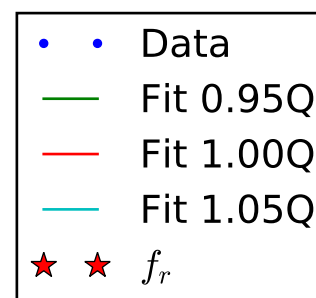
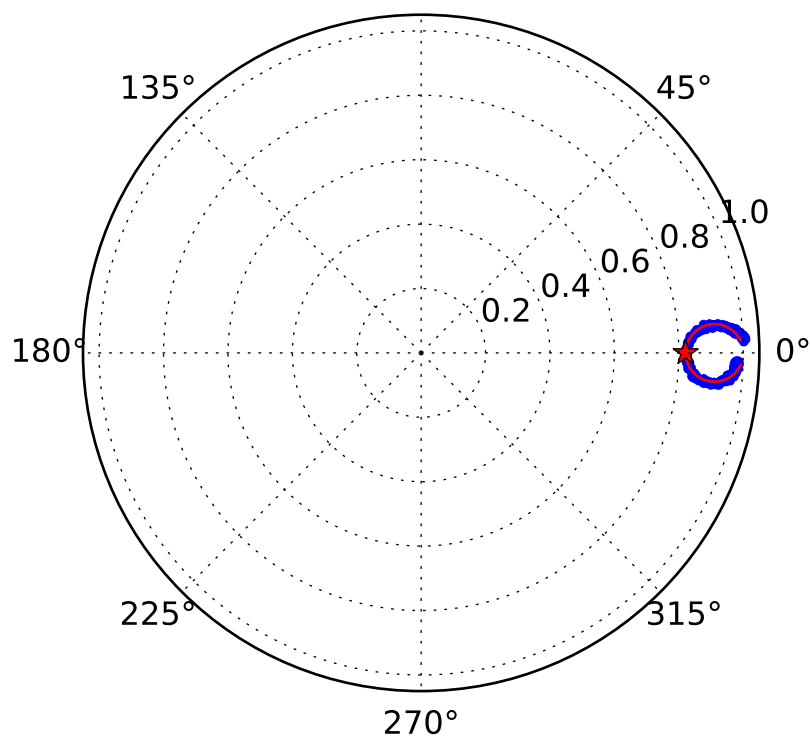
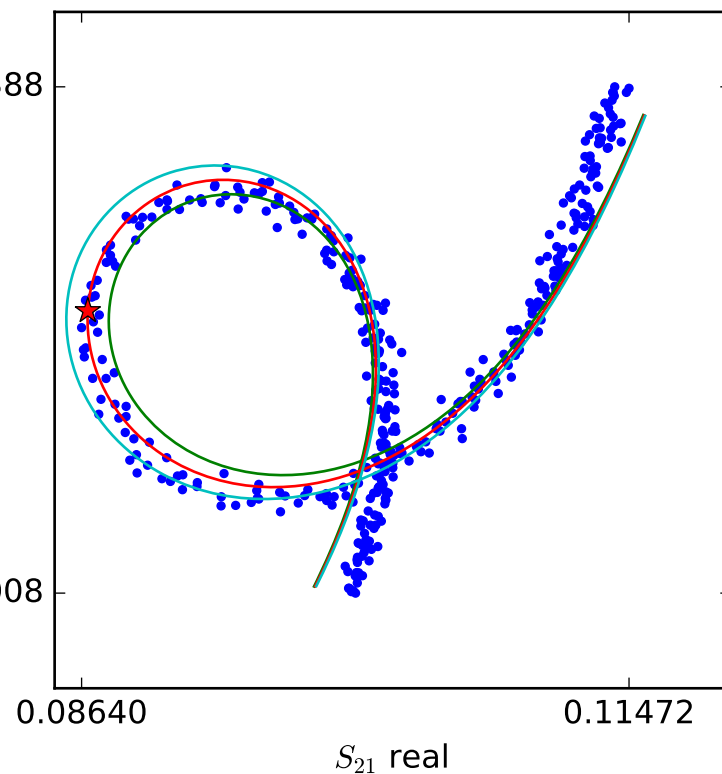
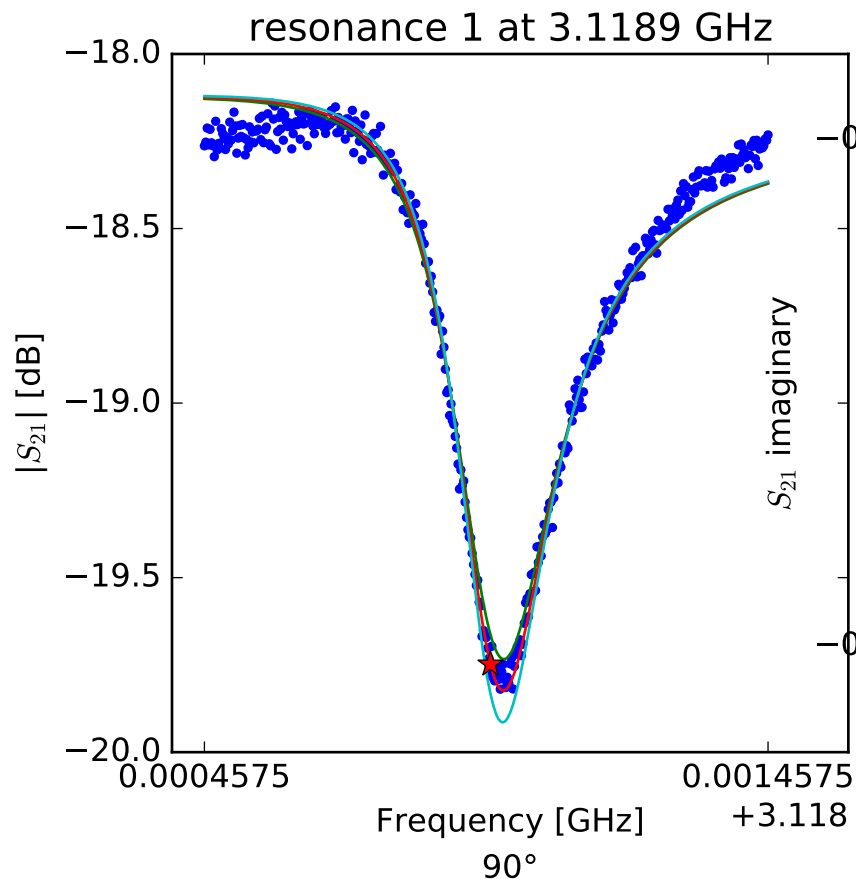


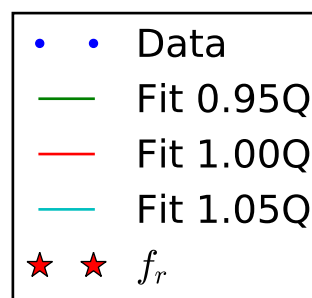
