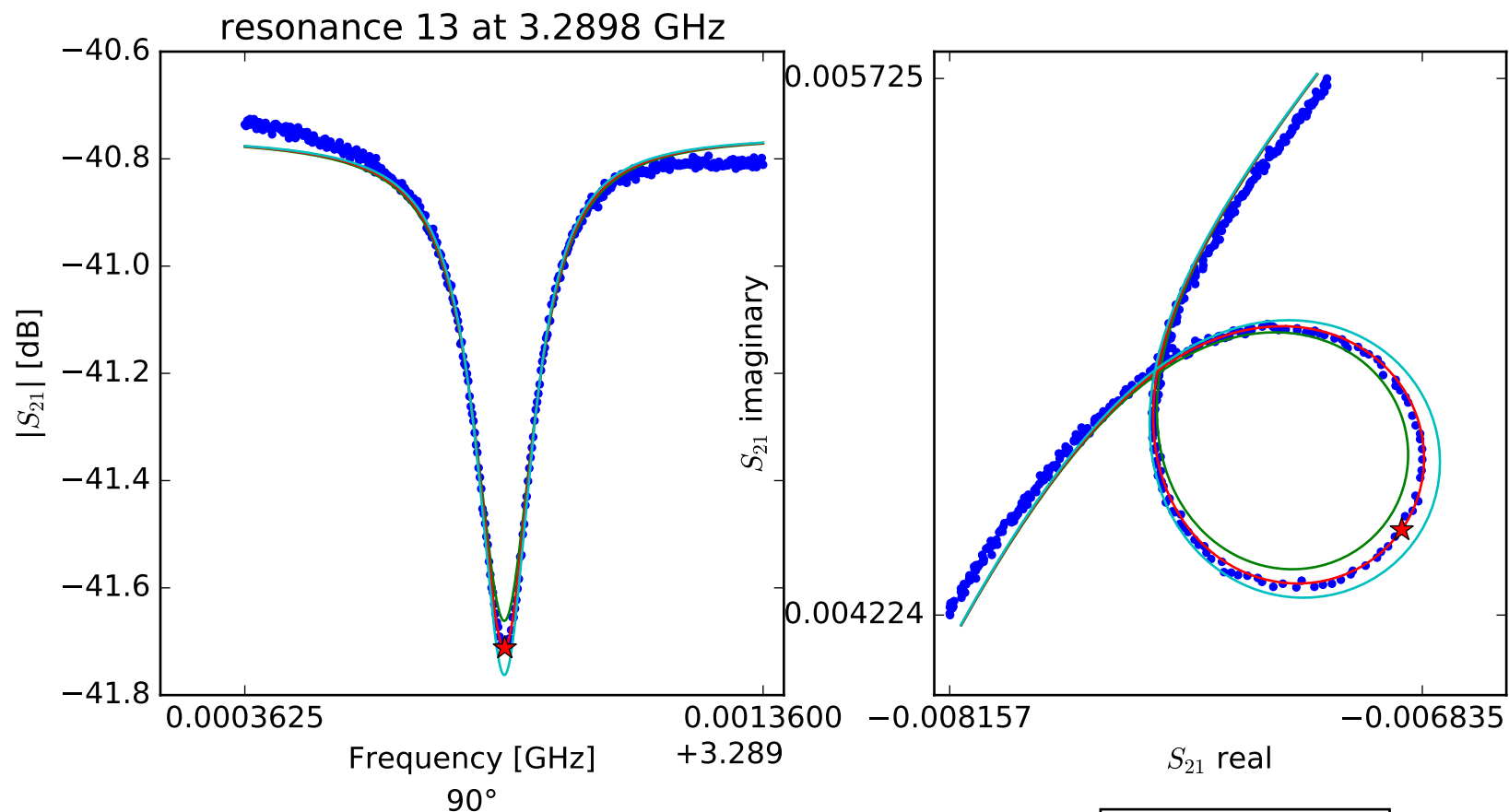
$$Q_r = 47898.363664$$

$$Q_c = 224181.747661$$

$$a = (-0.000522536547784 + 0.0100945613038j)$$

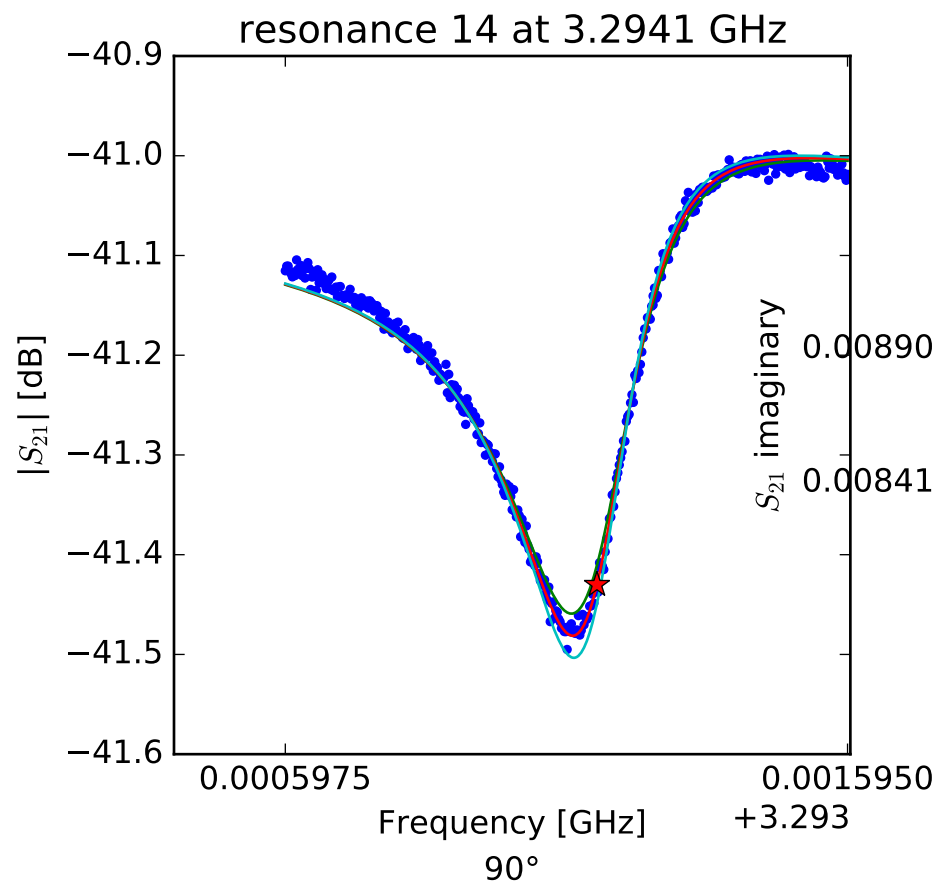
$$\phi_0 = -0.131775524261$$

$$\tau = 38.256179461$$

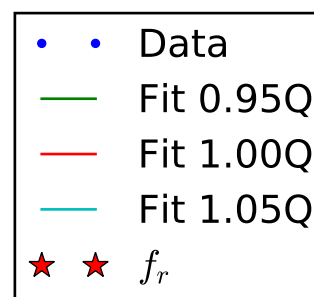
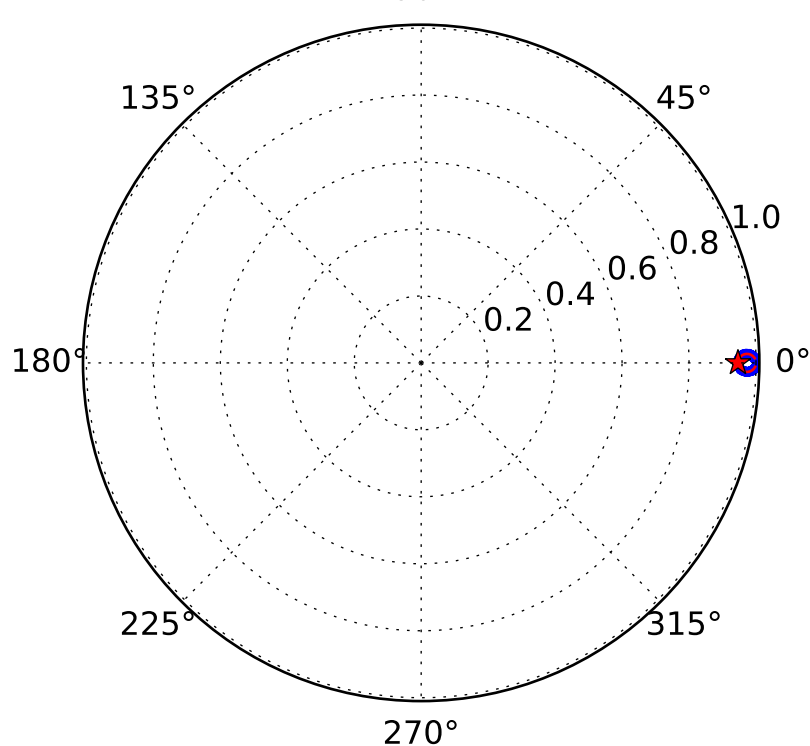
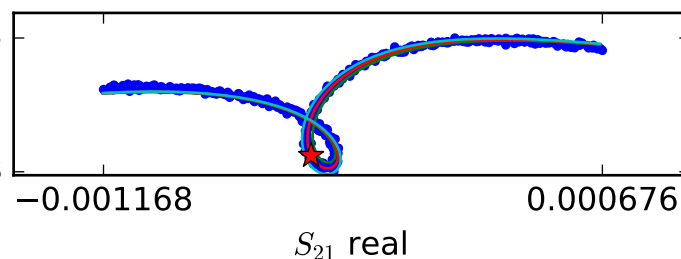


$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.28986291153 \\ Q_r &= 23420.6577868 \\ Q_c &= 224869.191635 \\ a &= (0.0091537992798 - 0.000461611025452j) \\ \phi_0 &= -0.0259588093557 \\ \tau &= 36.6531716679 \end{aligned}$$



S_{21} imaginary



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

$$f_r = 3.29415039361$$

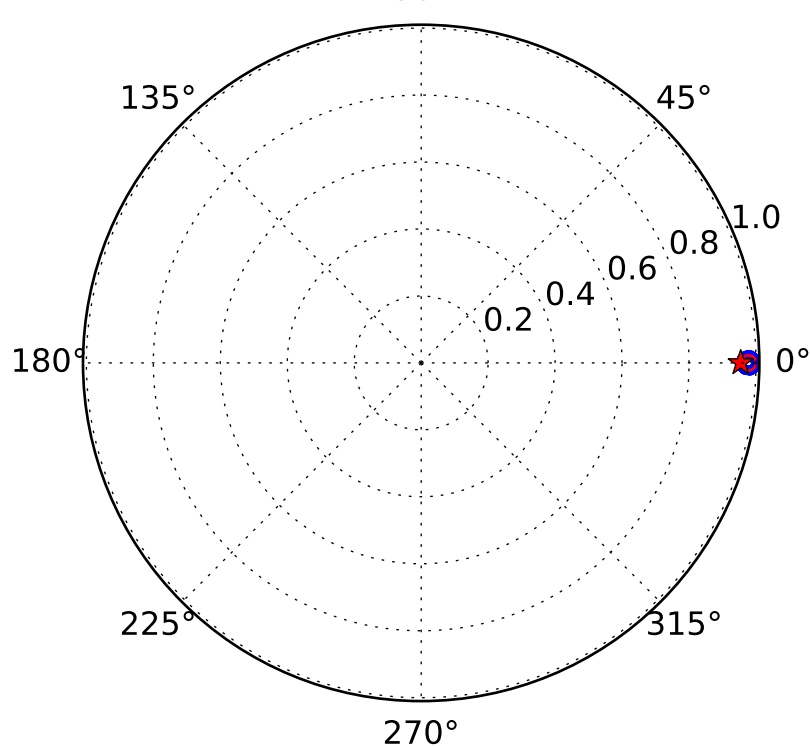
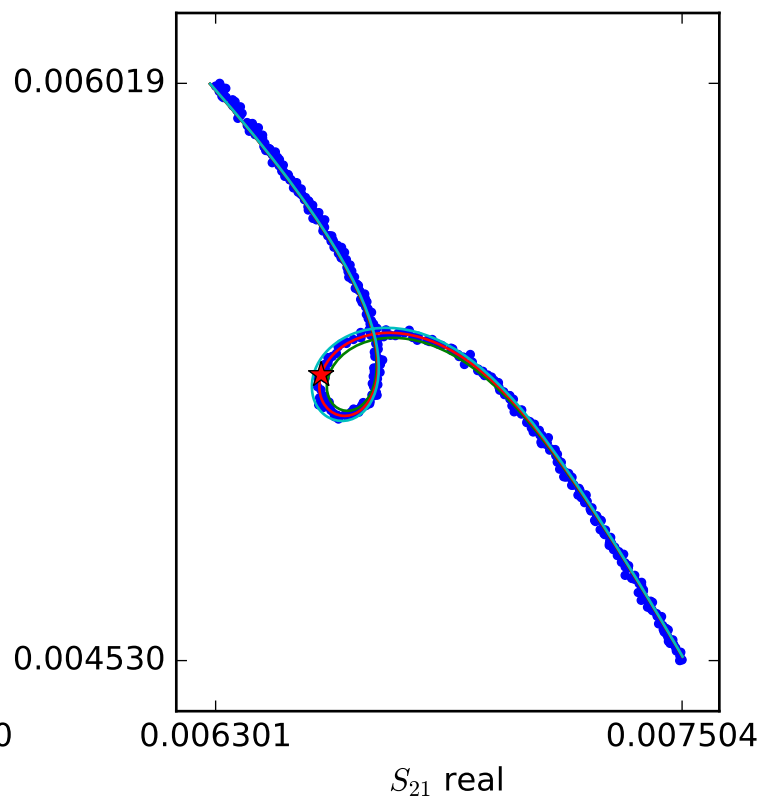
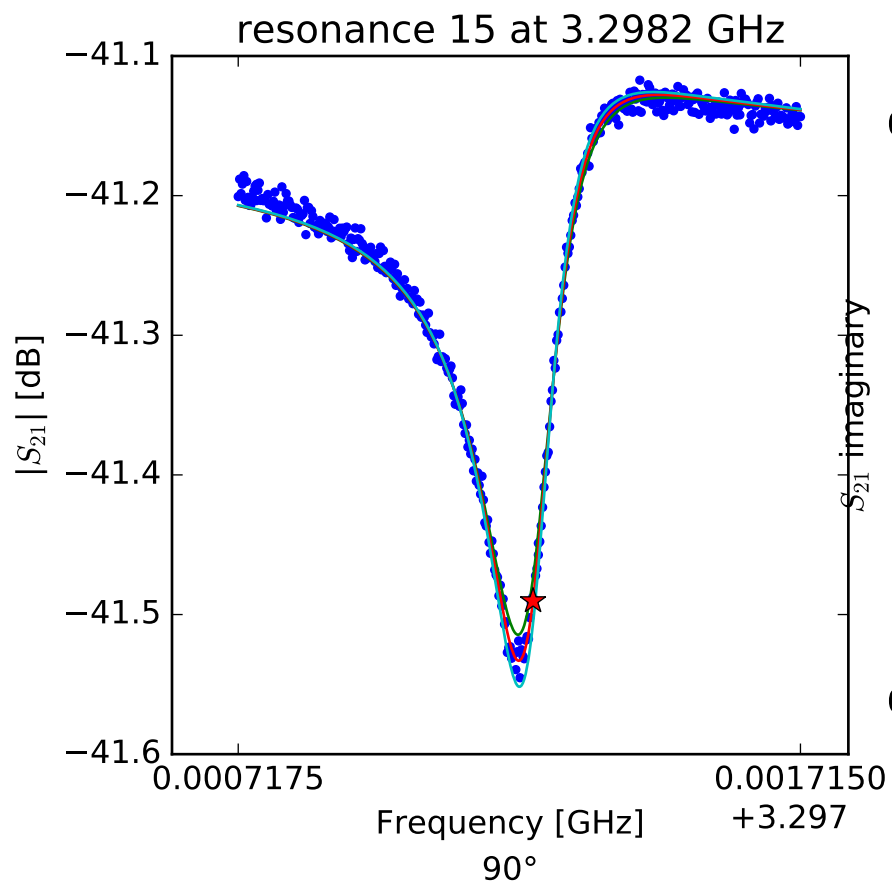
$$Q_r = 12900.3541272$$

$$Q_c = 239176.099614$$

$$a = (-0.00701325198742 + 0.00541856679563j)$$

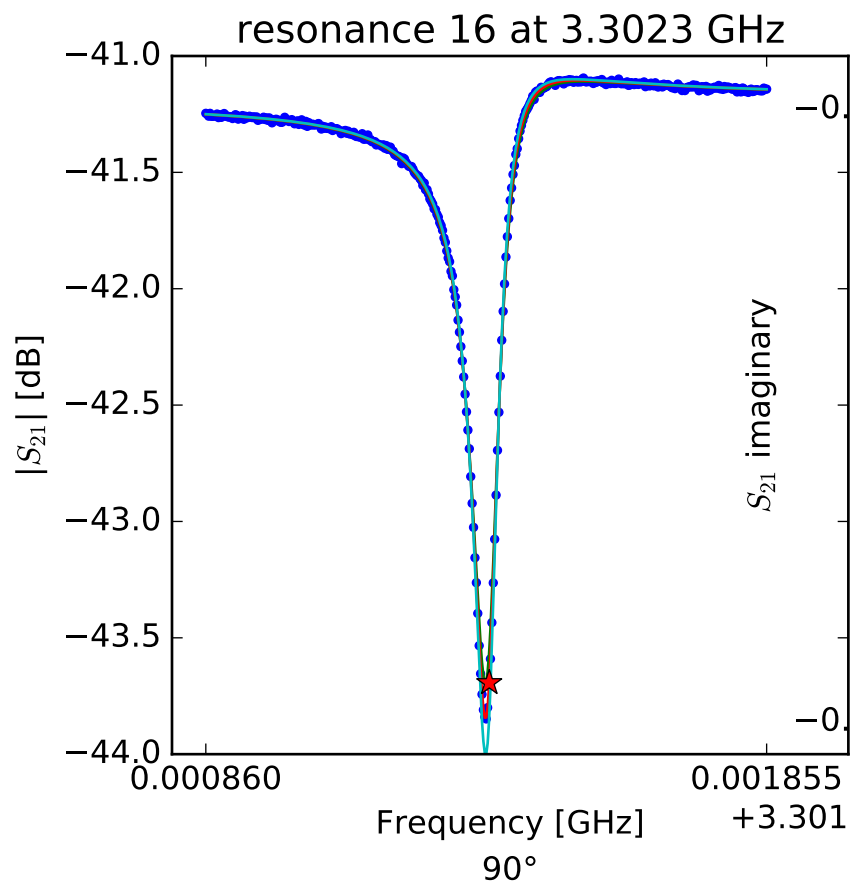
$$\phi_0 = -0.633263700758$$

$$\tau = 36.7752184602$$

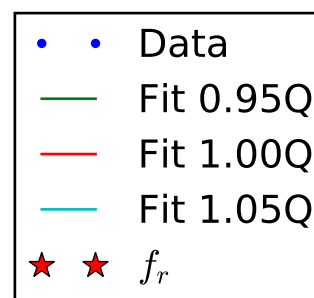
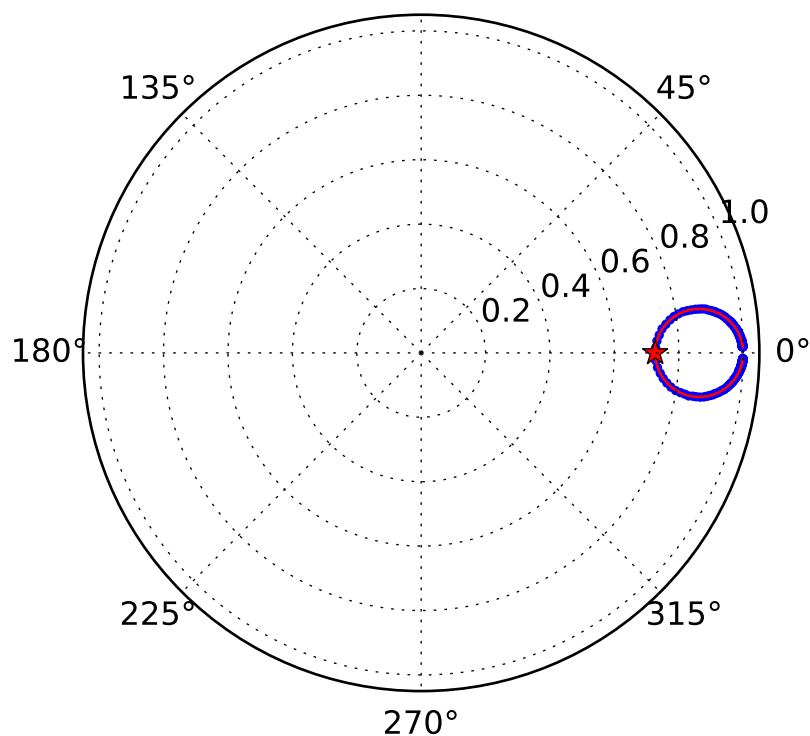
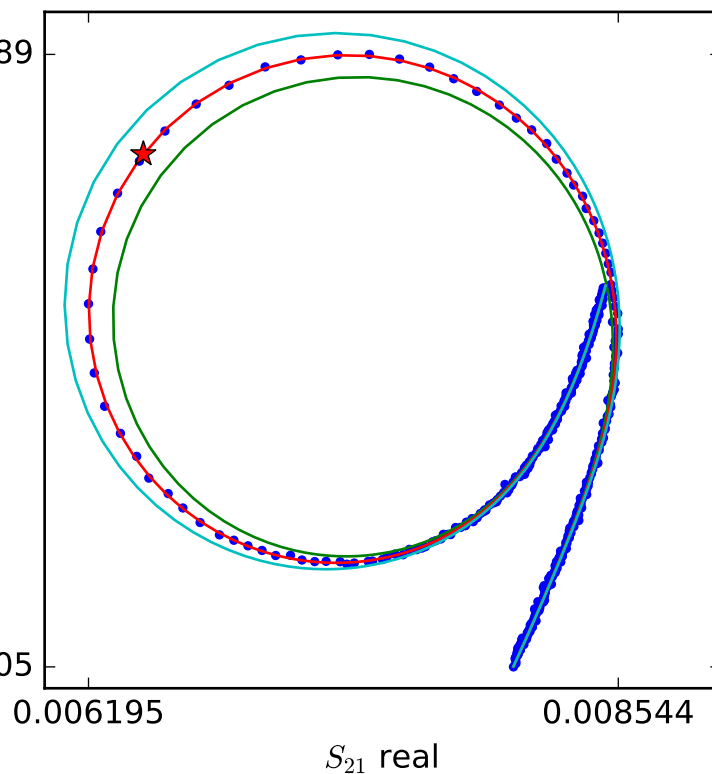


$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.29824054998 \\ Q_r &= 21878.8237868 \\ Q_c &= 477678.144764 \\ a &= (-0.00563951325931 + 0.0066804461924j) \\ \phi_0 &= -0.634404253259 \\ \tau &= 36.7646188946 \end{aligned}$$

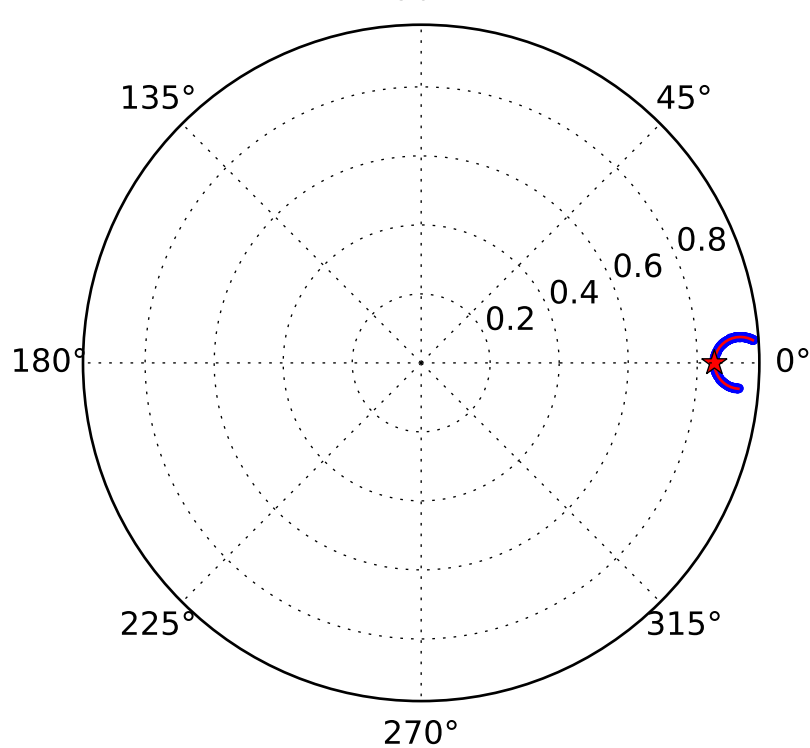
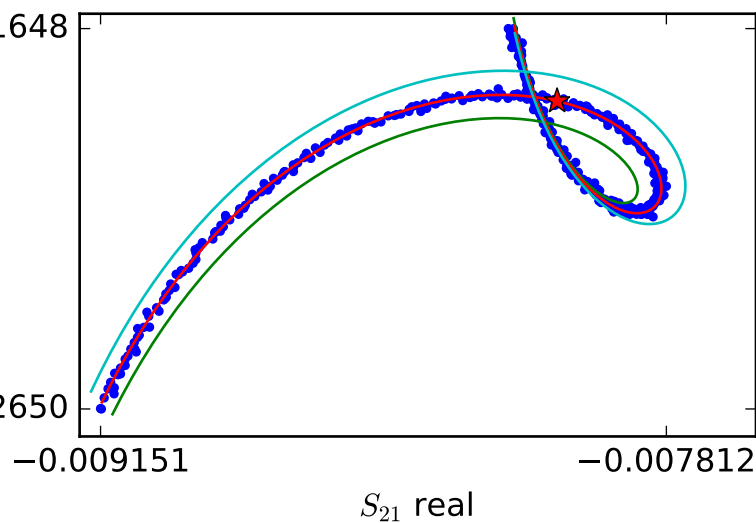
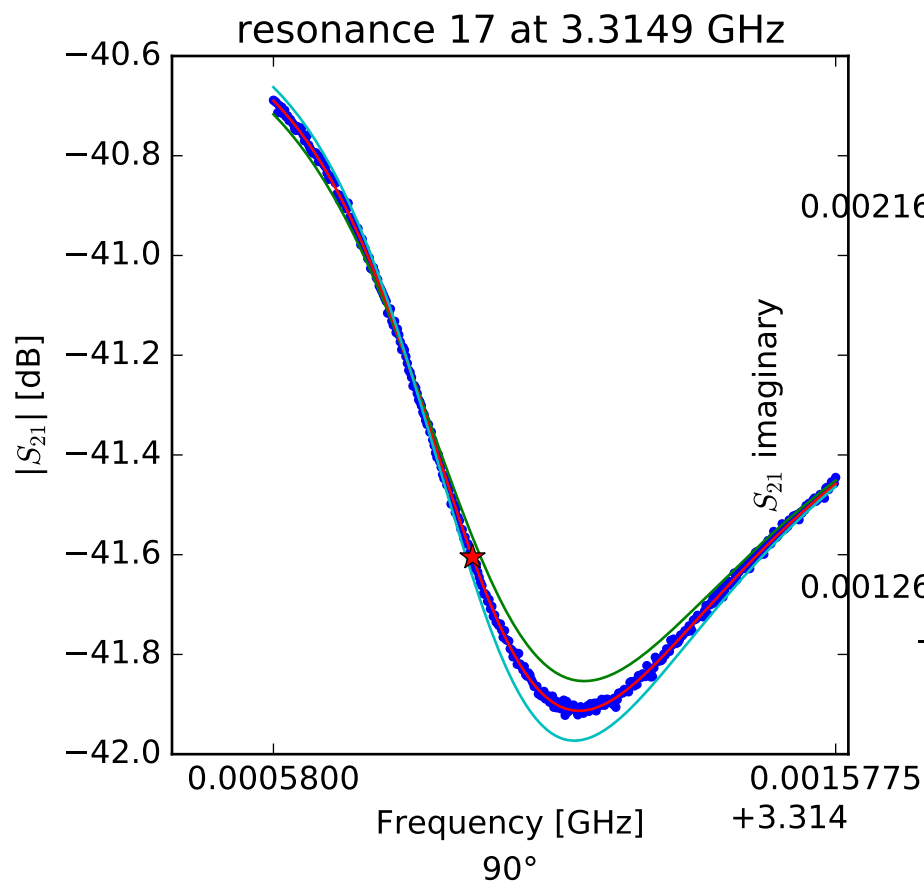


S_{21} imaginary



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

$$\begin{aligned} f_r &= 3.30236294743 \\ Q_r &= 50817.2363929 \\ Q_c &= 185813.579929 \\ a &= (0.00856239977439 - 0.00165354180995j) \\ \phi_0 &= -0.354219932195 \\ \tau &= 37.2513559276 \end{aligned}$$



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

$$f_r = 3.31493316819$$

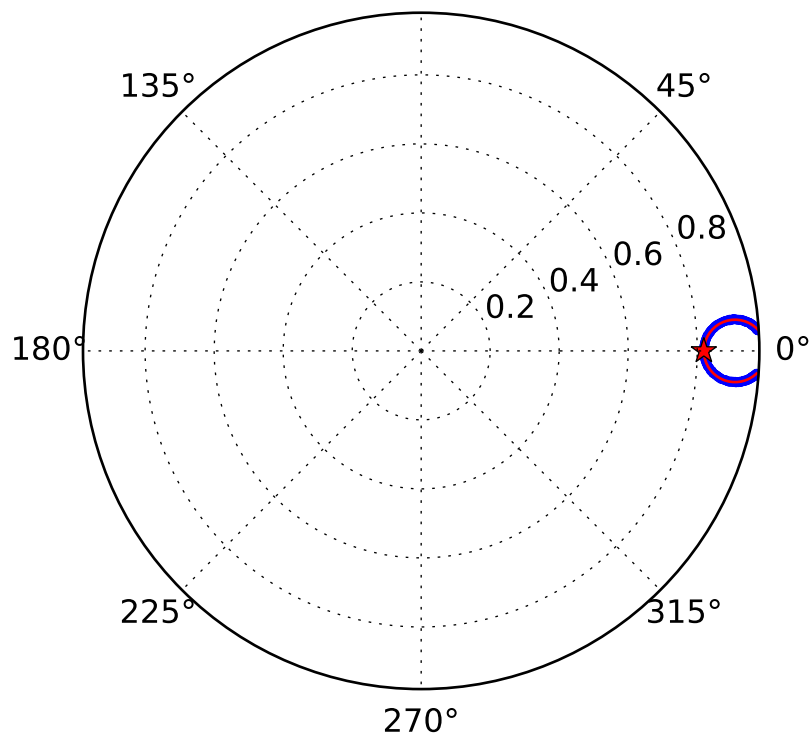
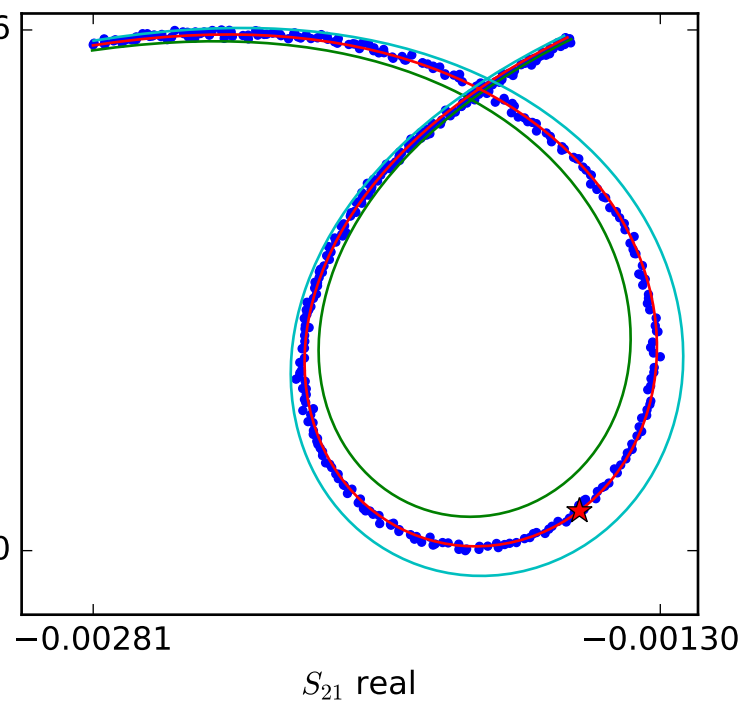
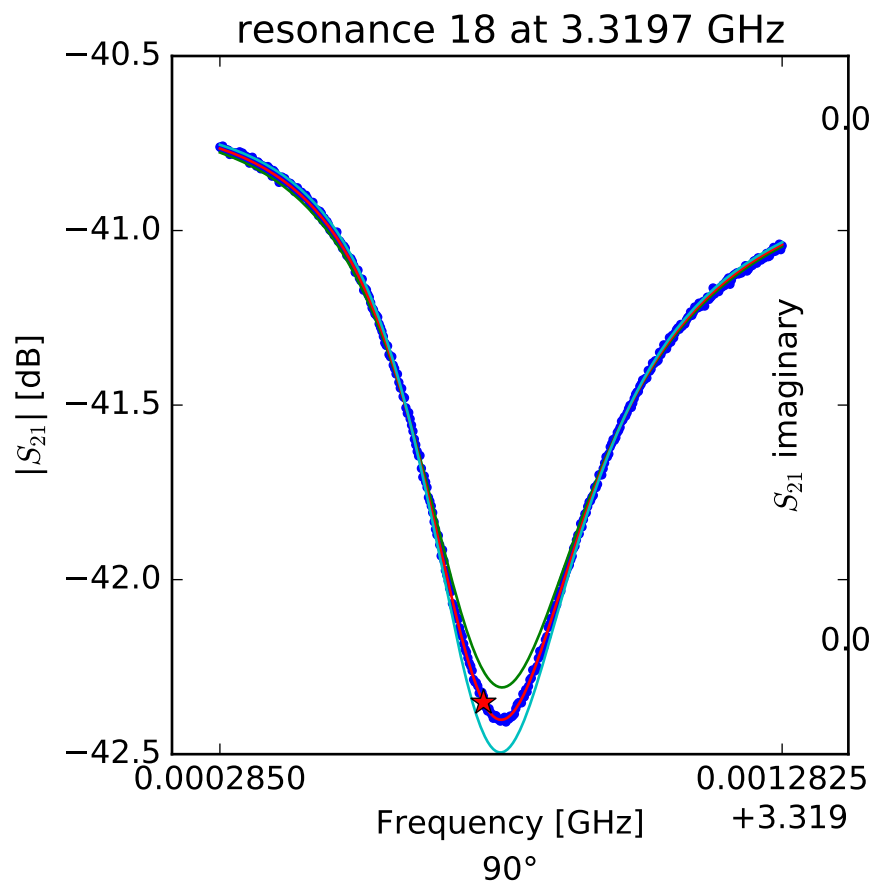
$$Q_r = 4351.91276717$$

$$Q_c = 28935.2088242$$

$$a = (-0.00315076491151 - 0.00858292410814j)$$

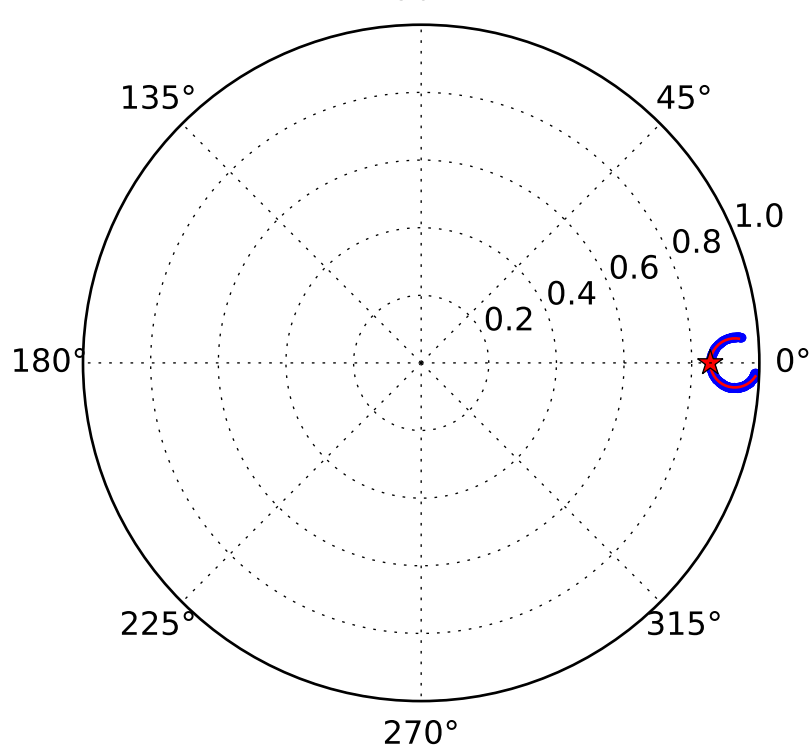
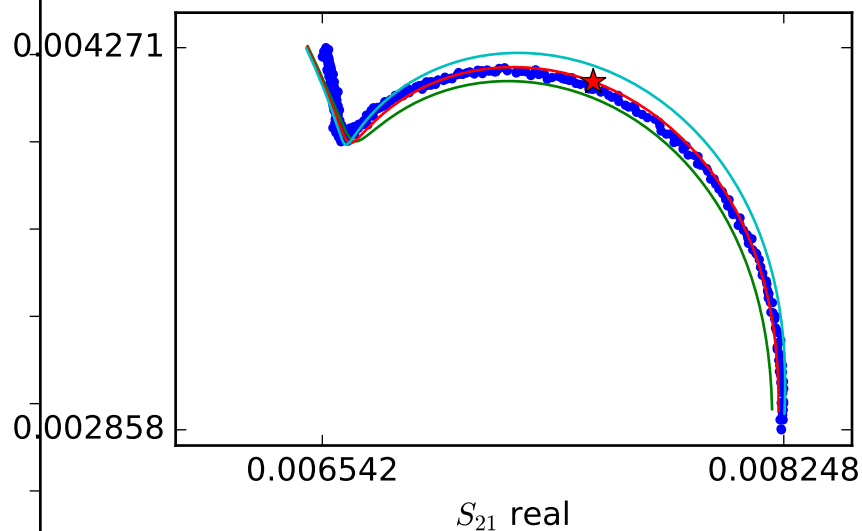
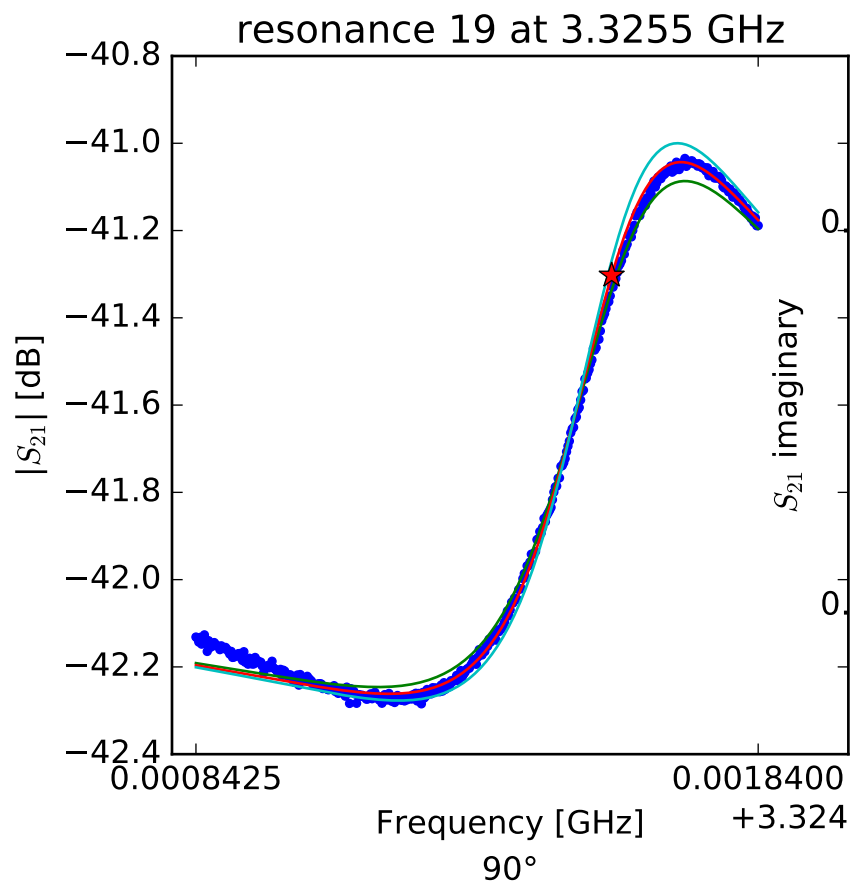
$$\phi_0 = 0.861443330773$$

$$\tau = 38.9789203806$$



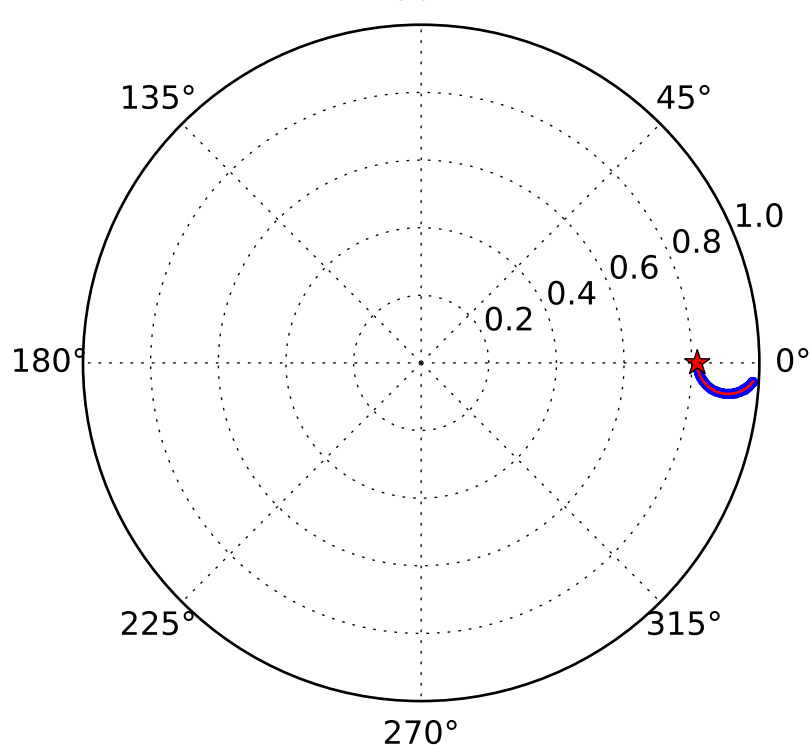
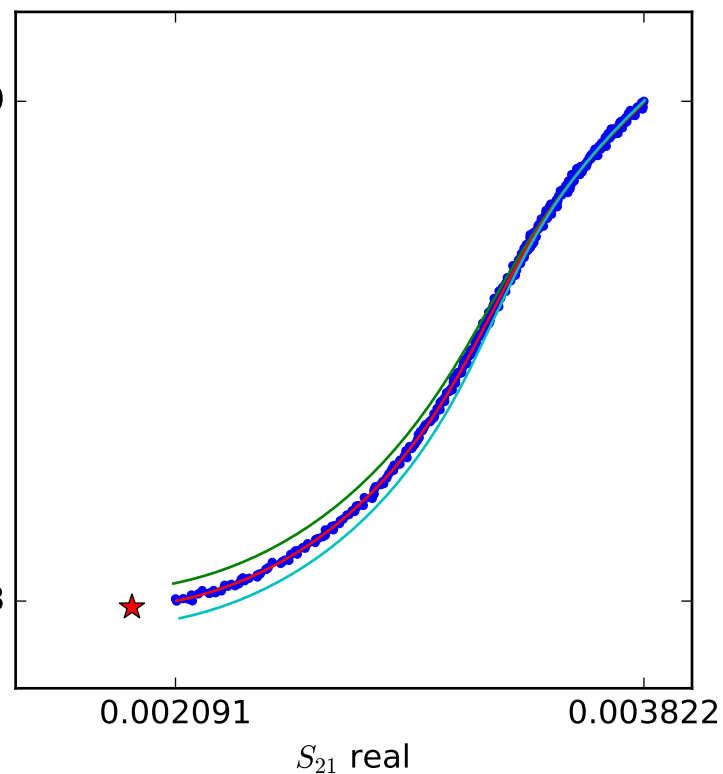
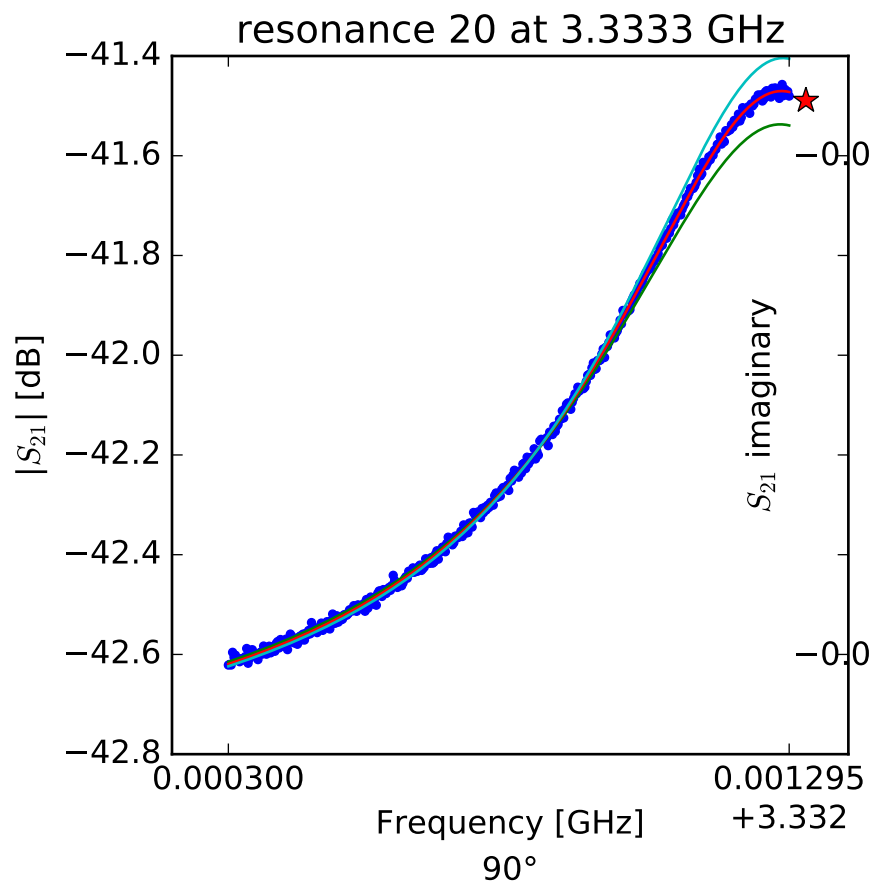
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.31975268106 \\ Q_r &= 8242.39127015 \\ Q_c &= 45556.4836423 \\ a &= (0.0027719282622 - 0.0087889216845j) \\ \phi_0 &= 0.281794717216 \\ \tau &= 41.7221174508 \end{aligned}$$



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

$$\begin{aligned} f_r &= 3.32558002191 \\ Q_r &= 7541.54676947 \\ Q_c &= 51960.97787 \\ a &= (-0.0023135217793 + 0.00765609450605j) \\ \phi_0 &= -2.06267759467 \\ \tau &= 36.4555078386 \end{aligned}$$