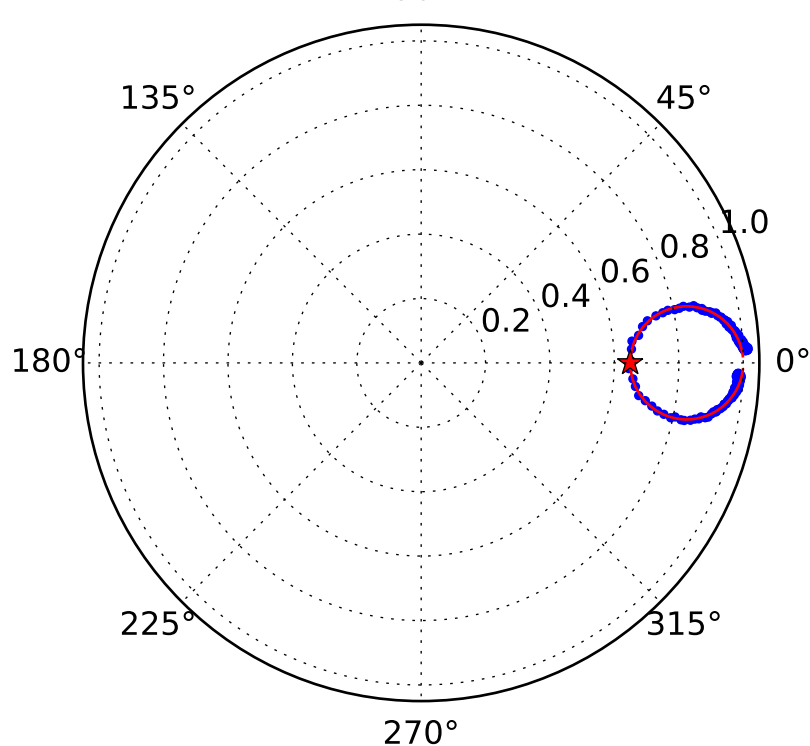
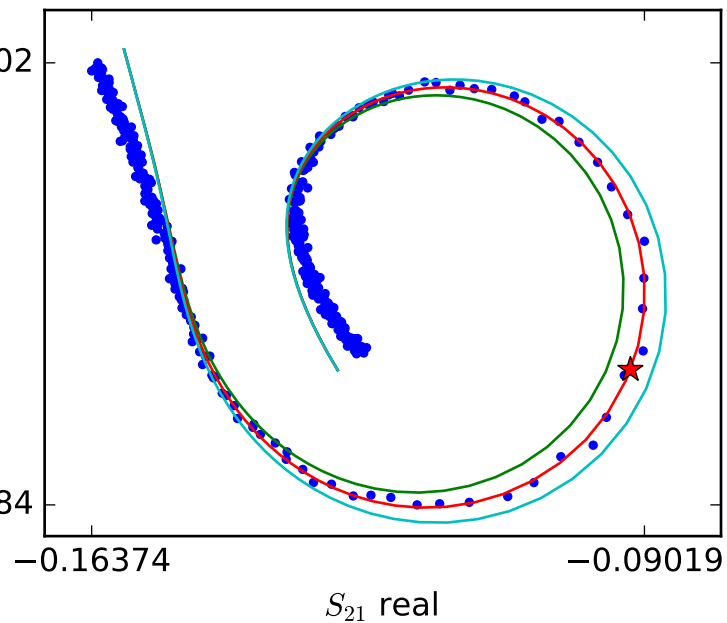
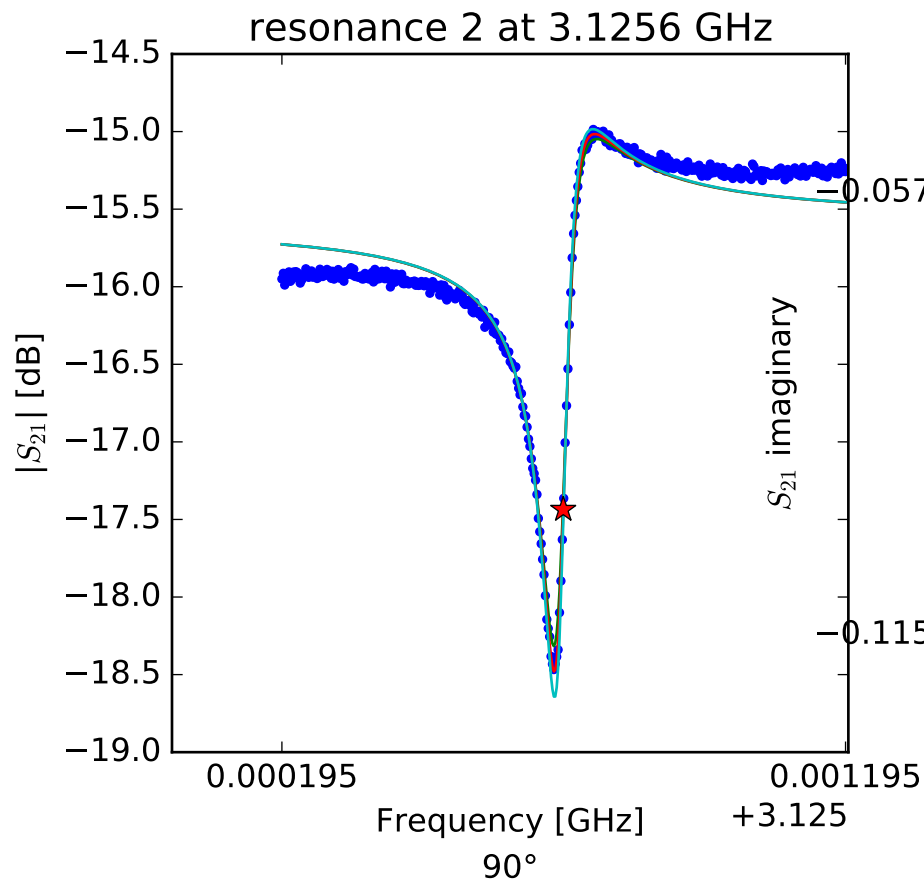
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.11420552382 \\ Q_r &= 9967.45181647 \\ Q_c &= 62984.9864817 \\ a &= (0.0138843189887 - 0.101594002697j) \\ \phi_0 &= -2.93113911278 \\ \tau &= 49.3265172851 \end{aligned}$$



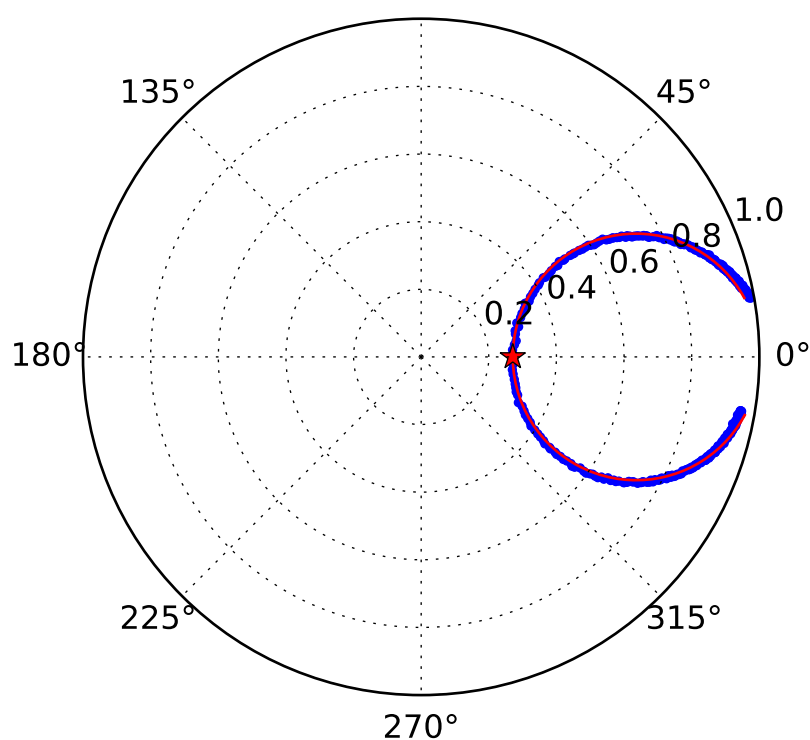
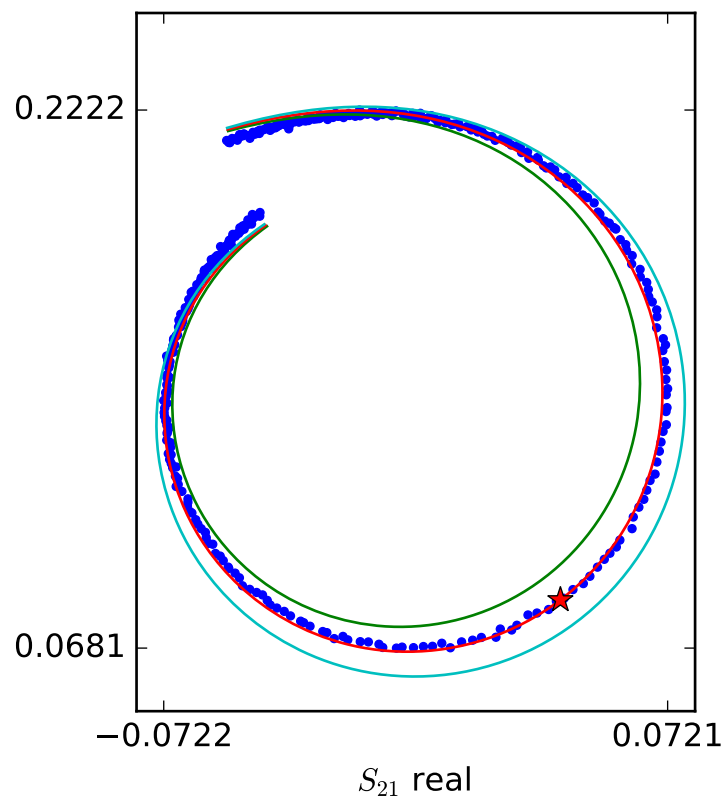
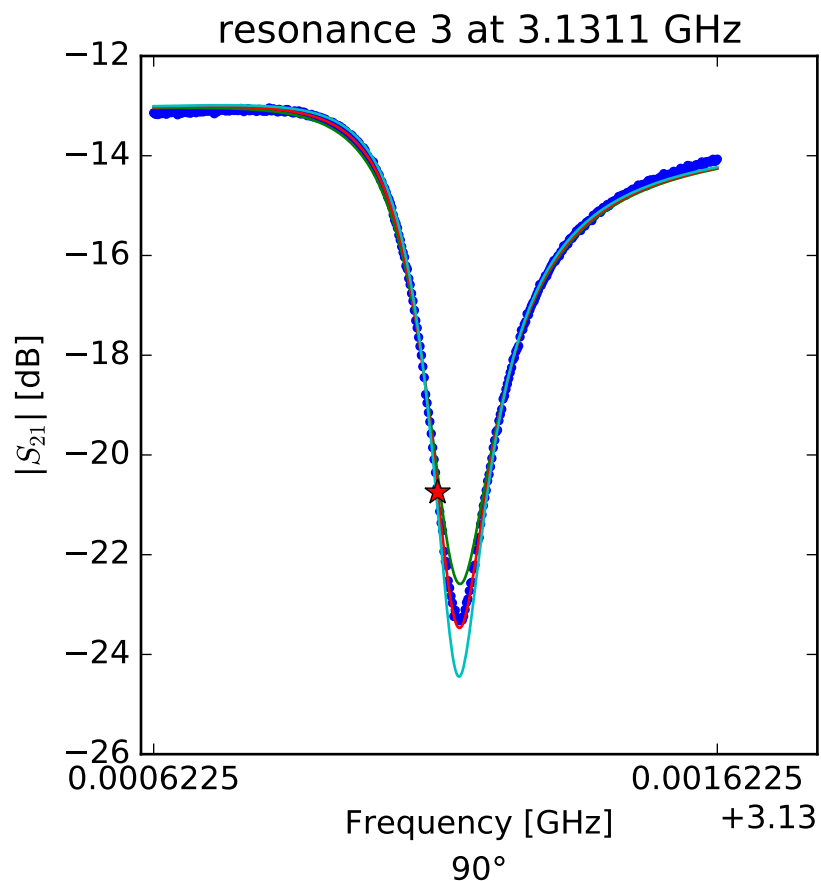
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.11896507341 \\ Q_r &= 