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

$$f_r = 3.33332467161$$

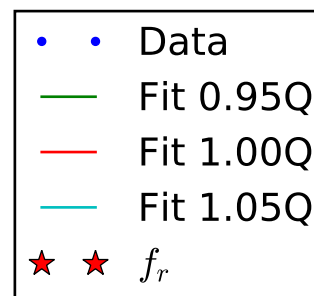
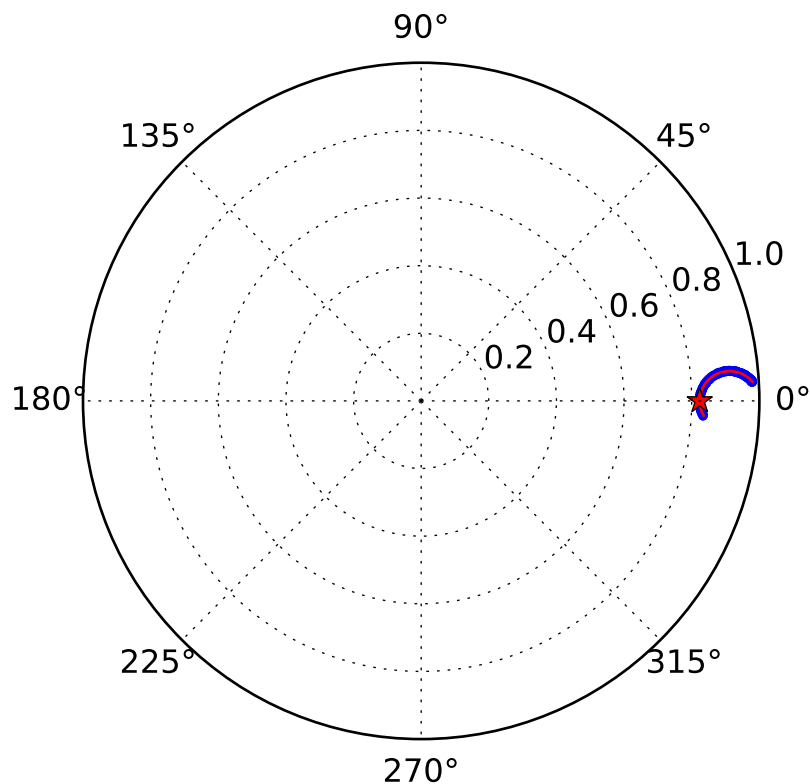
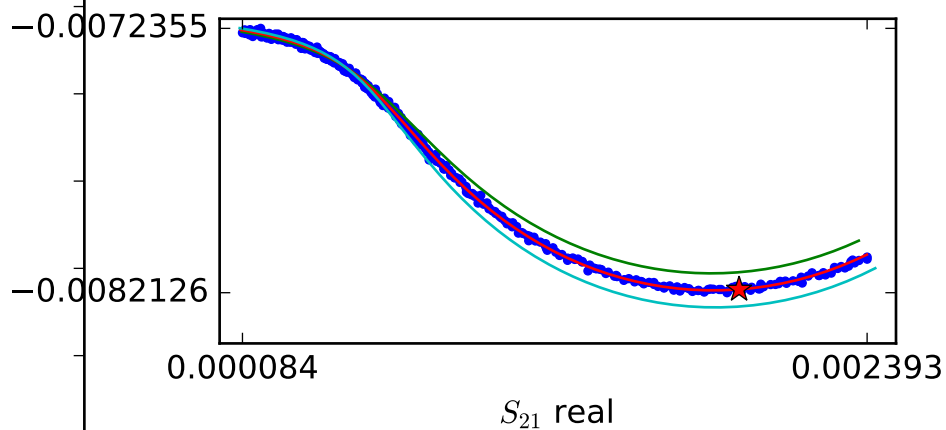
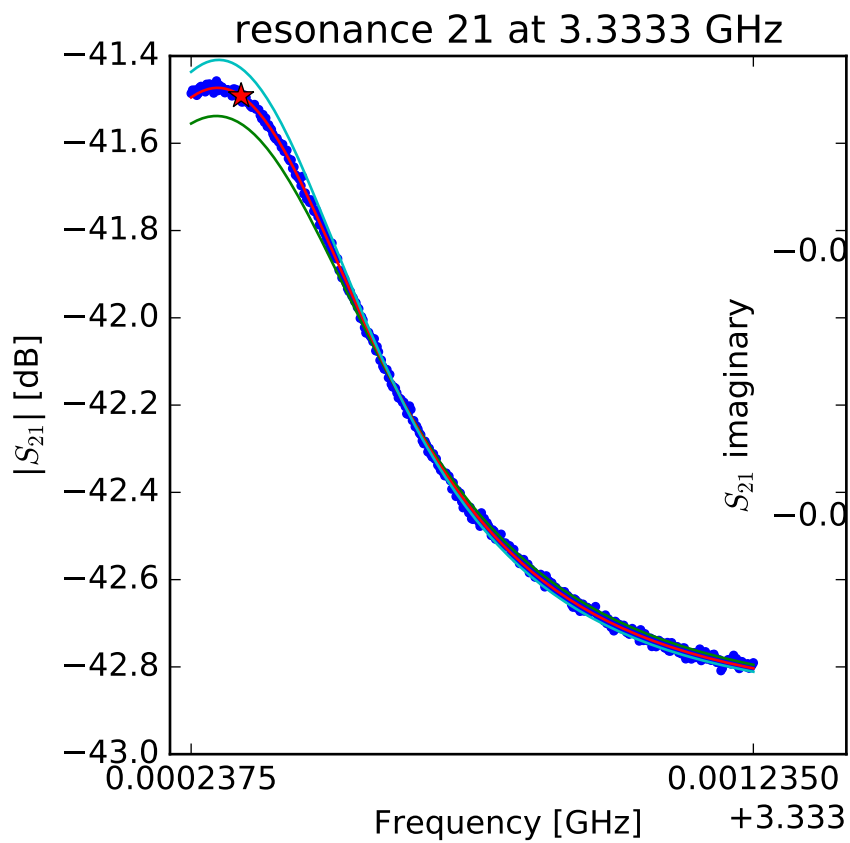
$$Q_r = 4805.31568982$$

$$Q_c = 26183.9020151$$

$$a = (-0.00662156402182 + 0.00270296747062j)$$

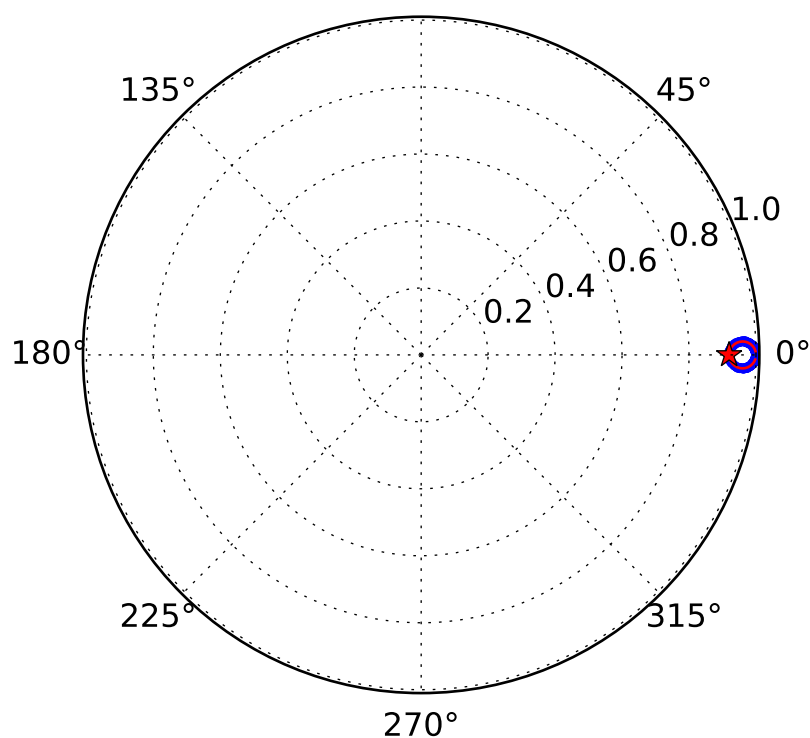
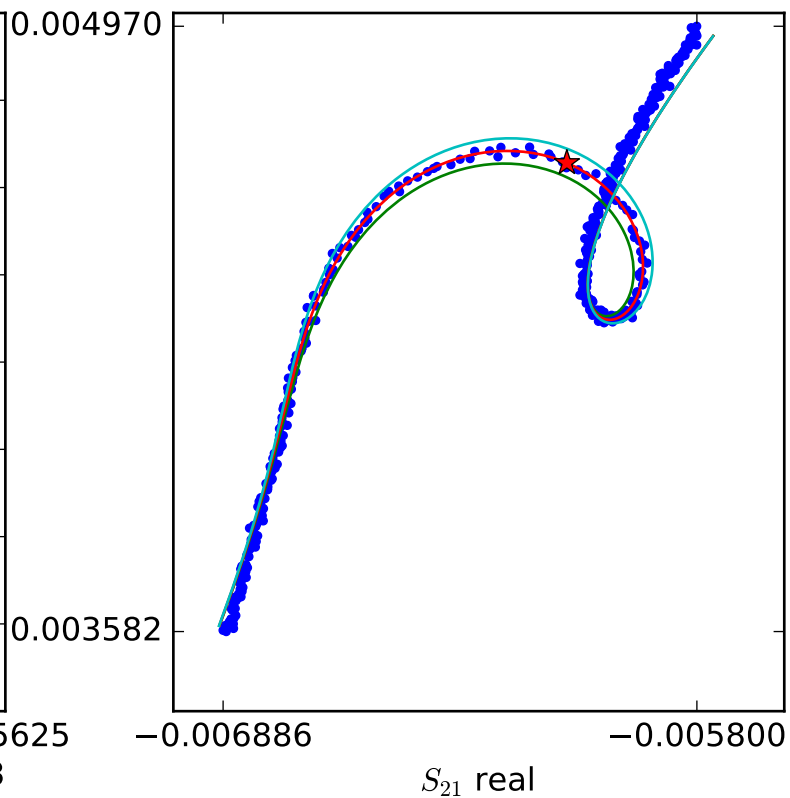
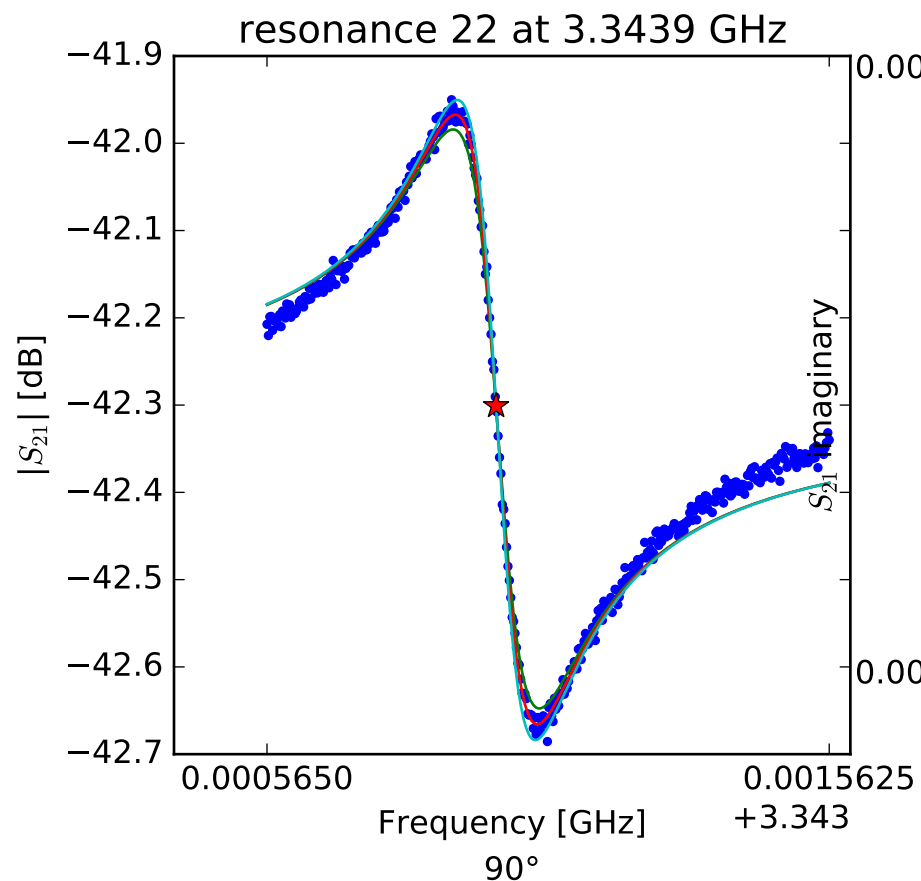
$$\phi_0 = 2.87175865906$$

$$\tau = 34.6935656246$$



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

$$\begin{aligned} f_r &= 3.33332620805 \\ Q_r &= 4989.93458264 \\ Q_c &= 28286.053942 \\ a &= (0.005779628774 + 0.00428118958649j) \\ \phi_0 &= -3.41179448144 \\ \tau &= 34.8926128835 \end{aligned}$$



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

$$f_r = 3.34397146735$$

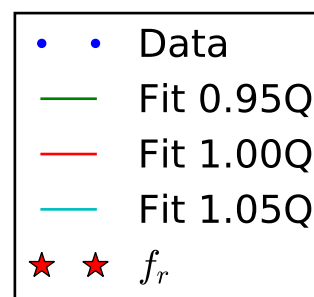
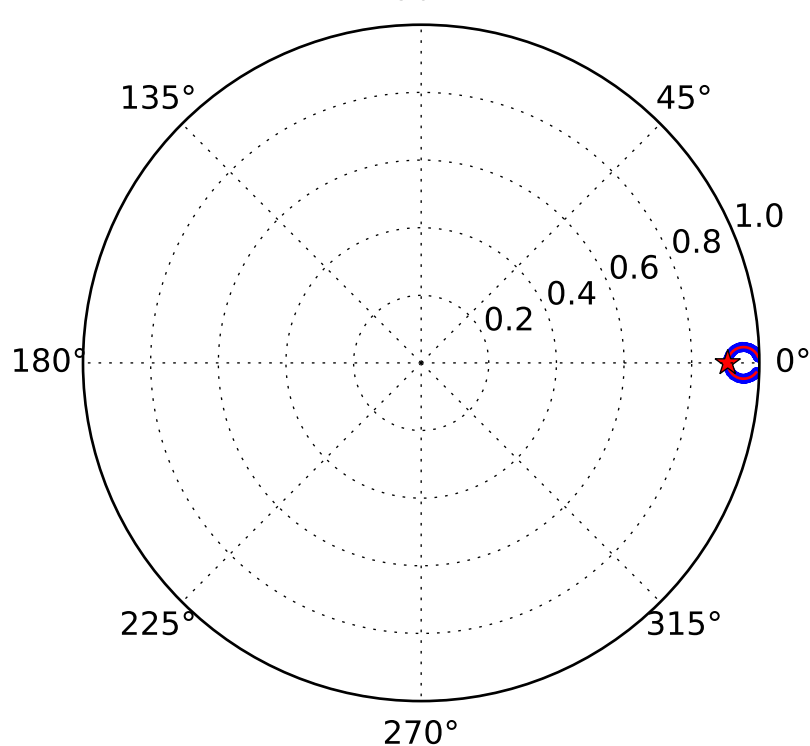
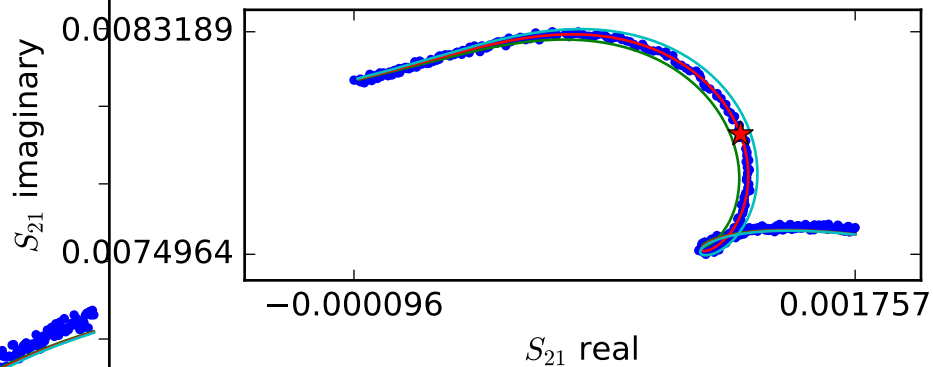
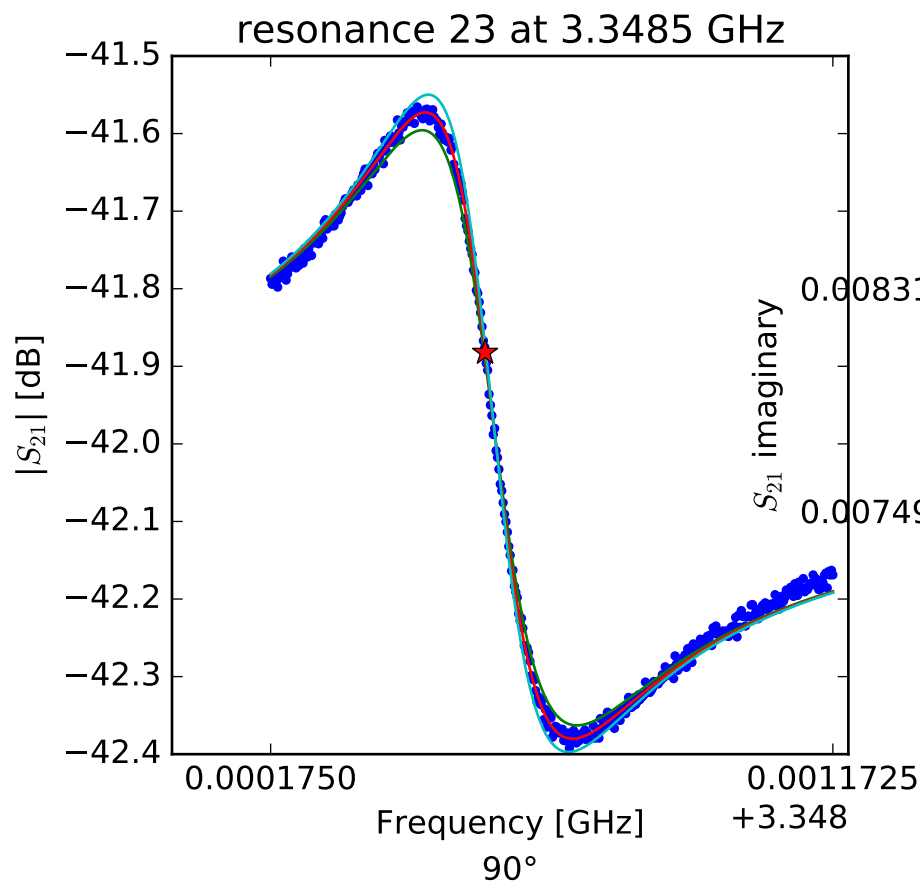
$$Q_r = 22991.079552$$

$$Q_c = 286253.34781$$

$$a = (-0.00766436097742 + 0.00029660608818j)$$

$$\phi_0 = 1.53500174731$$

$$\tau = 36.8079848583$$



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

$$f_r = 3.34855547141$$

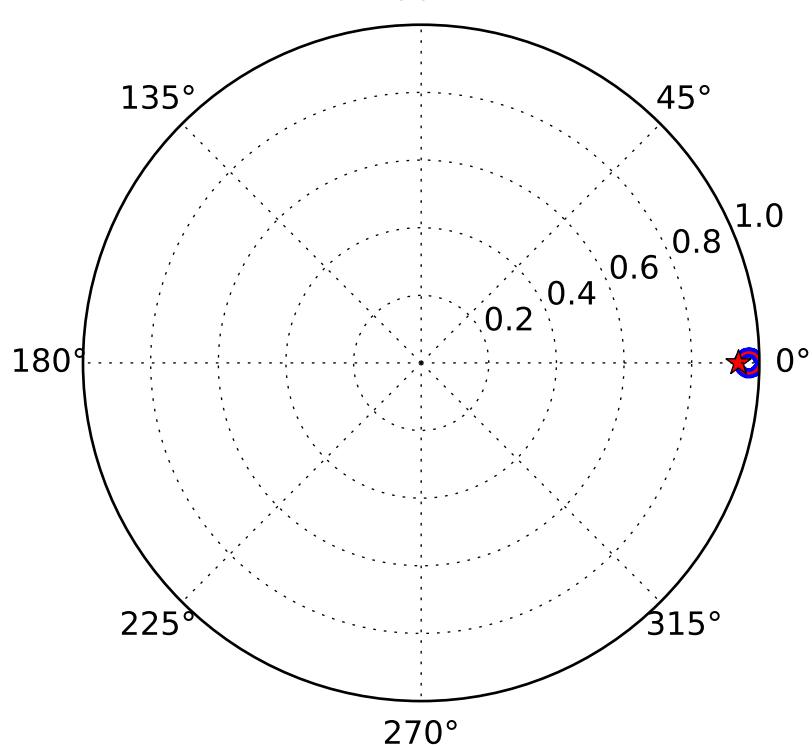
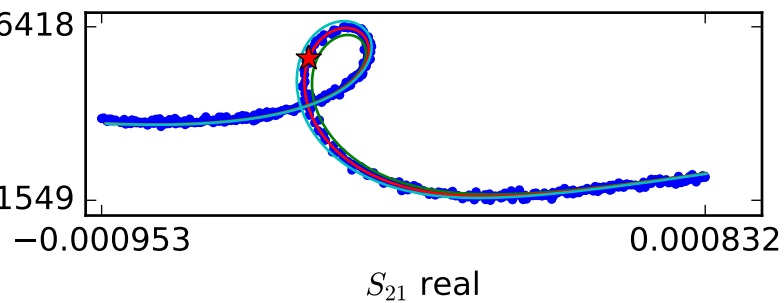
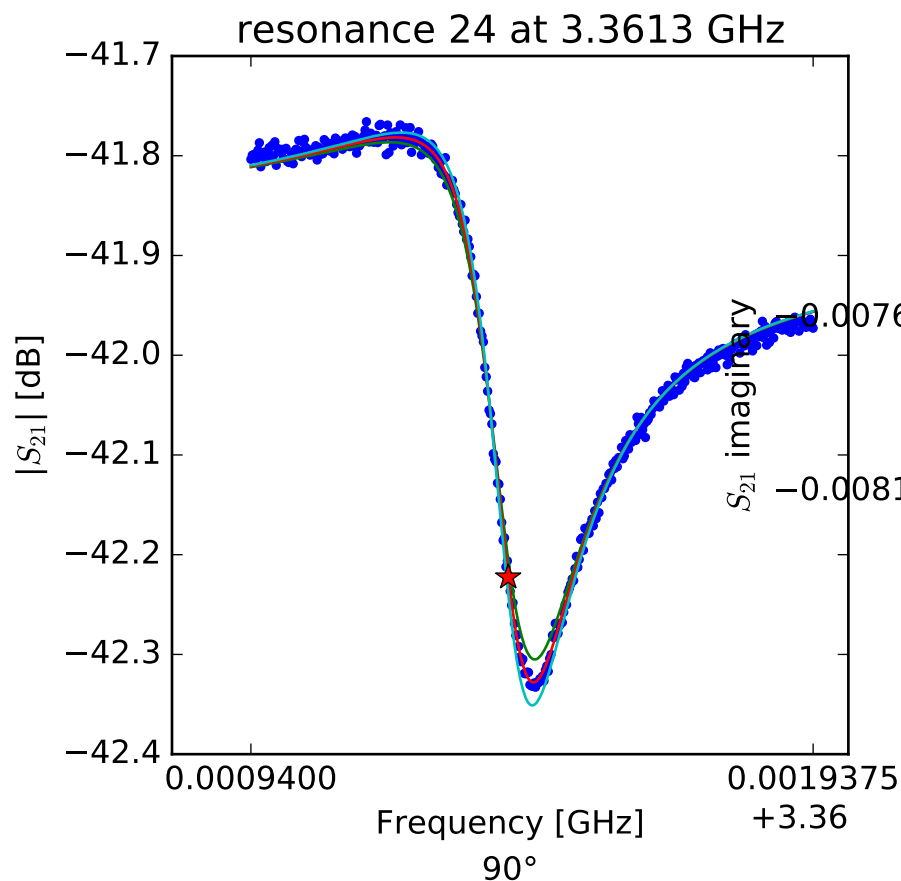
$$Q_r = 13065.3901881$$

$$Q_c = 139567.00578$$

$$a = (-0.00779057280892 + 0.00138011651655j)$$

$$\phi_0 = 1.71498873206$$

$$\tau = 37.6980629483$$



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

$$f_r = 3.36139653344$$

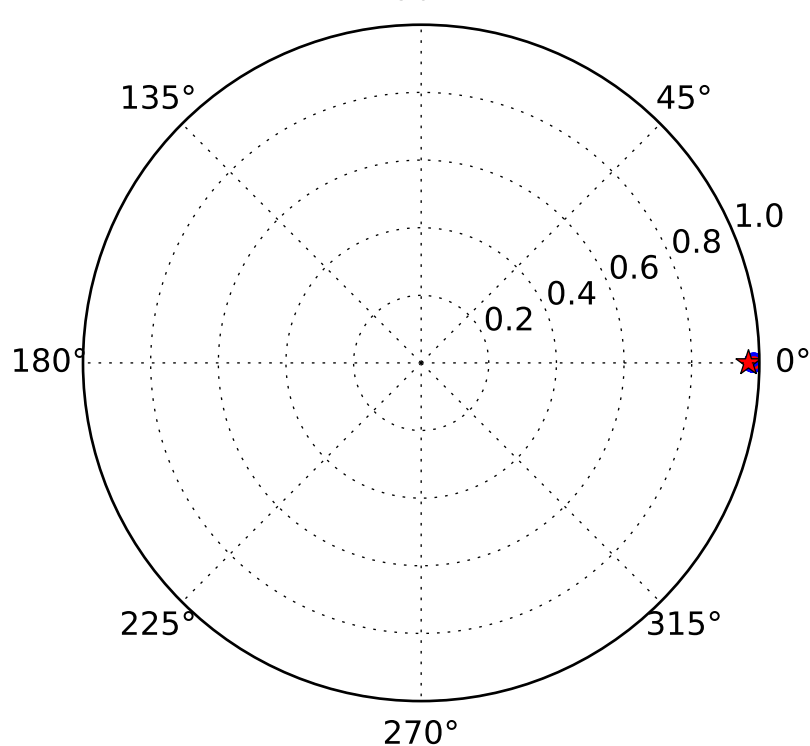
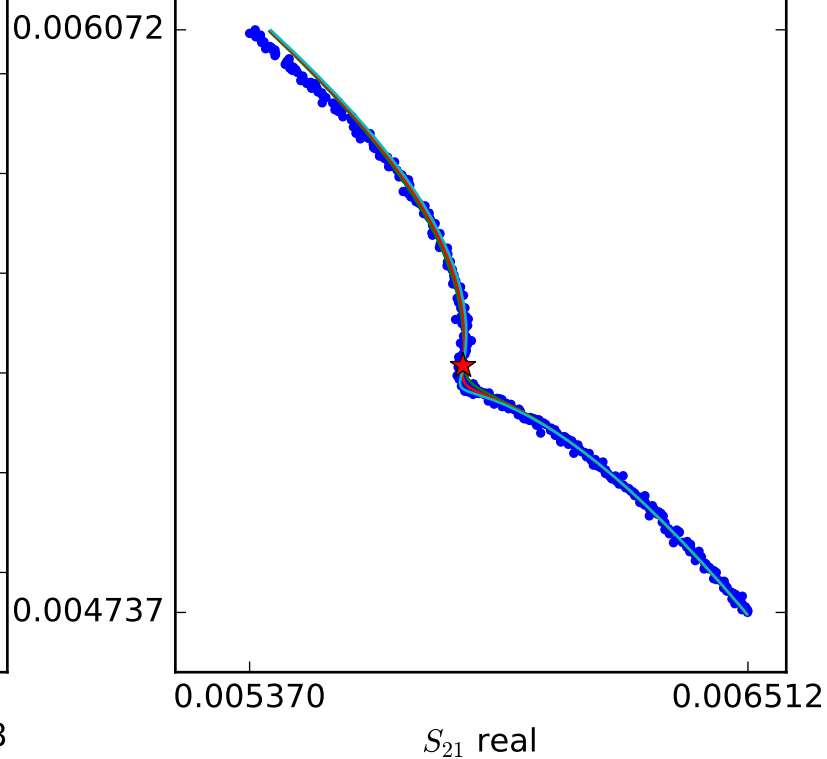
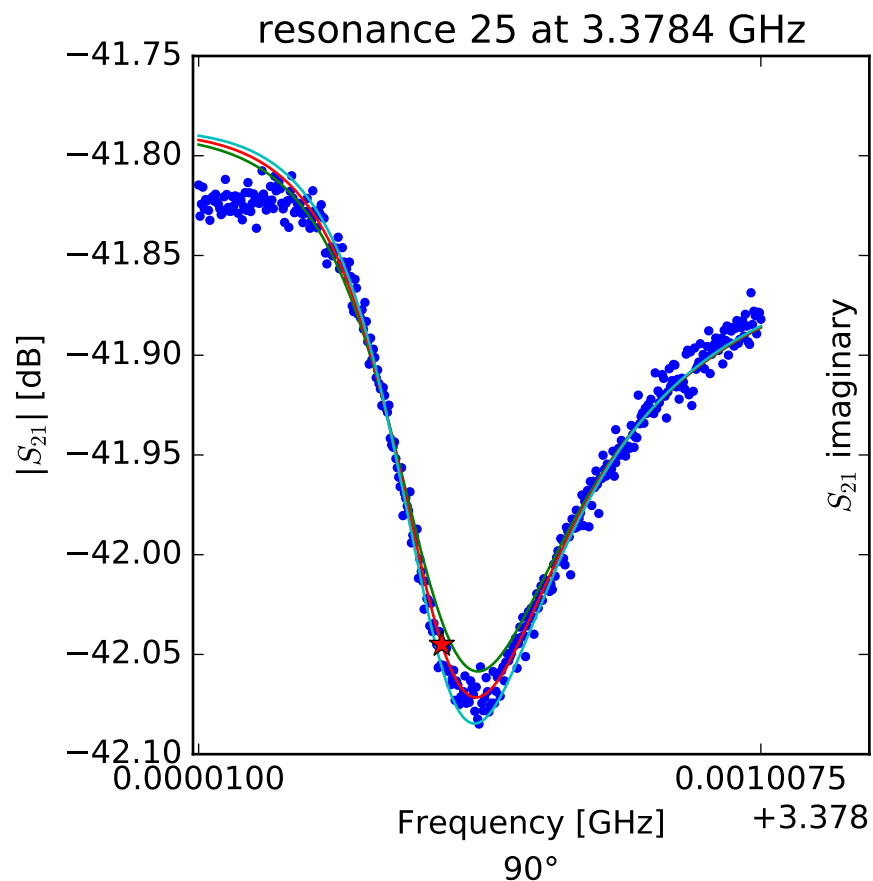
$$Q_r = 17798.3315087$$

$$Q_c = 288727.145221$$

$$a = (-0.00757019562953 - 0.00275739020025j)$$

$$\phi_0 = 0.861245642126$$

$$\tau = 37.7238578772$$



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

$$f_r = 3.37844152088$$

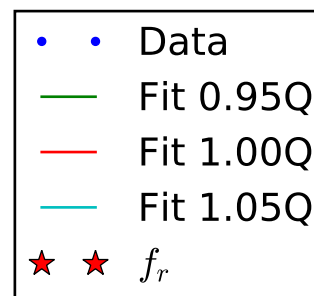
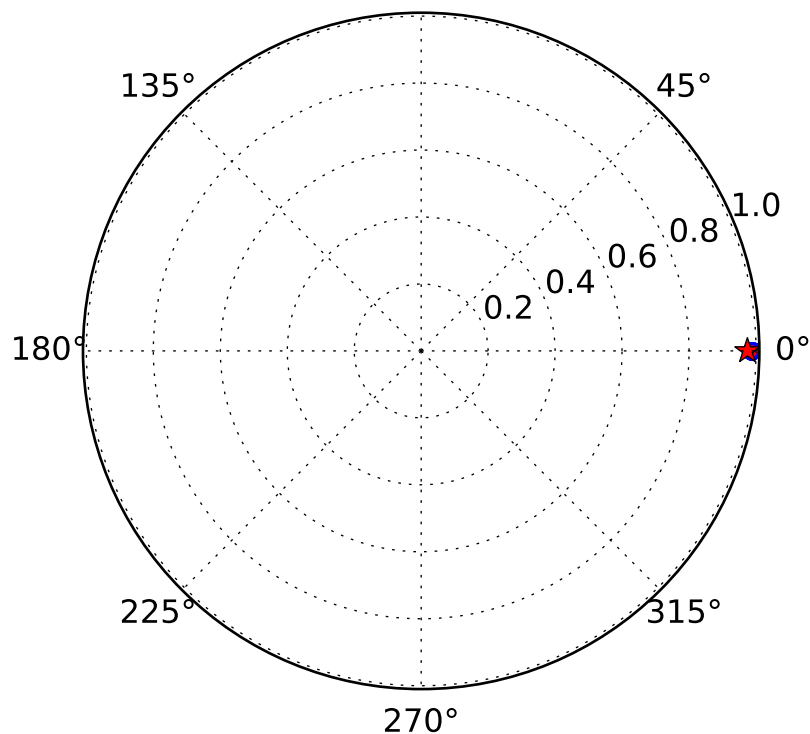
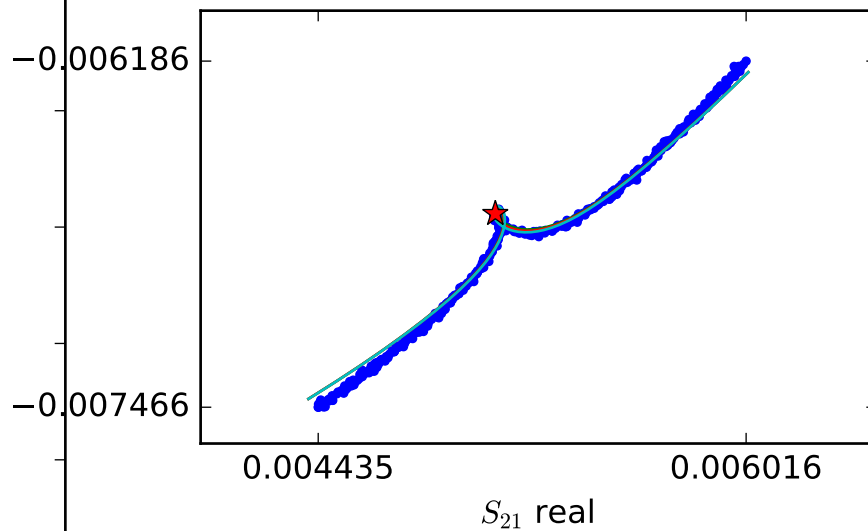
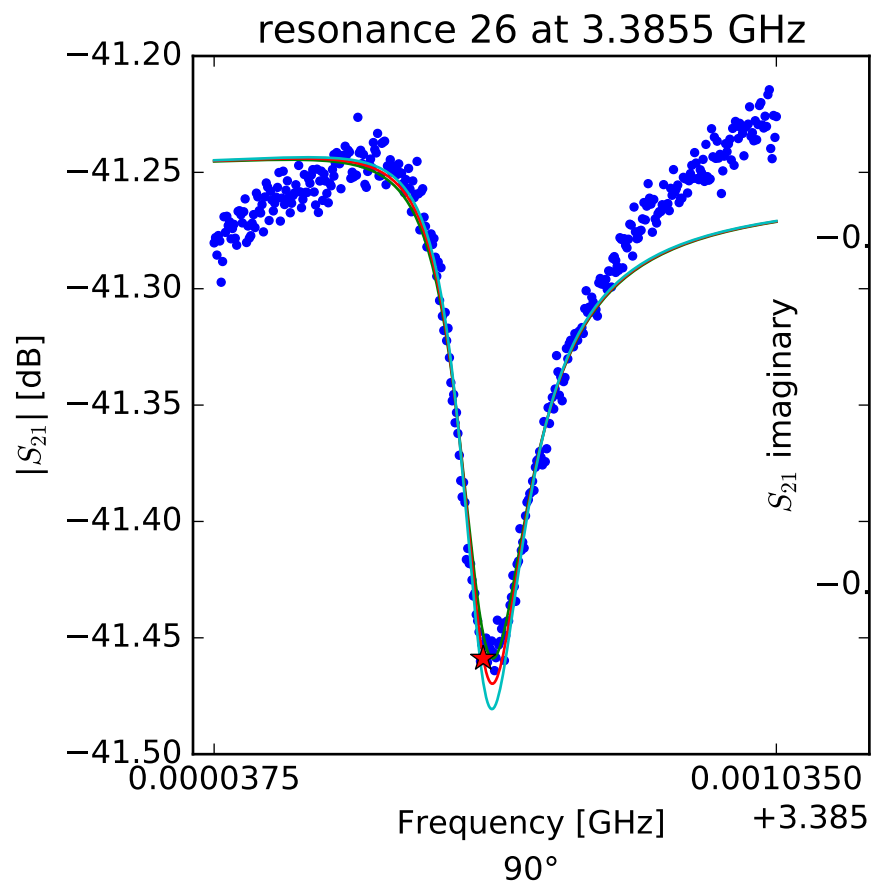
$$Q_r = 8802.14694997$$

$$Q_c = 273893.230018$$

$$a = (-0.00809235579705 + 0.000612113865161j)$$

$$\phi_0 = 0.6041146505$$

$$\tau = 37.1082155984$$



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

$$f_r = 3.38551494066$$

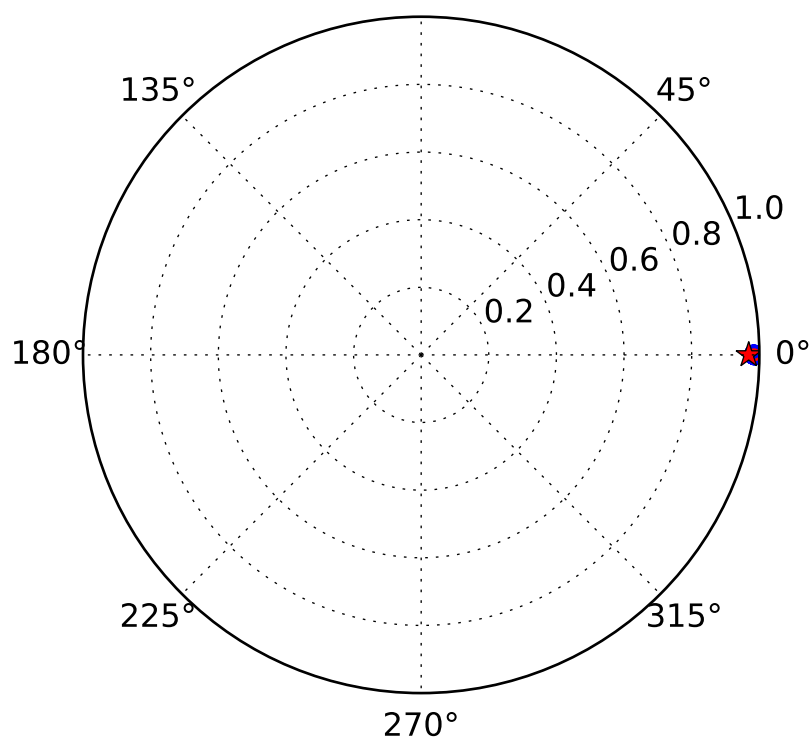
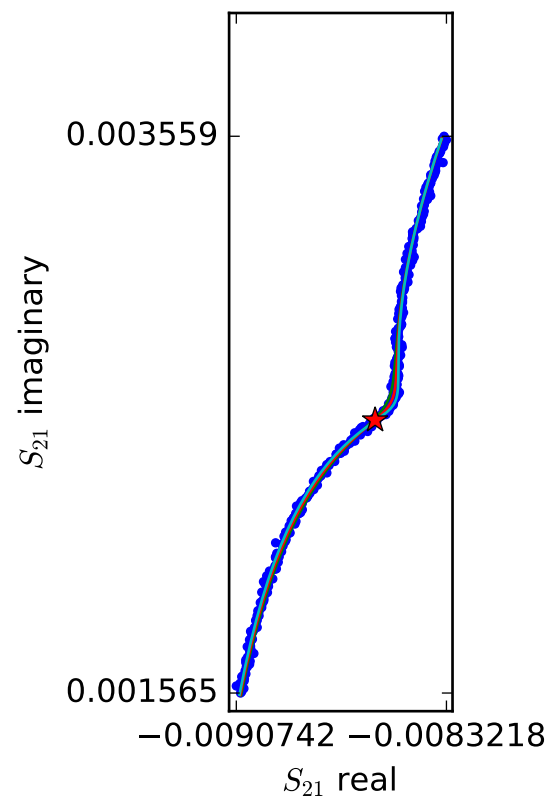
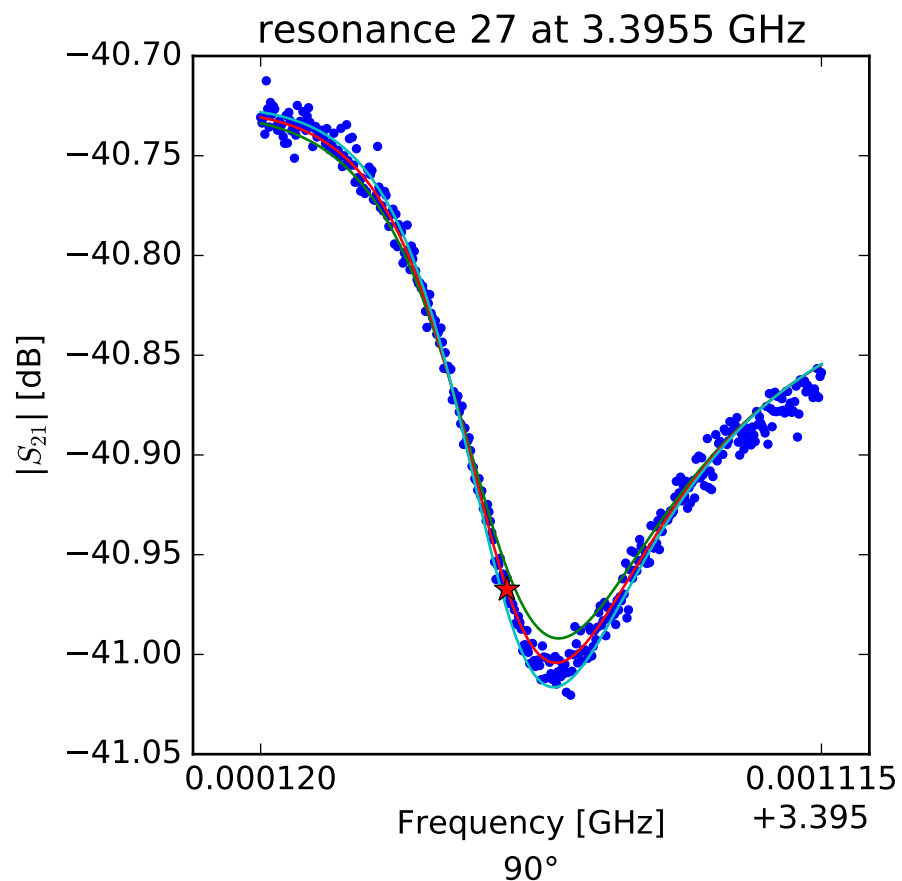
$$Q_r = 23310.9580471$$

$$Q_c = 907576.159637$$

$$a = (0.0036488157711 + 0.00784852764841j)$$

$$\phi_0 = -5.85096949176$$

$$\tau = 38.4952284408$$



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

$$f_r = 3.39555694996$$

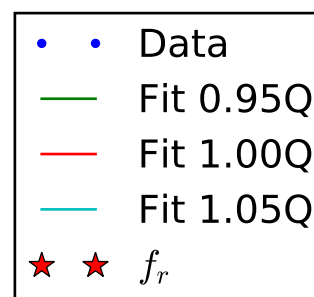
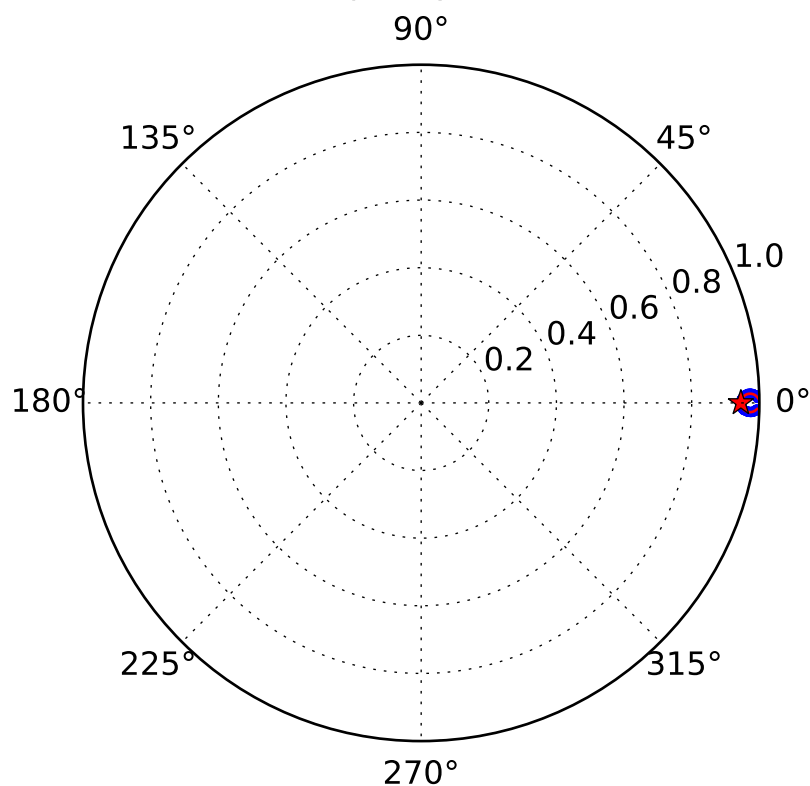
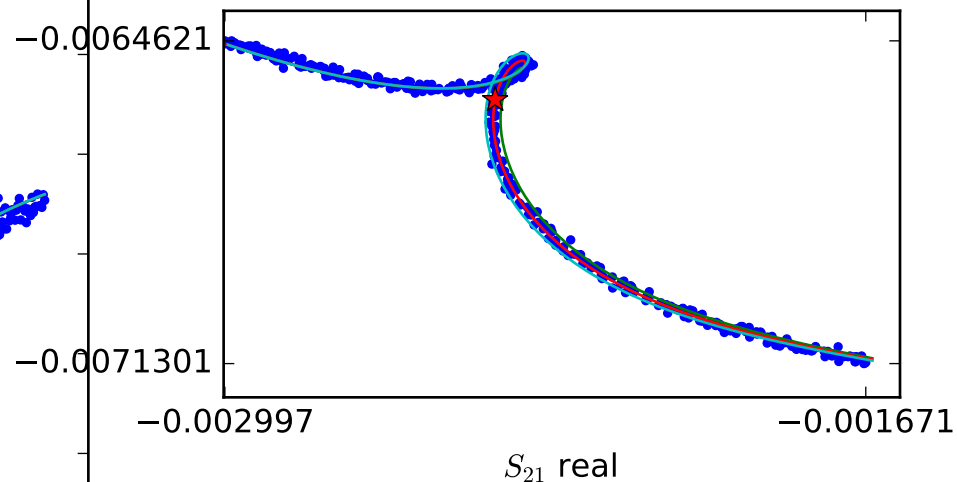
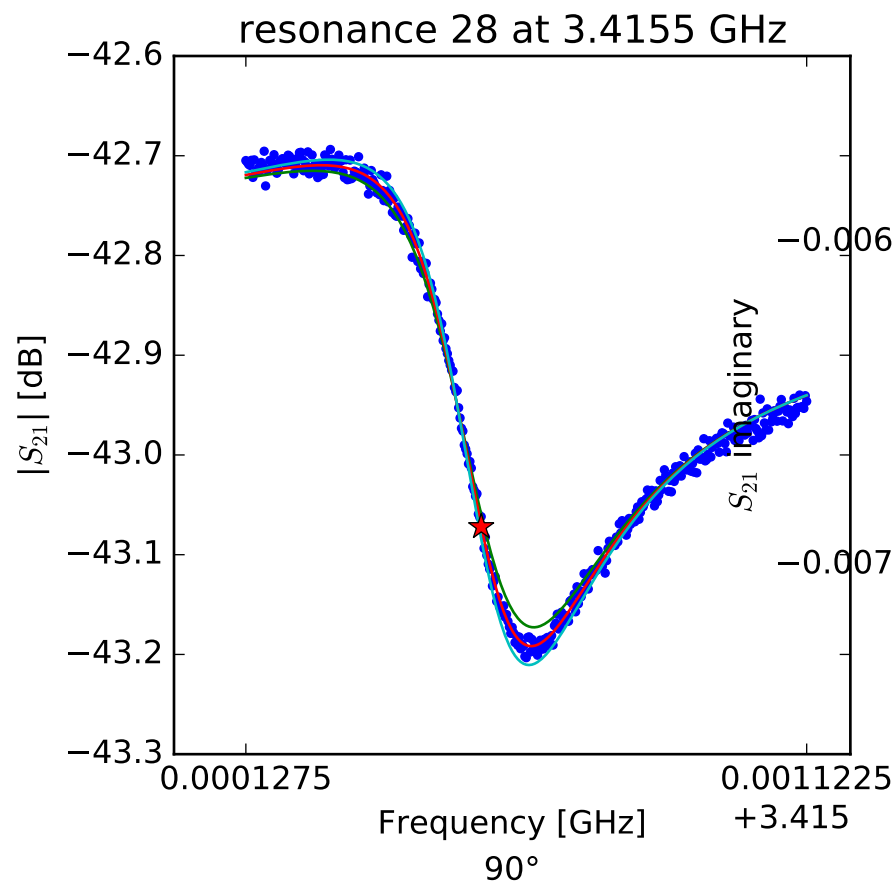
$$Q_r = 7525.85156945$$

$$Q_c = 239181.764488$$

$$a = (0.00910348657599 - 0.00101216803398j)$$

$$\phi_0 = -5.55757067872$$

$$\tau = 40.2069040253$$



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

$$f_r = 3.41554510092$$

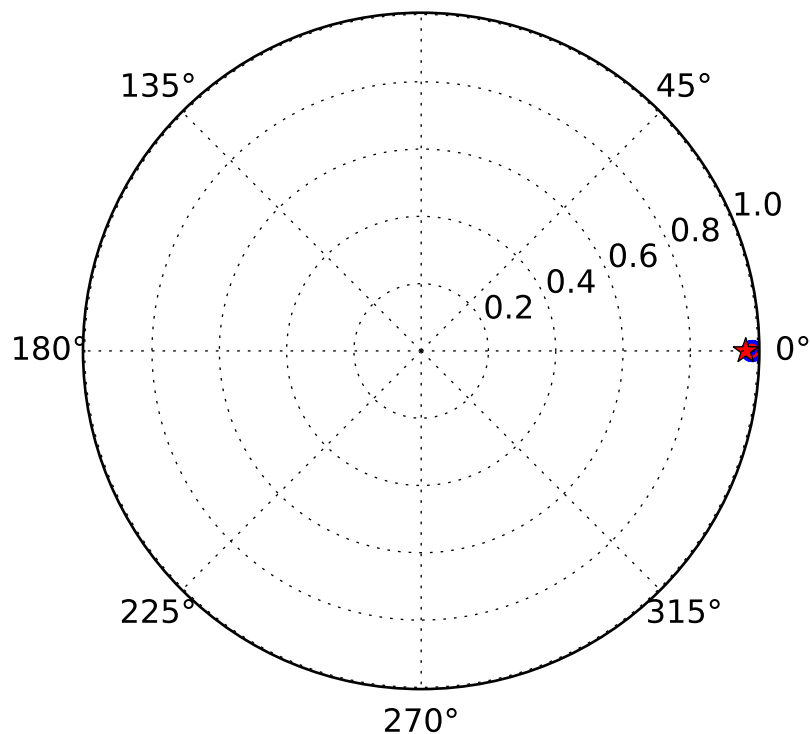
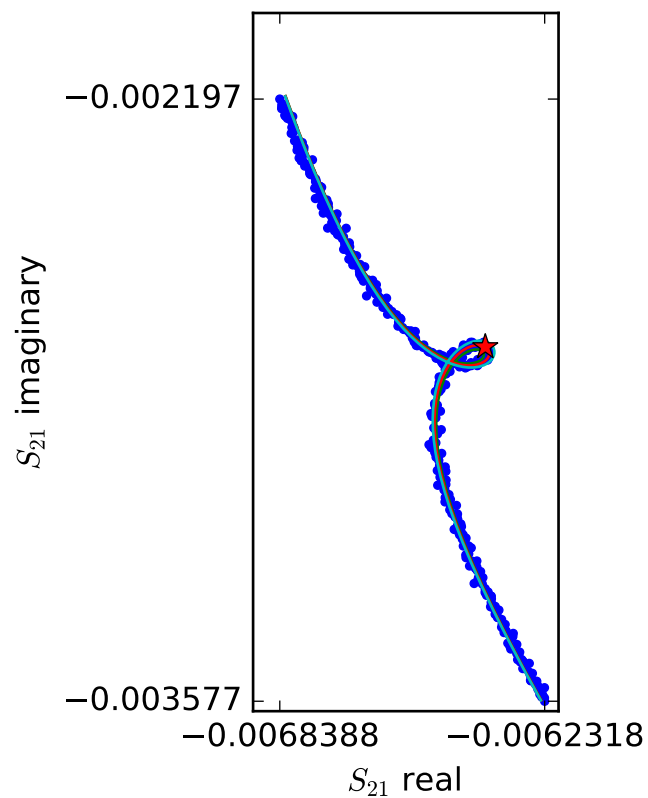
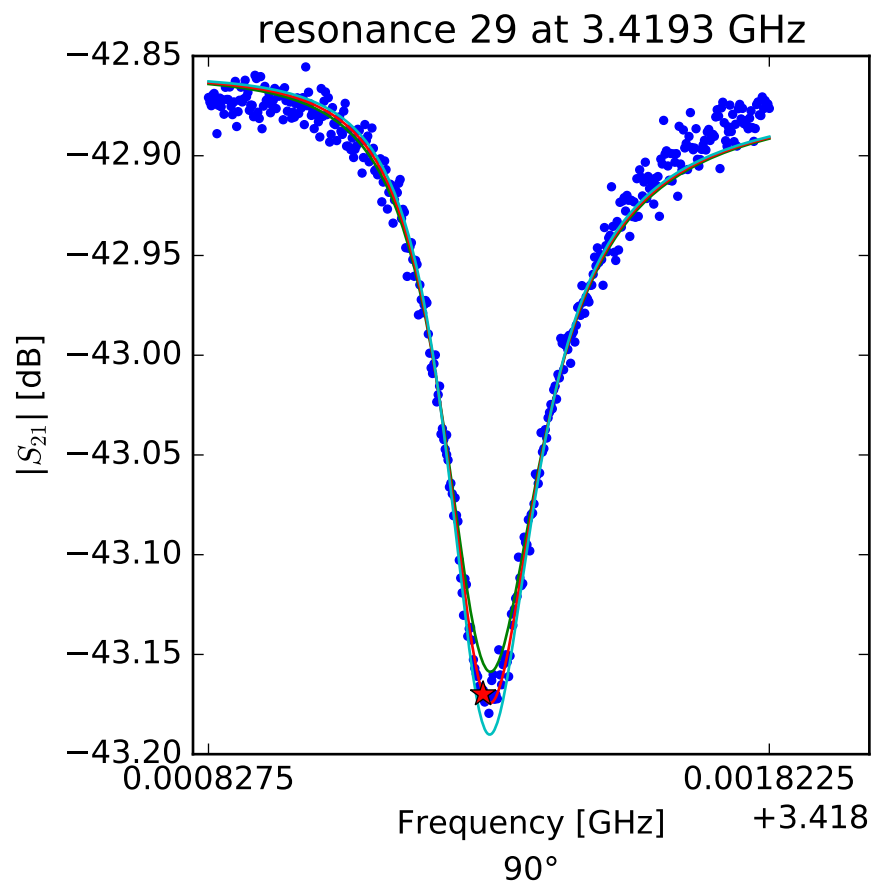
$$Q_r = 10760.6802192$$

$$Q_c = 196760.923378$$

$$a = (-0.00314441672941 + 0.00650836405975j)$$

$$\phi_0 = 0.995685127987$$

$$\tau = 35.9007259251$$



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

$$f_r = 3.41931464339$$

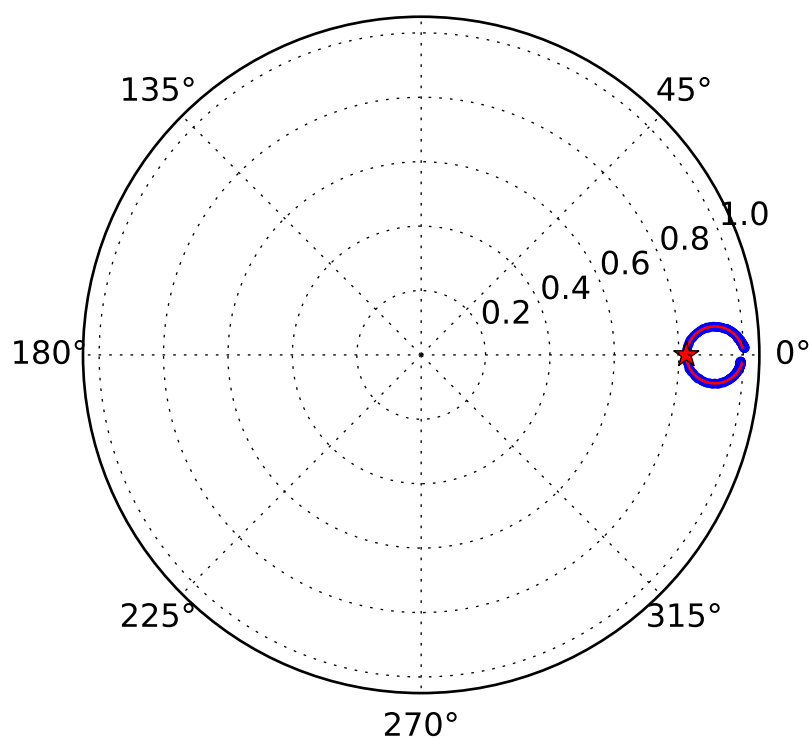
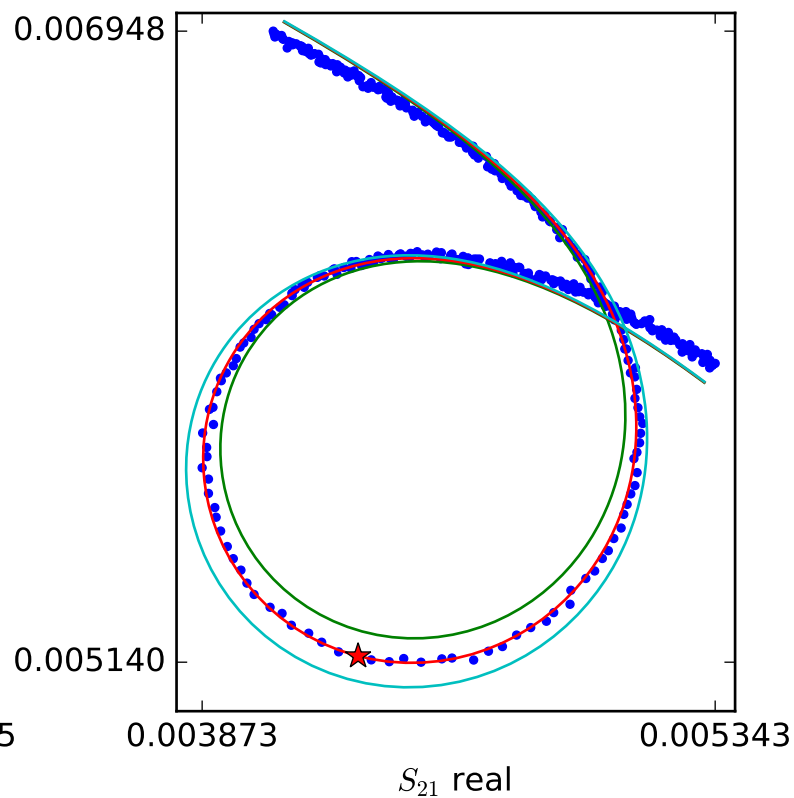
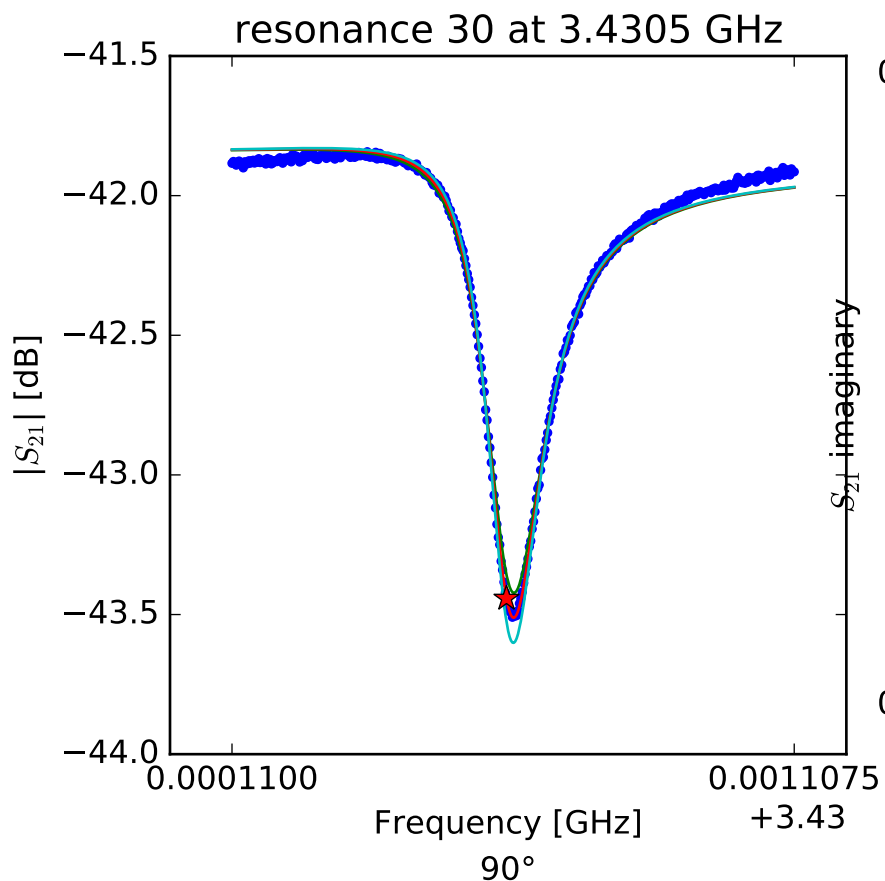
$$Q_r = 16567.3984487$$

$$Q_c = 467111.843817$$

$$a = (0.000692912380252 - 0.00715670055274j)$$

$$\phi_0 = 0.23414117889$$

$$\tau = 35.7378057476$$



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

$$f_r = 3.4305969935$$

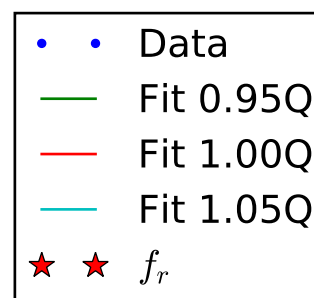
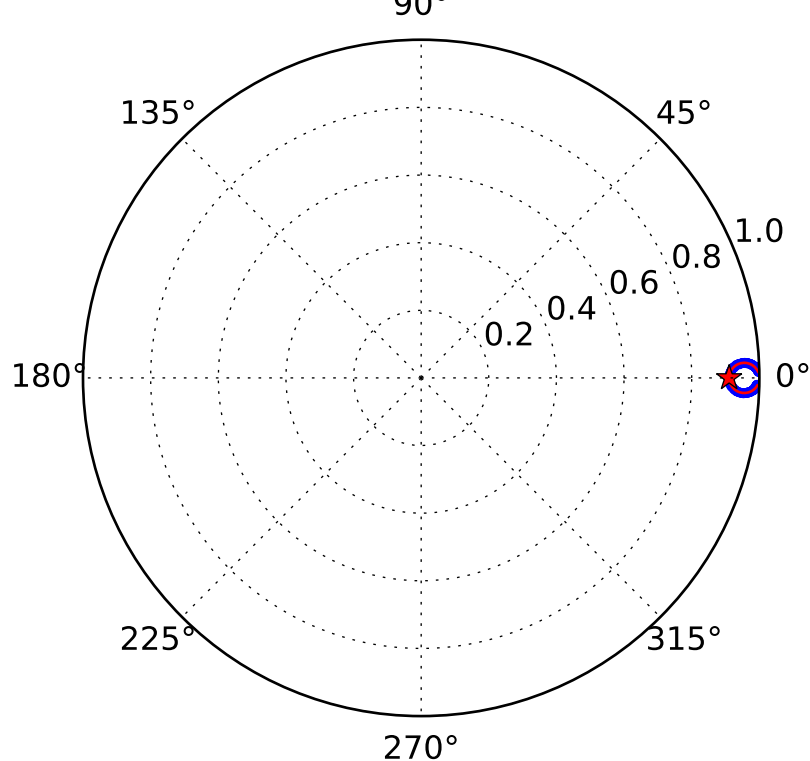
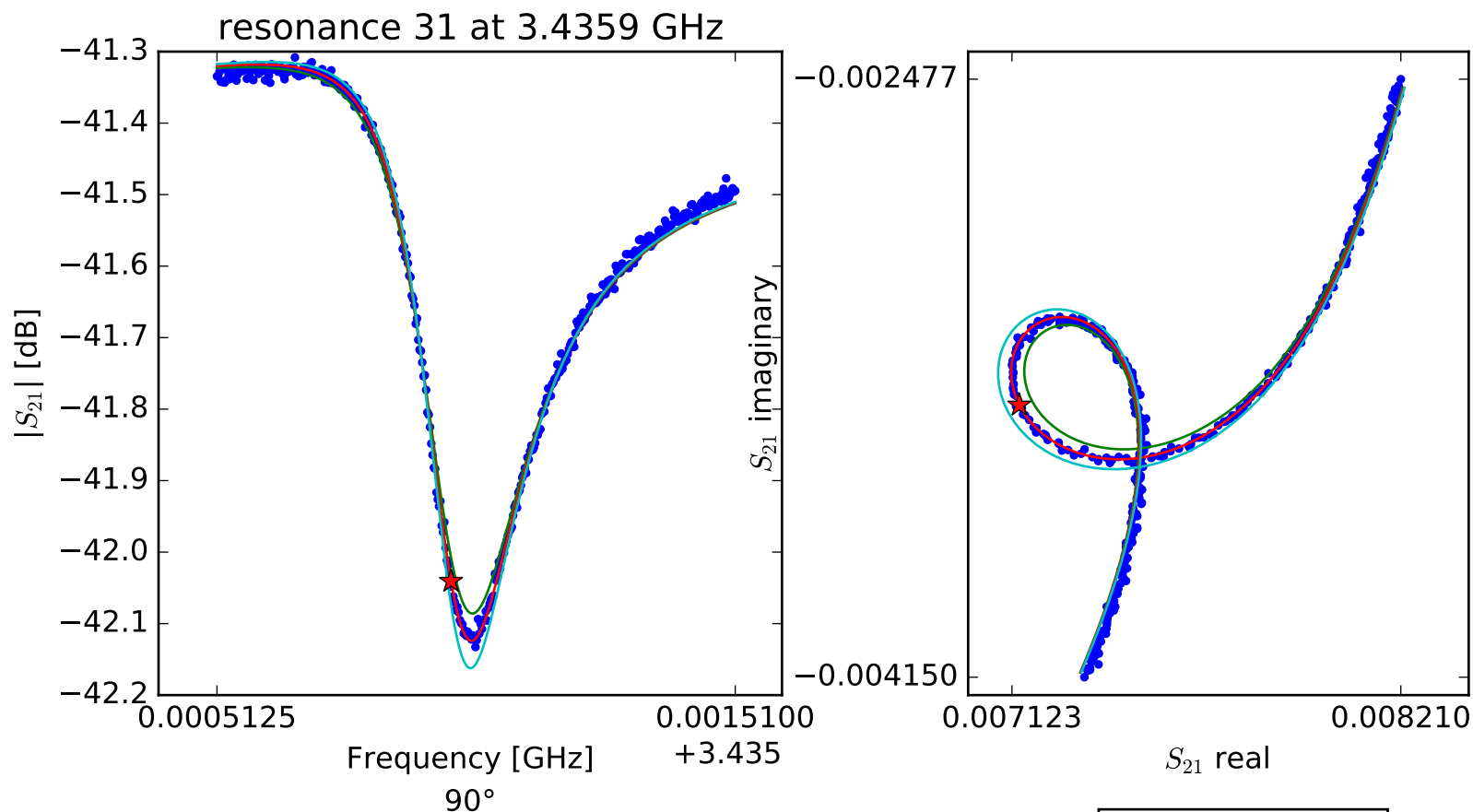
$$Q_r = 25439.7244605$$

$$Q_c = 143910.151567$$

$$a = (-0.00614348054242 + 0.00520732979851j)$$

$$\phi_0 = 0.339841426497$$

$$\tau = 38.546594076$$



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

$$f_r = 3.43596293726$$

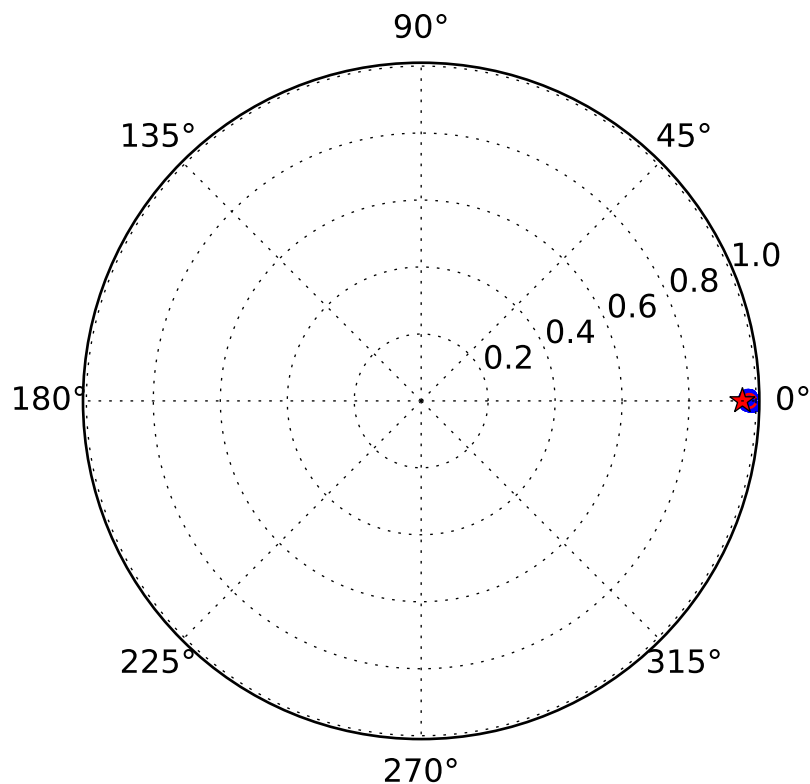
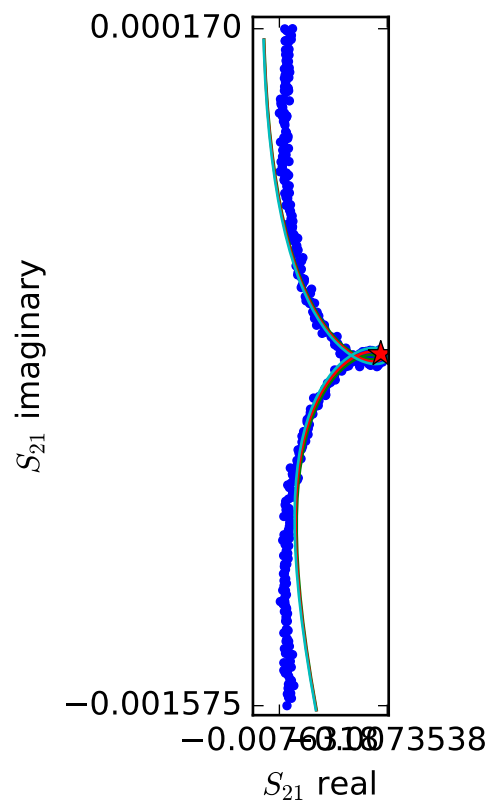
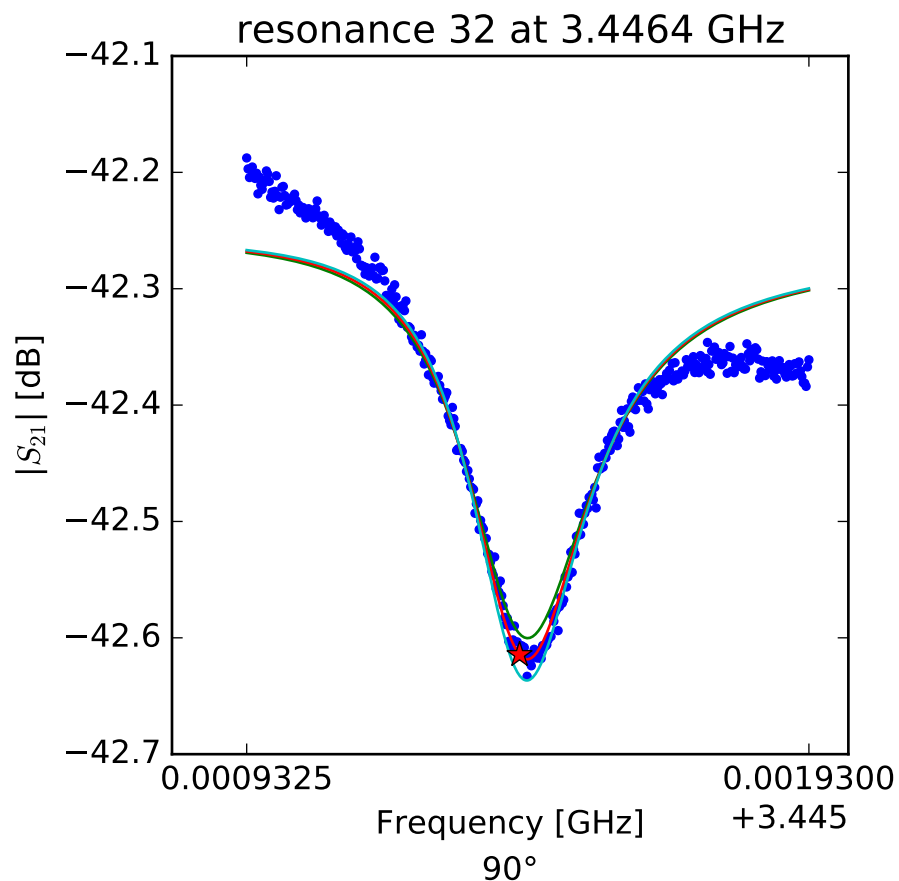
$$Q_r = 14192.6819574$$

$$Q_c = 158853.765102$$

$$a = (-0.00439941449656 + 0.00729934870434j)$$

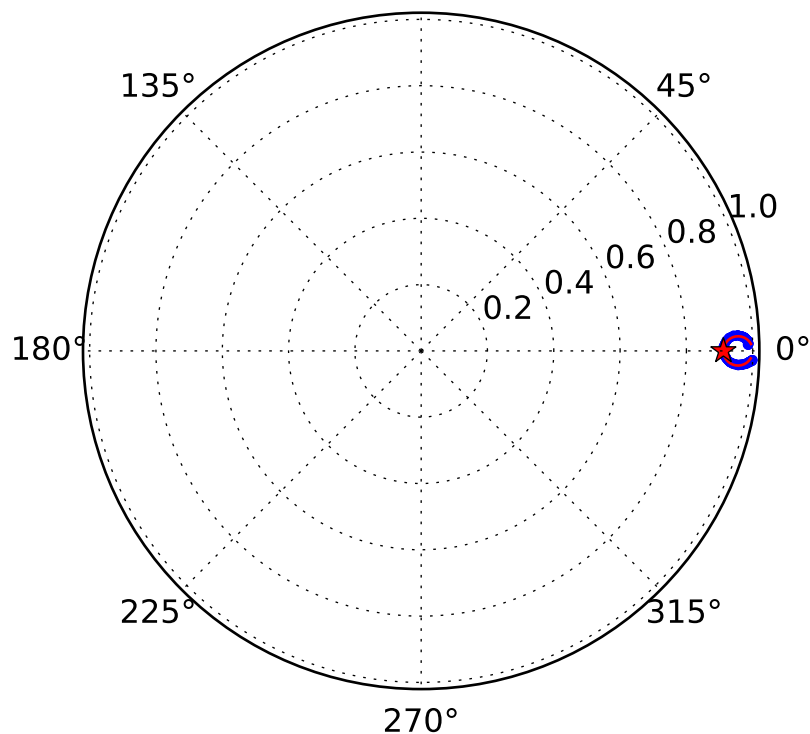
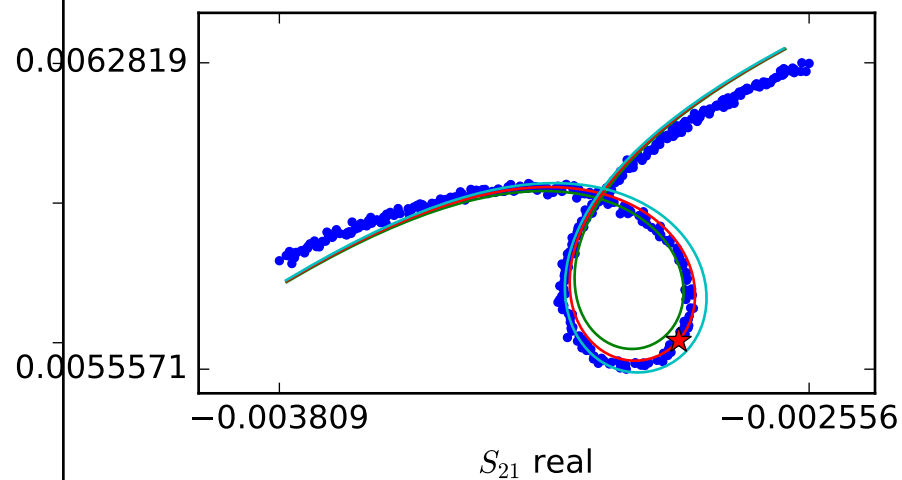
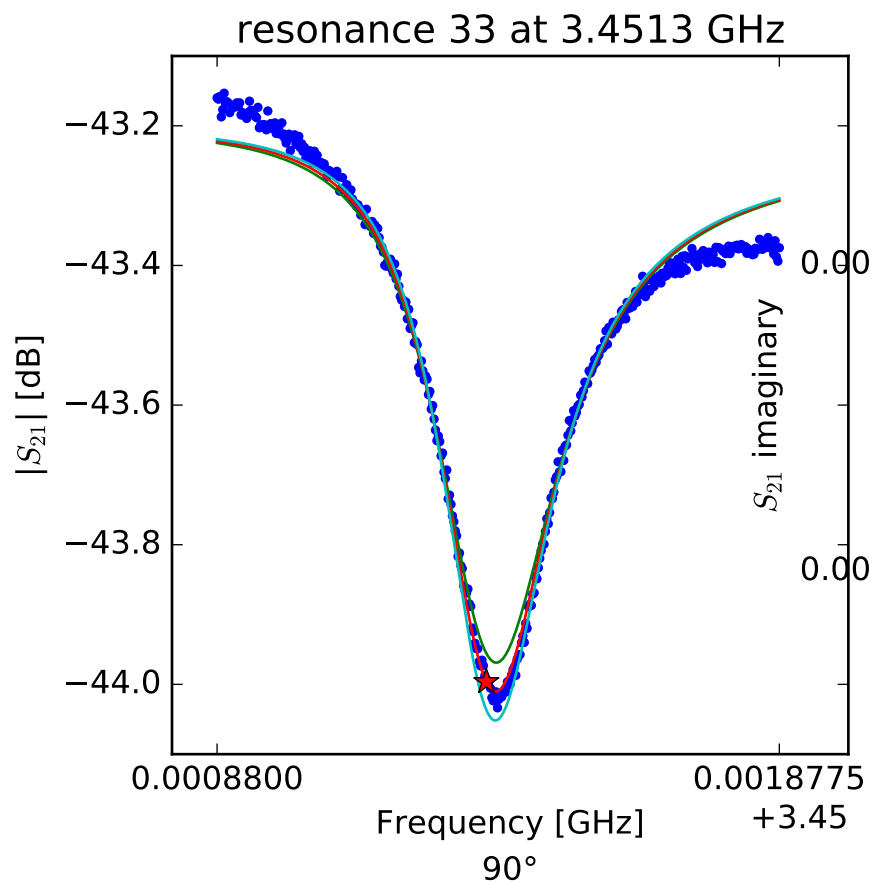
$$\phi_0 = 0.600485322514$$

$$\tau = 40.5703322678$$



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

$$\begin{aligned} f_r &= 3.44641661763 \\ Q_r &= 13073.2195 \\ Q_c &= 322176.697257 \\ a &= (-0.00485463221612 - 0.00598564245142j) \\ \phi_0 &= 0.201653136972 \\ \tau &= 39.2076235176 \end{aligned}$$



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

$$f_r = 3.45135780948$$

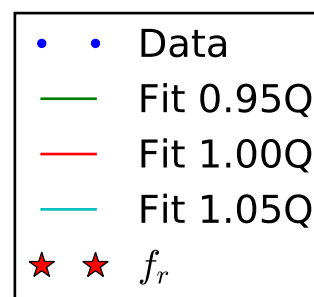
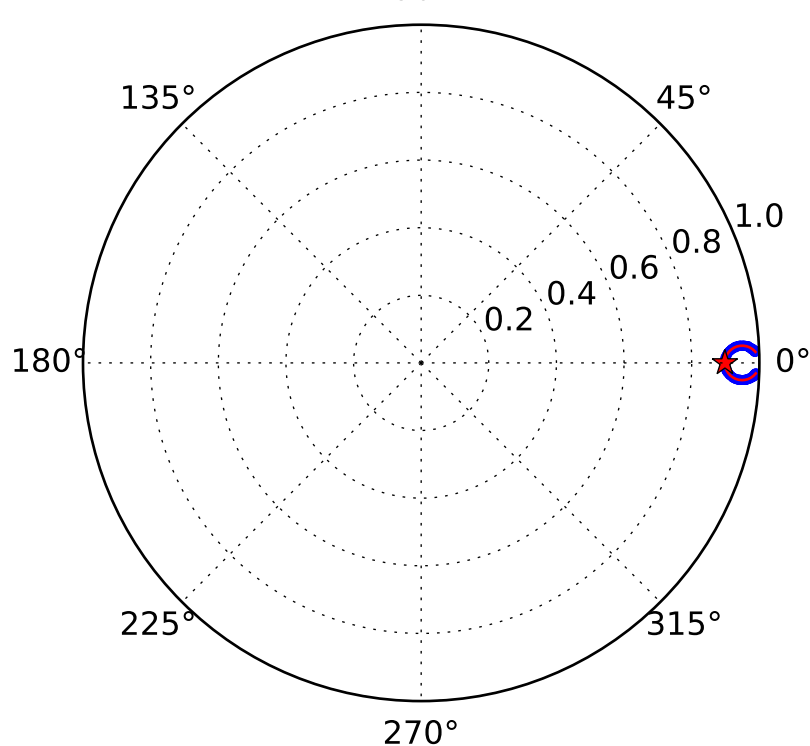
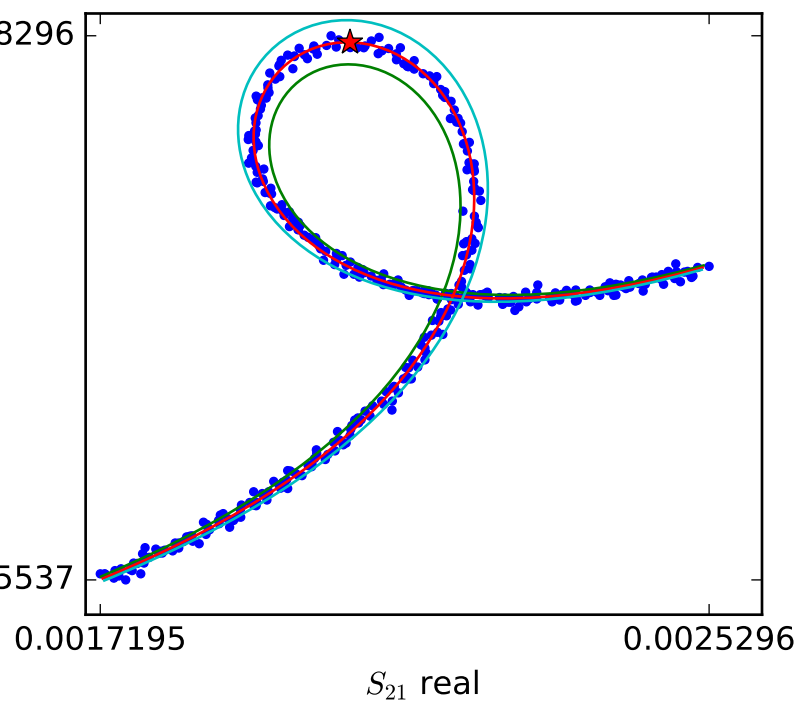
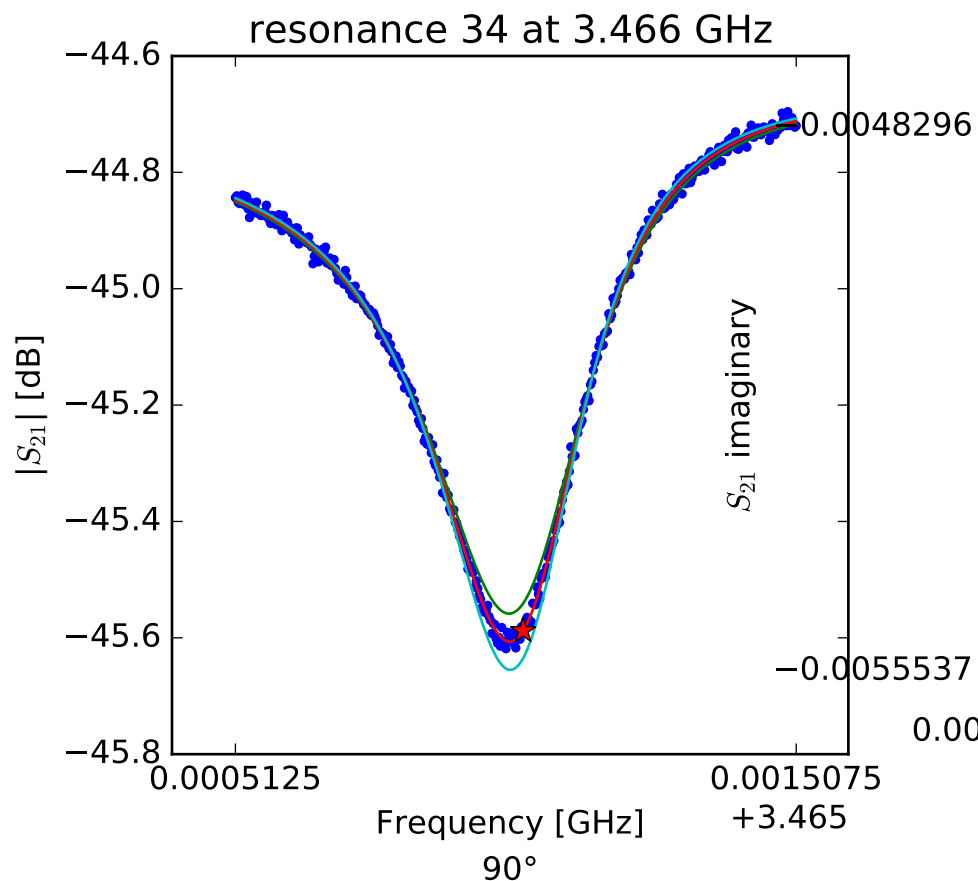
$$Q_r = 13156.2040198$$

$$Q_c = 148772.036722$$

$$a = (0.00426588820464 + 0.00542765525909j)$$

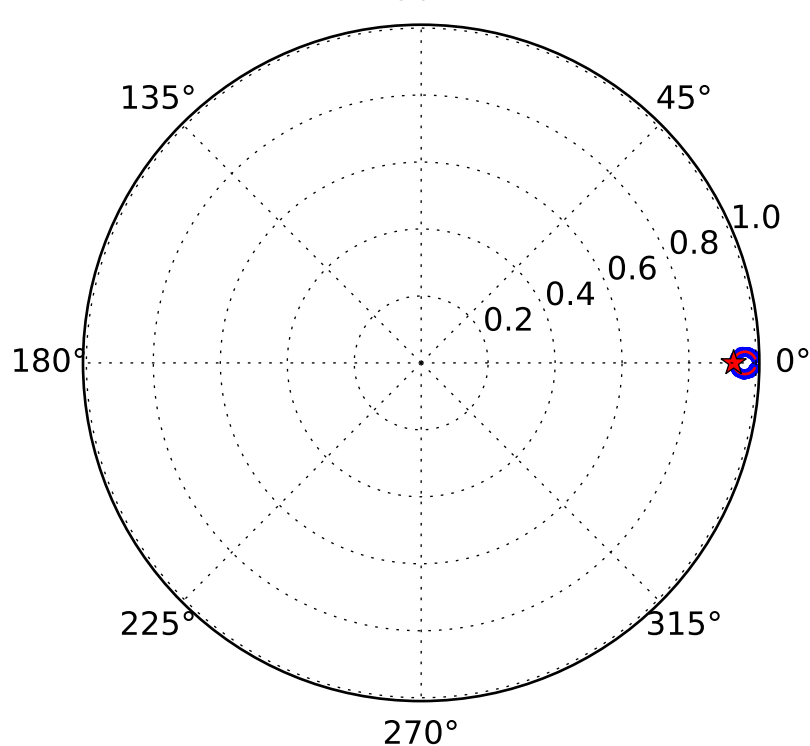
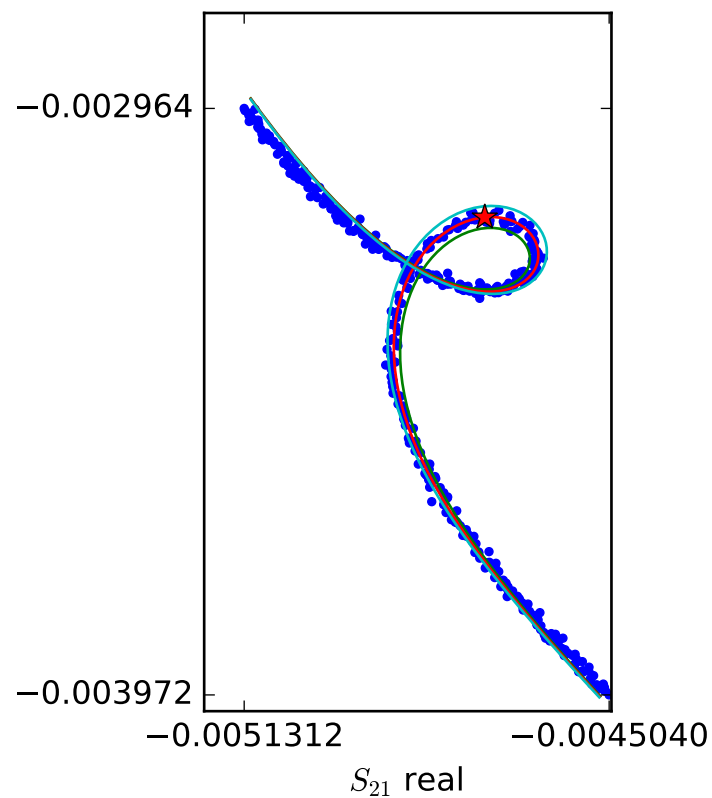
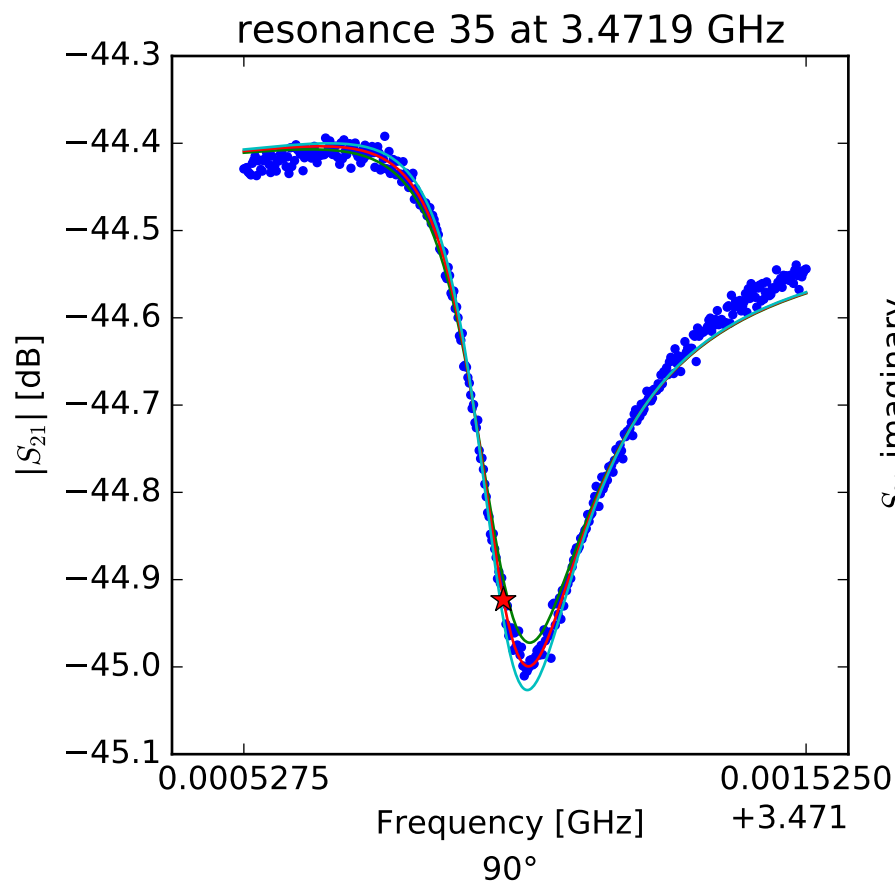
$$\phi_0 = 0.240786062393$$

$$\tau = 37.033352036$$



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

$$\begin{aligned} f_r &= 3.46602302837 \\ Q_r &= 9910.81651278 \\ Q_c &= 97252.2424864 \\ a &= (-0.00561408198991 - 0.00156315896023j) \\ \phi_0 &= -0.25680858284 \\ \tau &= 34.8335696586 \end{aligned}$$



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

$$f_r = 3.47198794065$$

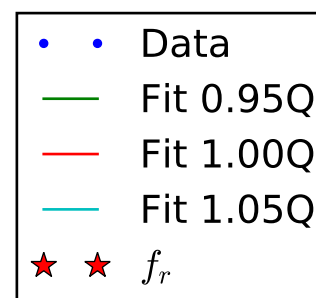
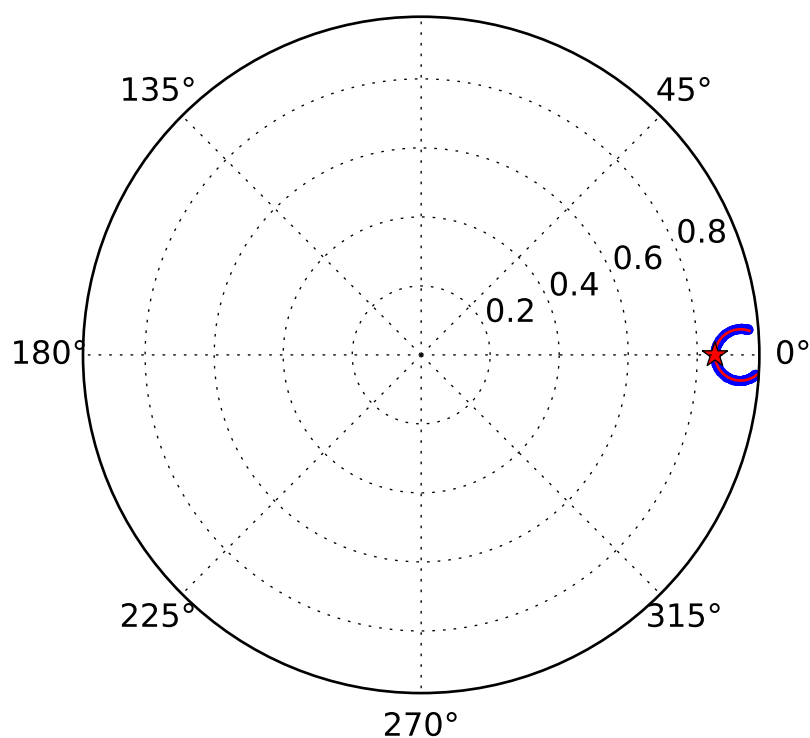
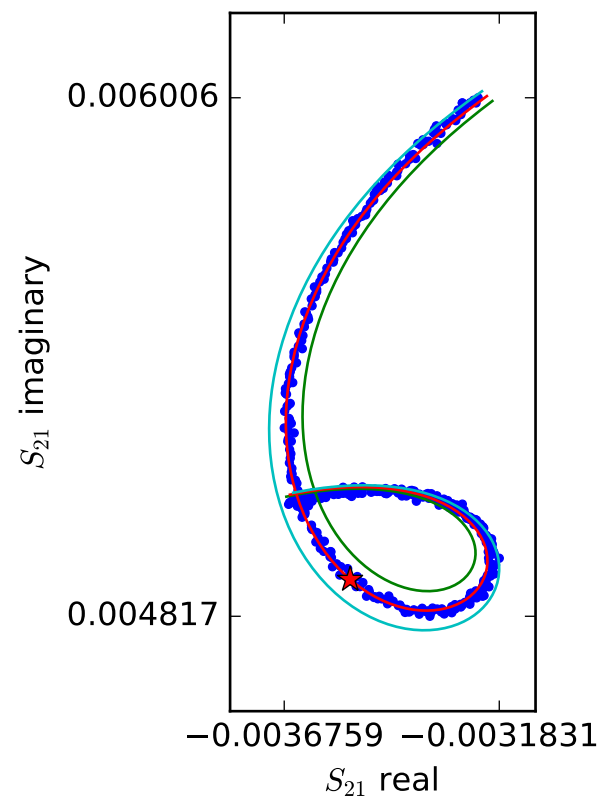
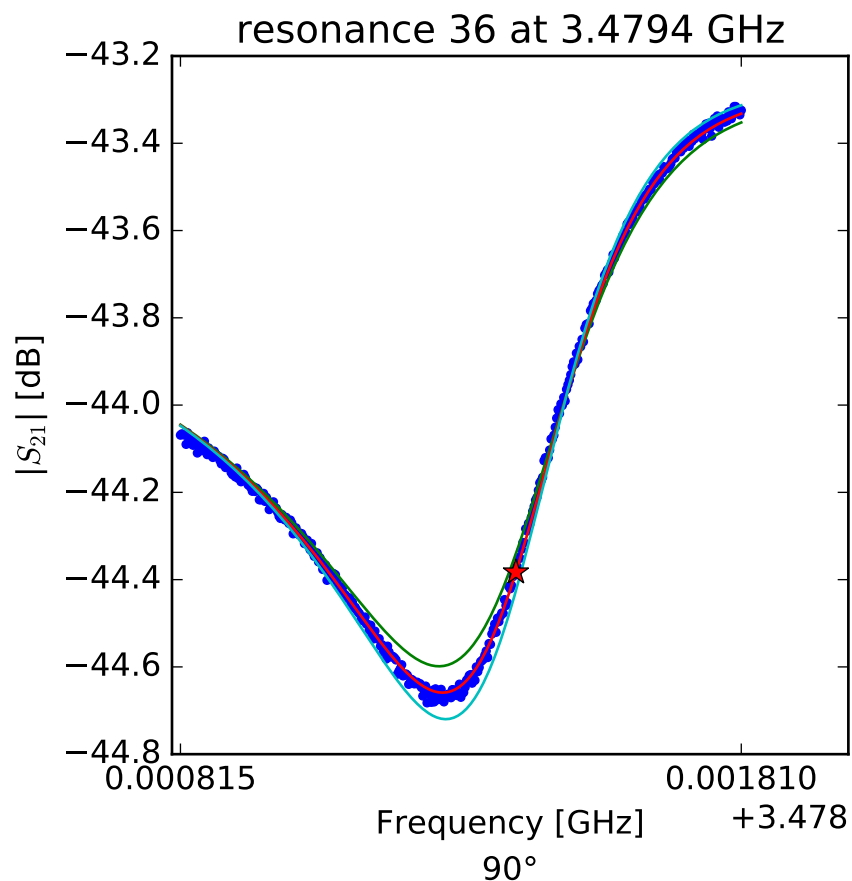
$$Q_r = 14418.6467662$$

$$Q_c = 215769.038861$$

$$a = (-0.00164855745245 + 0.00574464516907j)$$

$$\phi_0 = 0.686878066217$$

$$\tau = 35.62617514$$



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

$$f_r = 3.47941020059$$

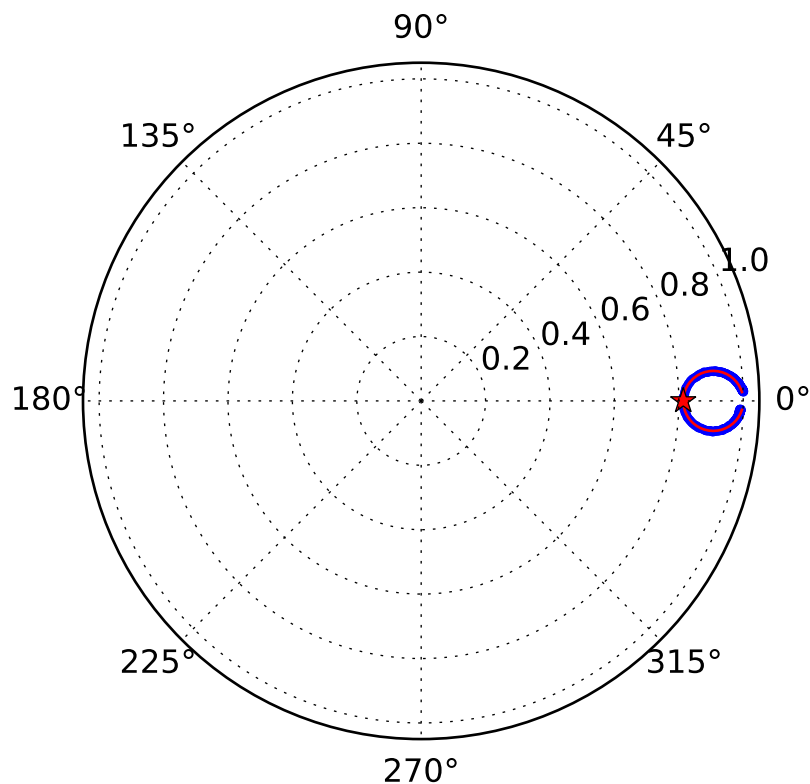
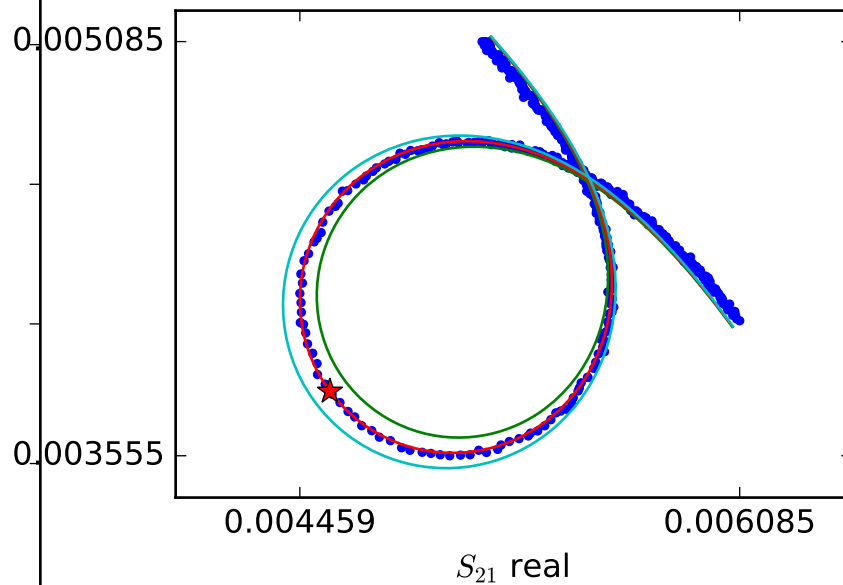
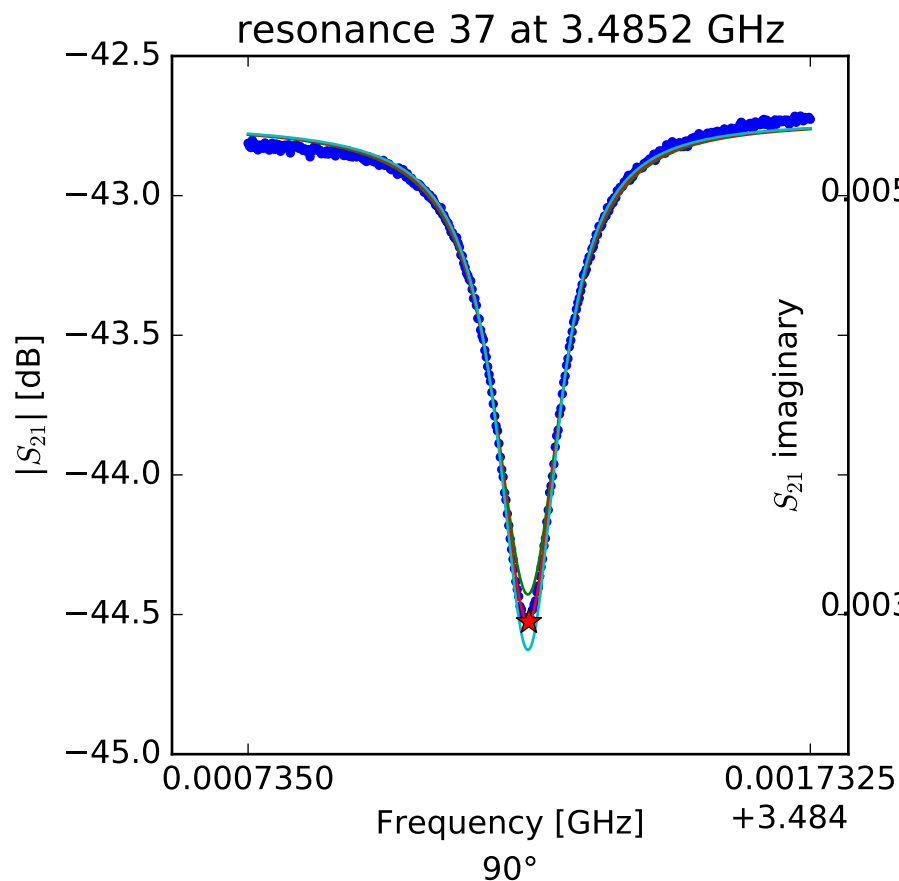
$$Q_r = 6225.50547394$$

$$Q_c = 41850.235515$$

$$a = (0.000222530138557 + 0.00667173975086j)$$

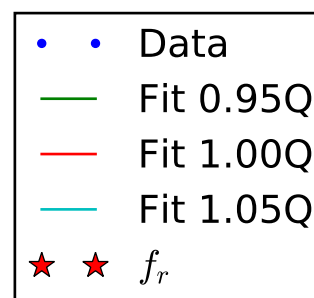
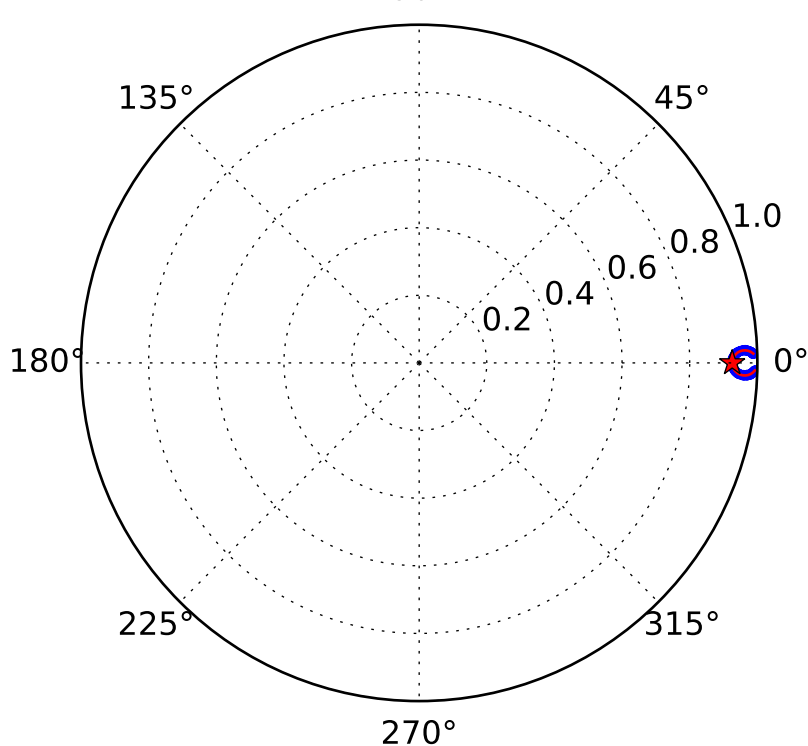
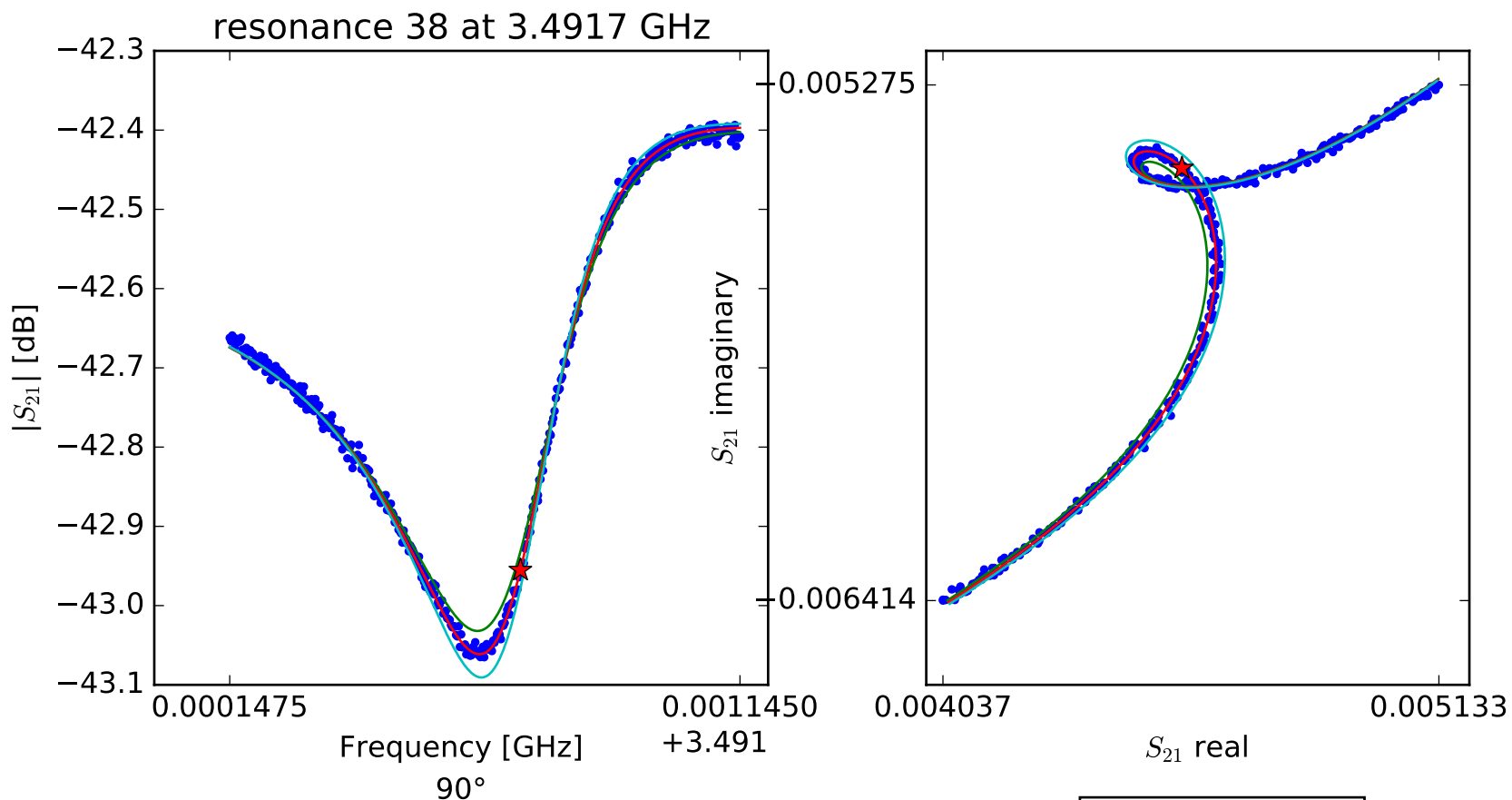
$$\phi_0 = -0.814644284799$$

$$\tau = 37.6255045057$$



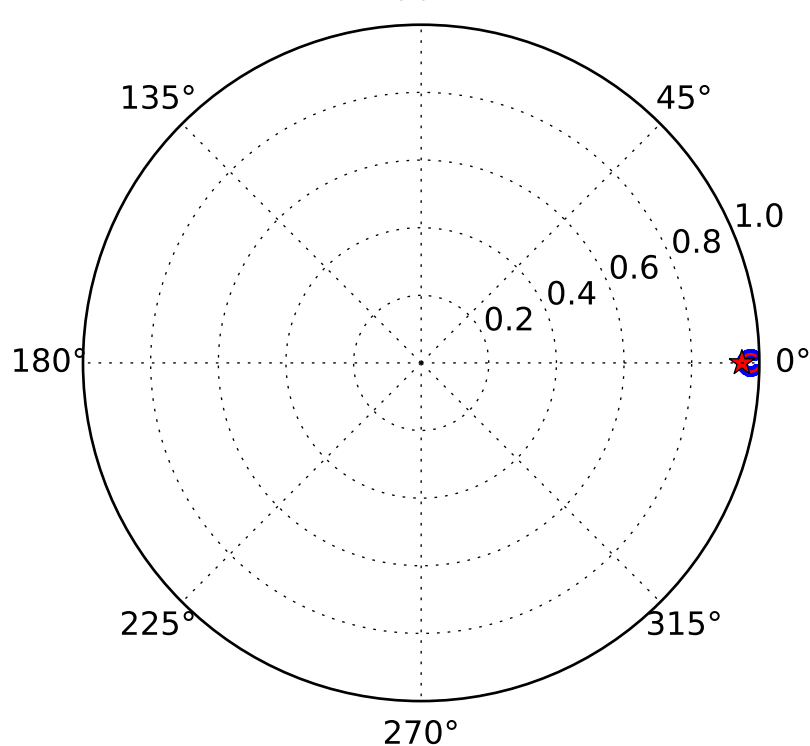
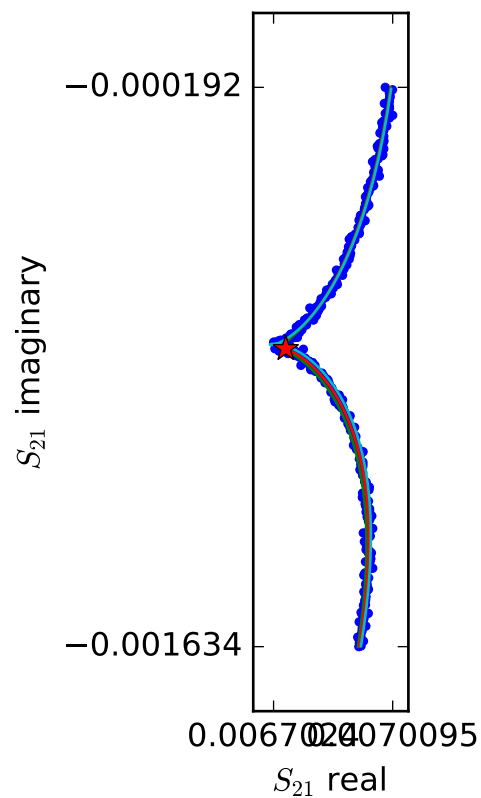
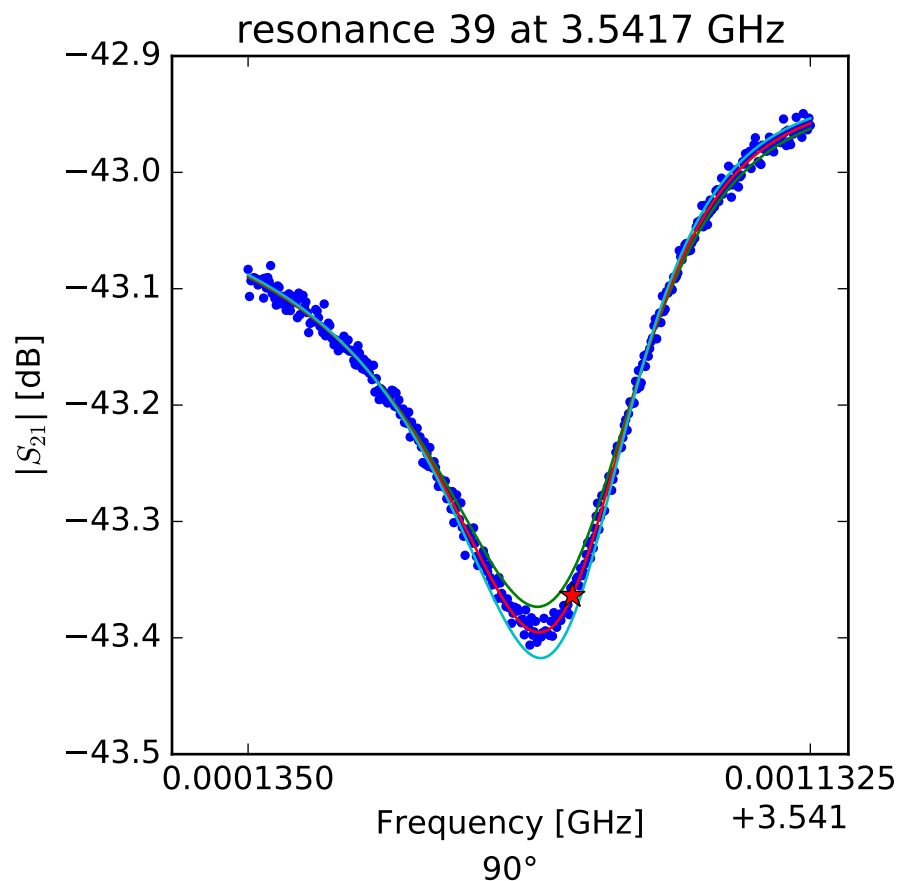
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$f_r = 3.48523315602$
 $Q_r = 23009.2646624$
 $Q_c = 123476.935031$
 $a = (0.0020841614739 - 0.00699332947499j)$
 $\phi_0 = -0.0410495869339$
 $\tau = 39.5059207545$



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

$$\begin{aligned} f_r &= 3.49171573605 \\ Q_r &= 9163.15806723 \\ Q_c &= 123092.825821 \\ a &= (-0.0070913236929 + 0.0024649086309j) \\ \phi_0 &= -0.767859518181 \\ \tau &= 39.692406229 \end{aligned}$$



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

$$f_r = 3.54171033836$$

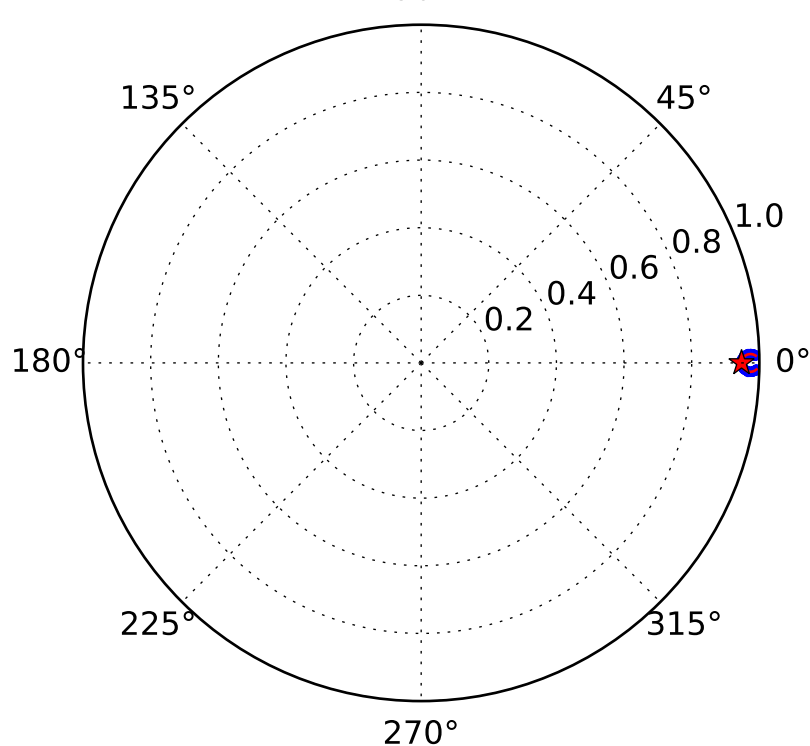
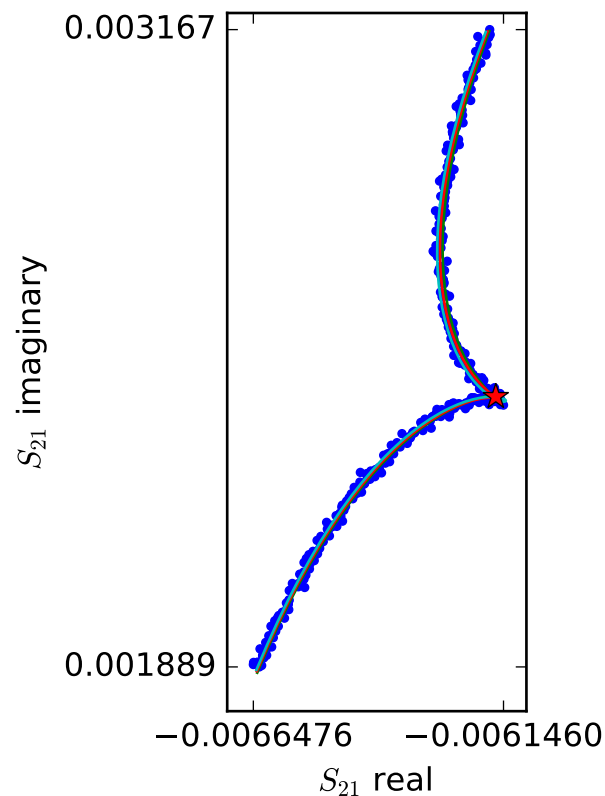
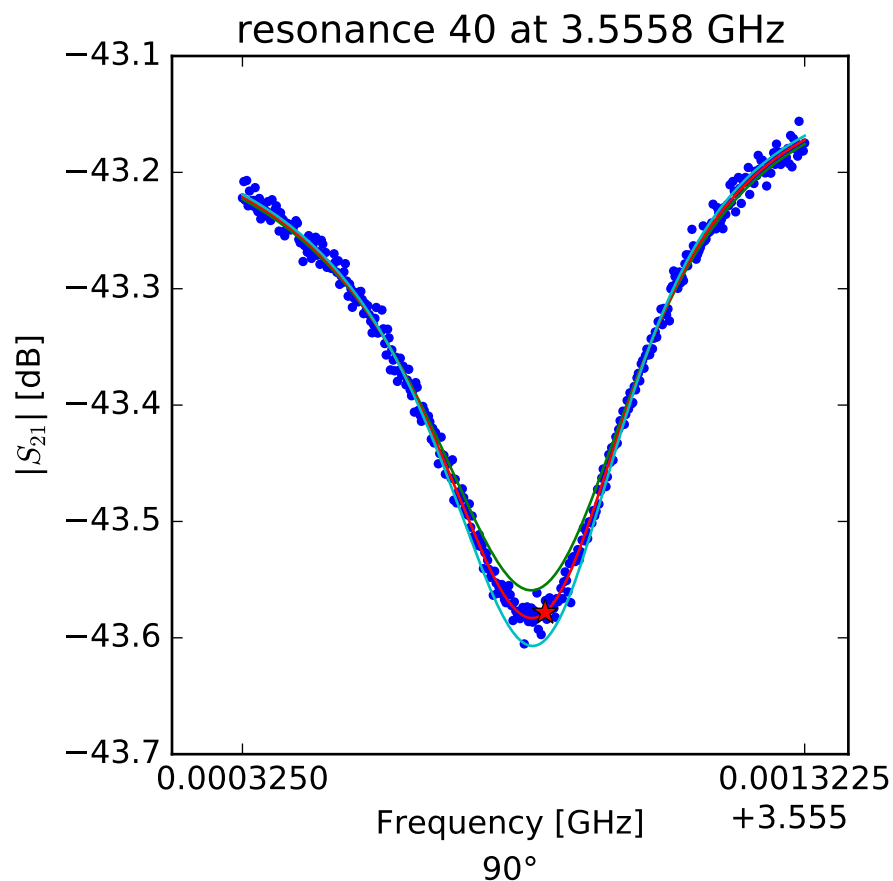
$$Q_r = 7974.21572626$$

$$Q_c = 154318.550974$$

$$a = (-0.00483005601619 - 0.00521504828369j)$$

$$\phi_0 = -0.505640887233$$

$$\tau = 38.3022896092$$



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

$$f_r = 3.55586208782$$

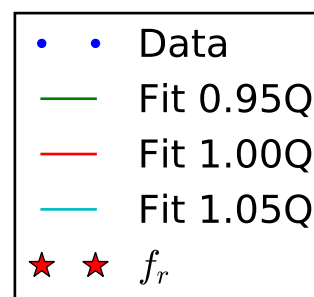
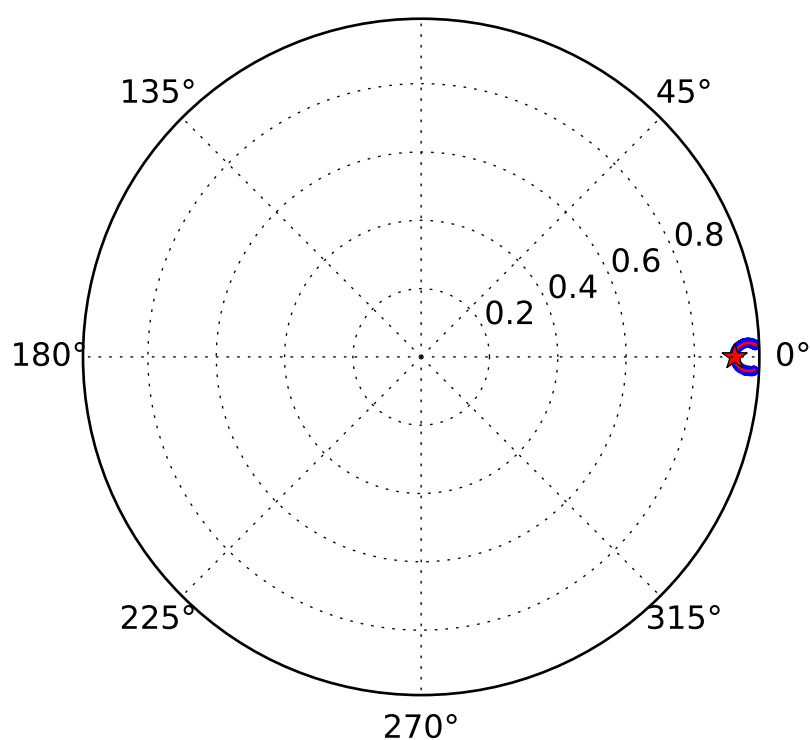
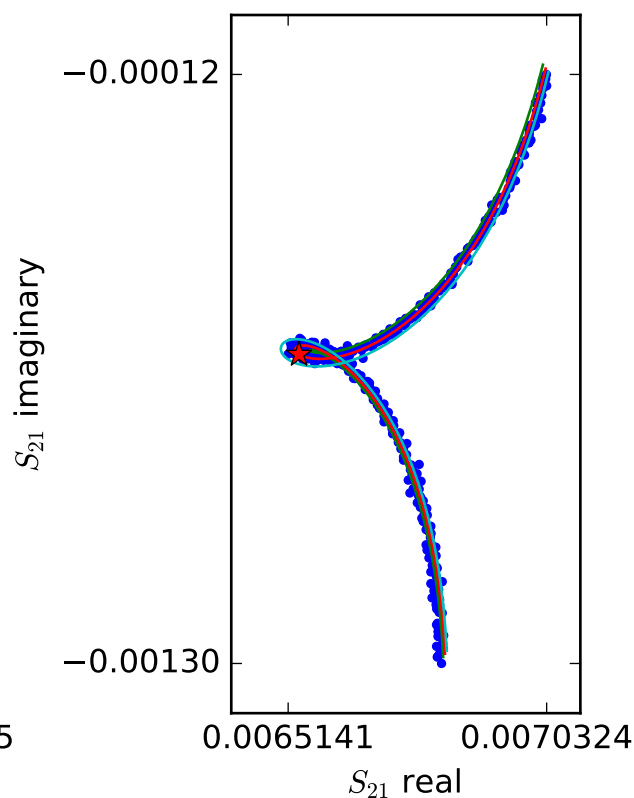
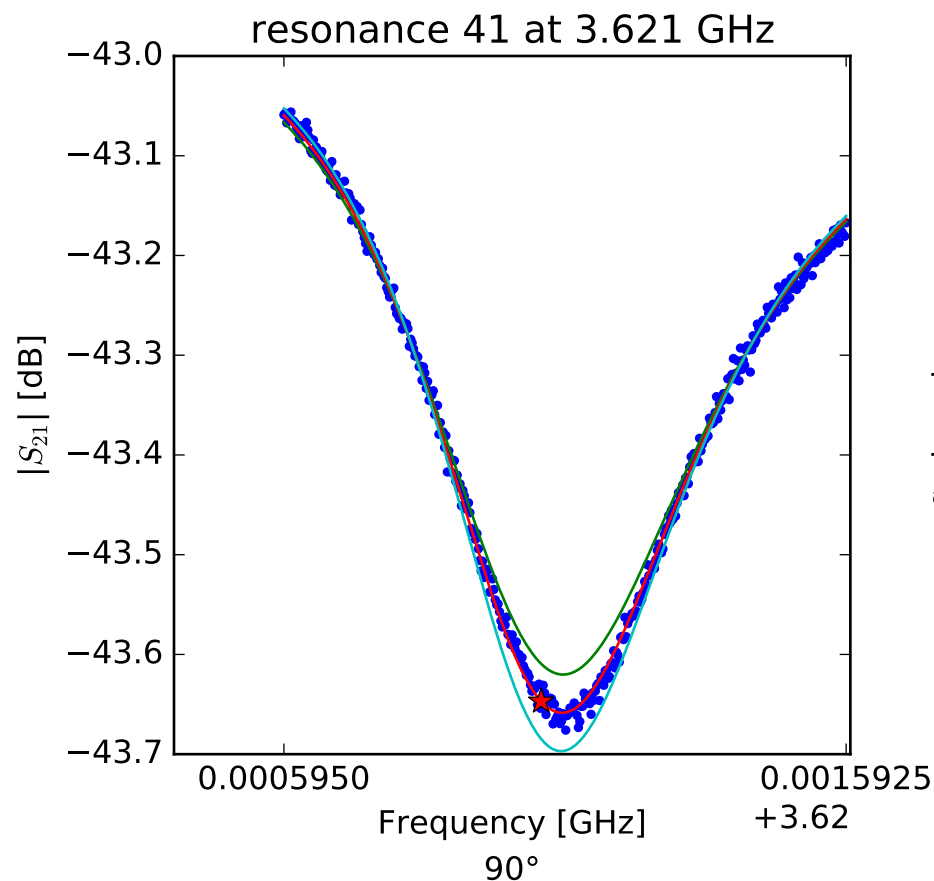
$$Q_r = 7590.89493793$$

$$Q_c = 144051.940262$$

$$a = (-0.00611813774419 + 0.00336883762895j)$$

$$\phi_0 = -0.194156854875$$

$$\tau = 37.9602466599$$



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

$$f_r = 3.62105138968$$

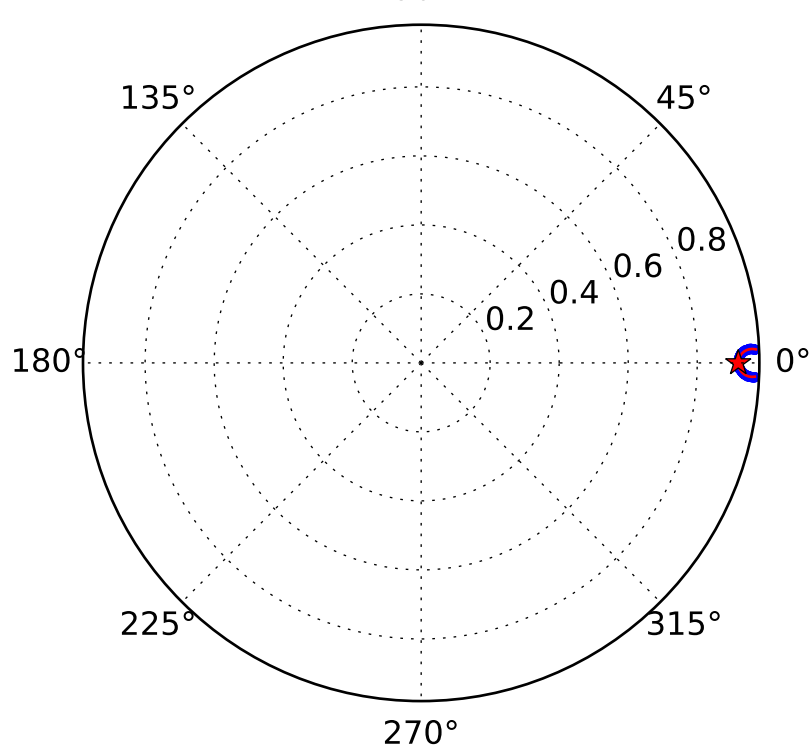
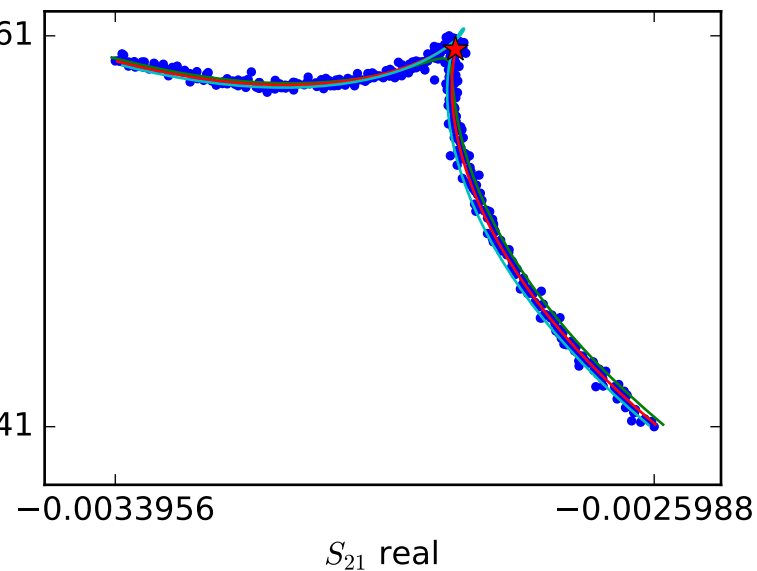
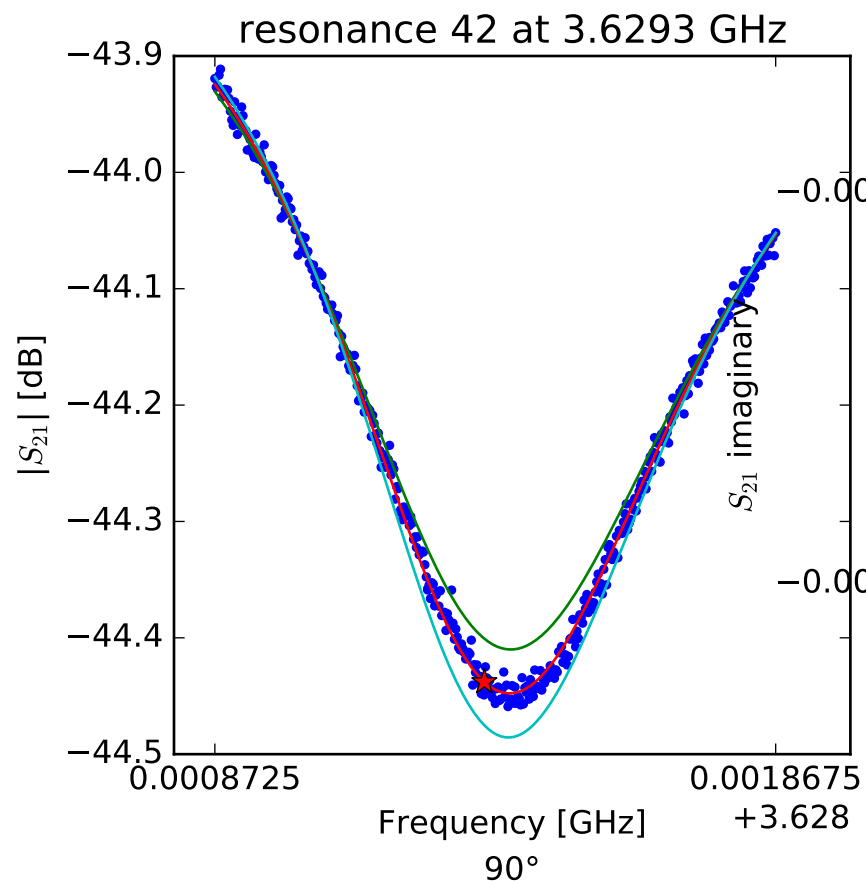
$$Q_r = 5852.03087846$$

$$Q_c = 71053.6397097$$

$$a = (-0.00569853672952 + 0.00430665693452j)$$

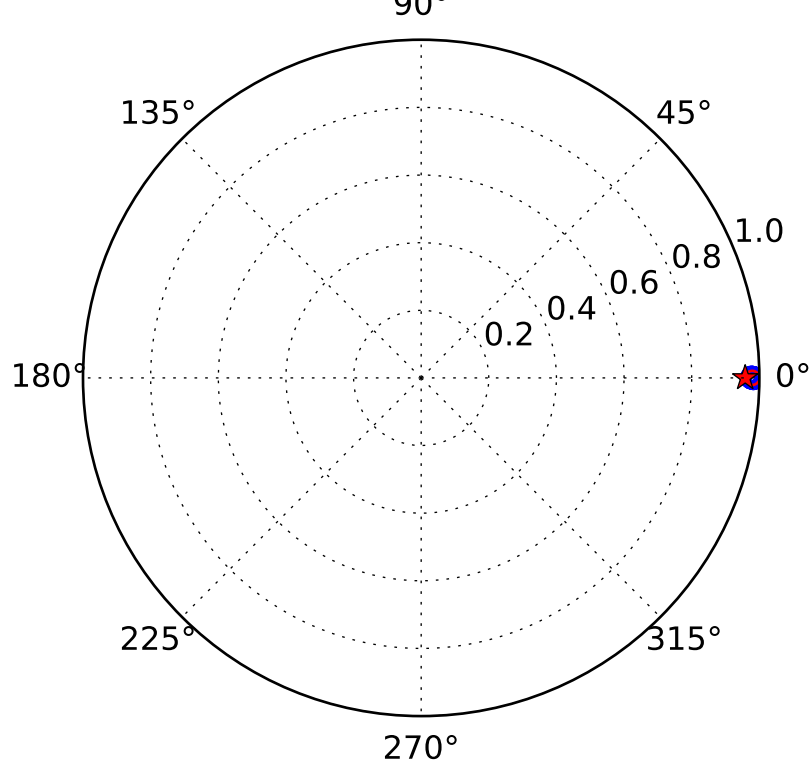
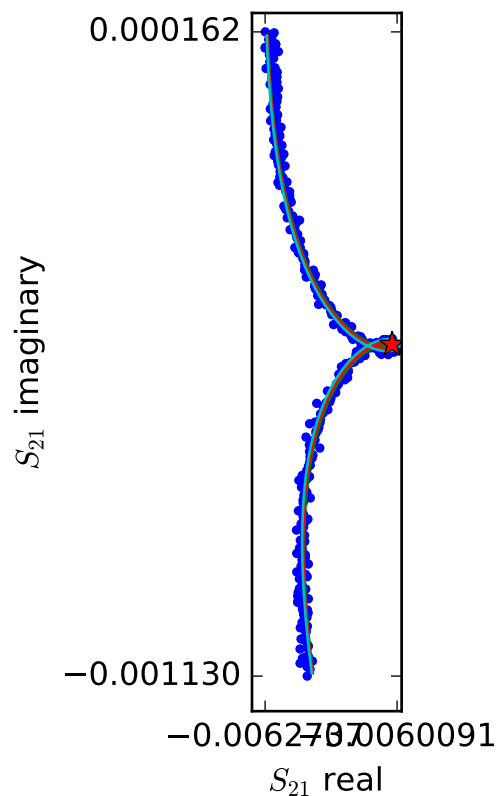
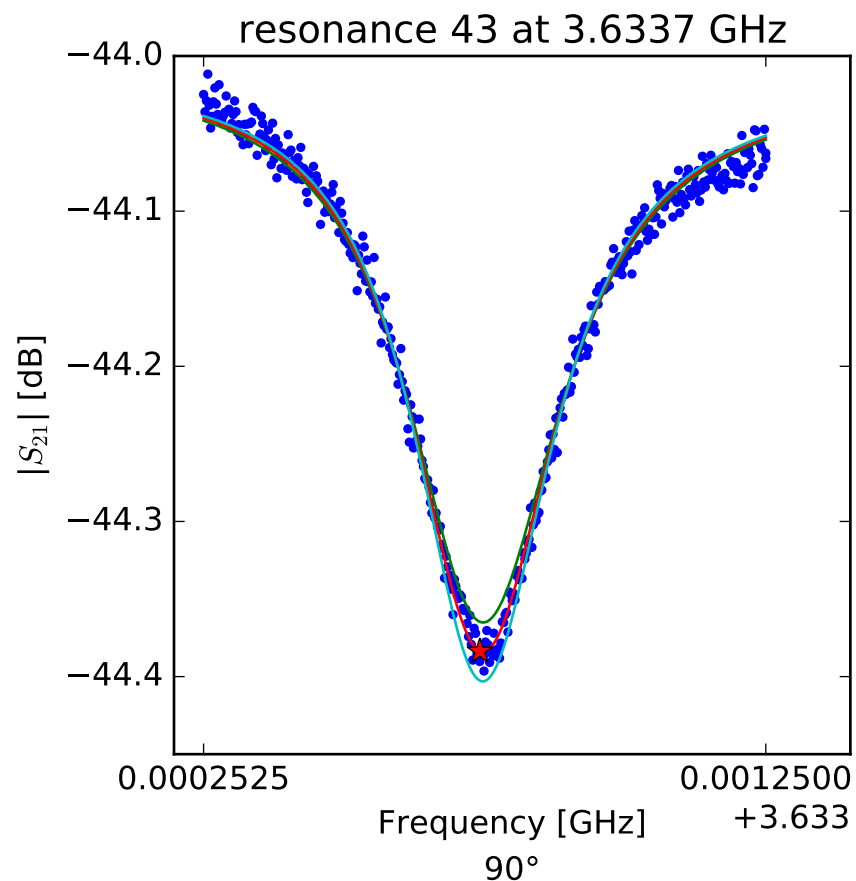
$$\phi_0 = 0.228846807751$$

$$\tau = 39.0522715053$$



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

$f_r = 3.6293506053$
 $Q_r = 4547.01900179$
 $Q_c = 56073.0007933$
 $a = (0.00381178963569 + 0.00528296600941j)$
 $\phi_0 = 0.213749627072$
 $\tau = 37.0528054727$



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

$$f_r = 3.63374256504$$

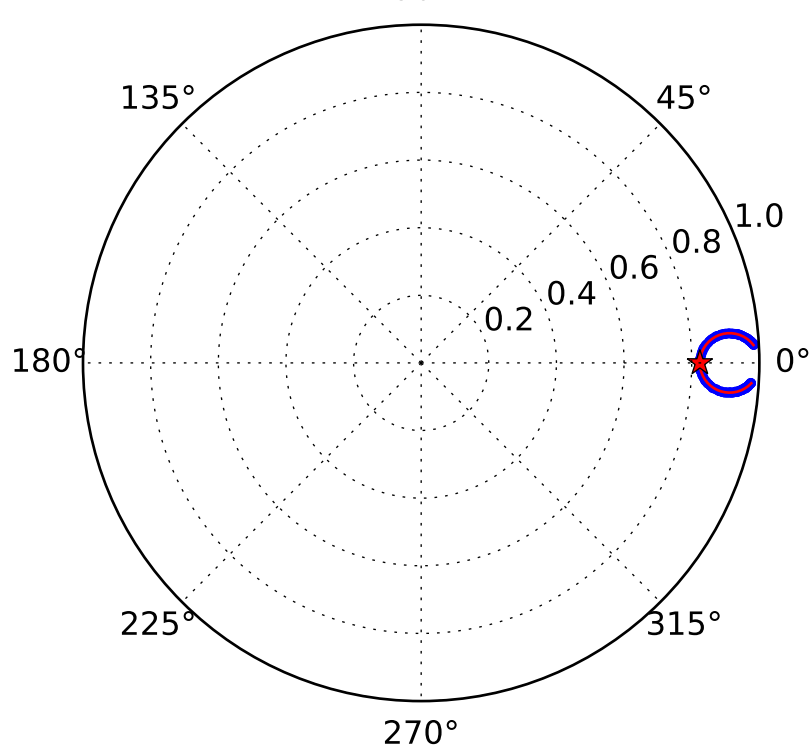
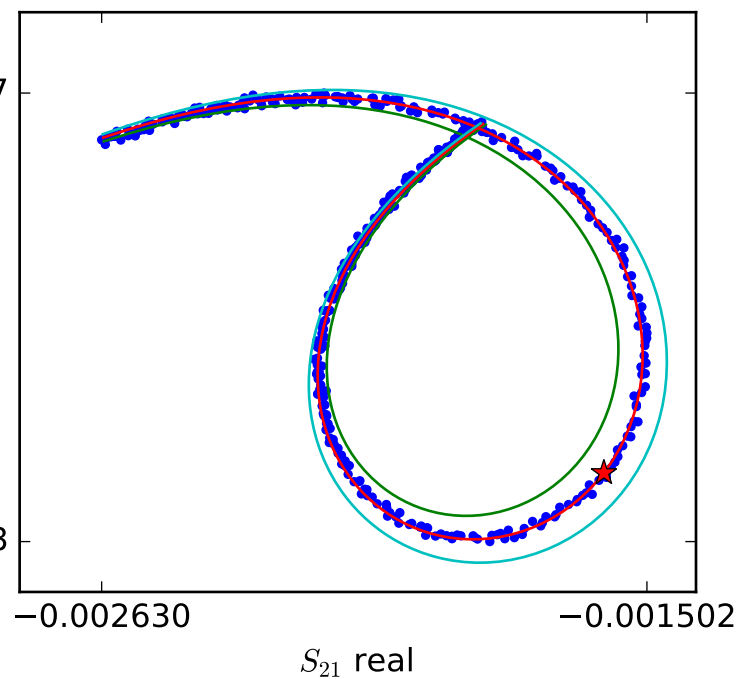
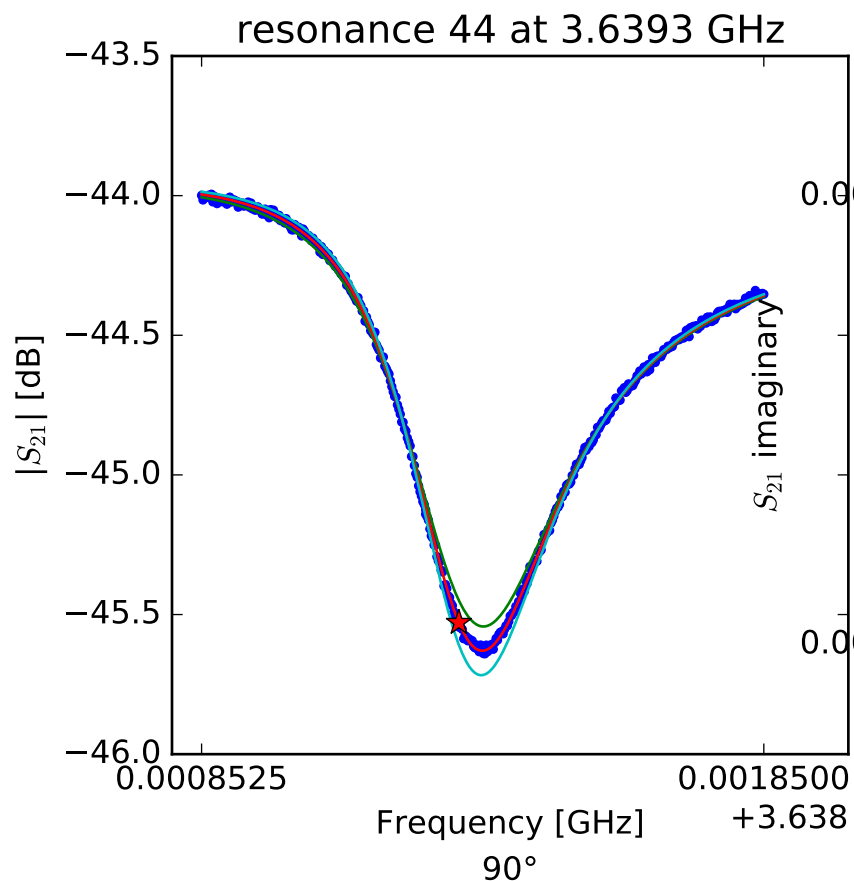
$$Q_r = 11264.4631971$$

$$Q_c = 268727.004572$$

$$a = (-0.00251466314034 + 0.00577683021446j)$$

$$\phi_0 = 0.0682727914506$$

$$\tau = 36.5470605319$$



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

$$f_r = 3.63930889954$$

$$Q_r = 10076.0366535$$

$$Q_c = 57279.7245323$$

$$a = (-0.00584592370107 + 0.00230716093519j)$$

$$\phi_0 = 0.413889658511$$

$$\tau = 36.3058456919$$