13386.5621218 \\ Q_c &= 74836.8379753 \\ a &= (0.121473110958 + 0.0216579496506j) \\ \phi_0 &= 0.350721192989 \\ \tau &= 50.3714899835 \end{aligned}$$



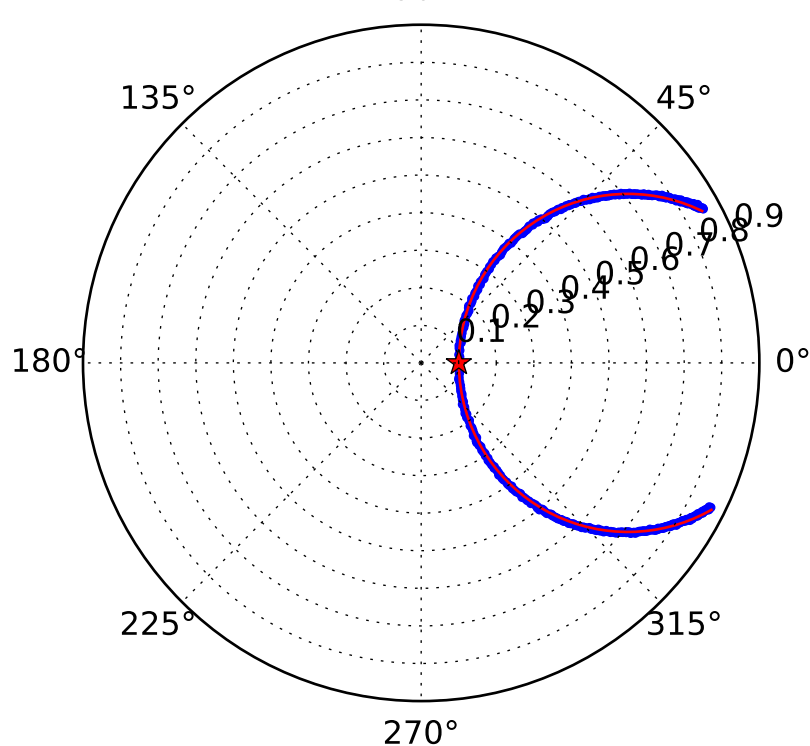
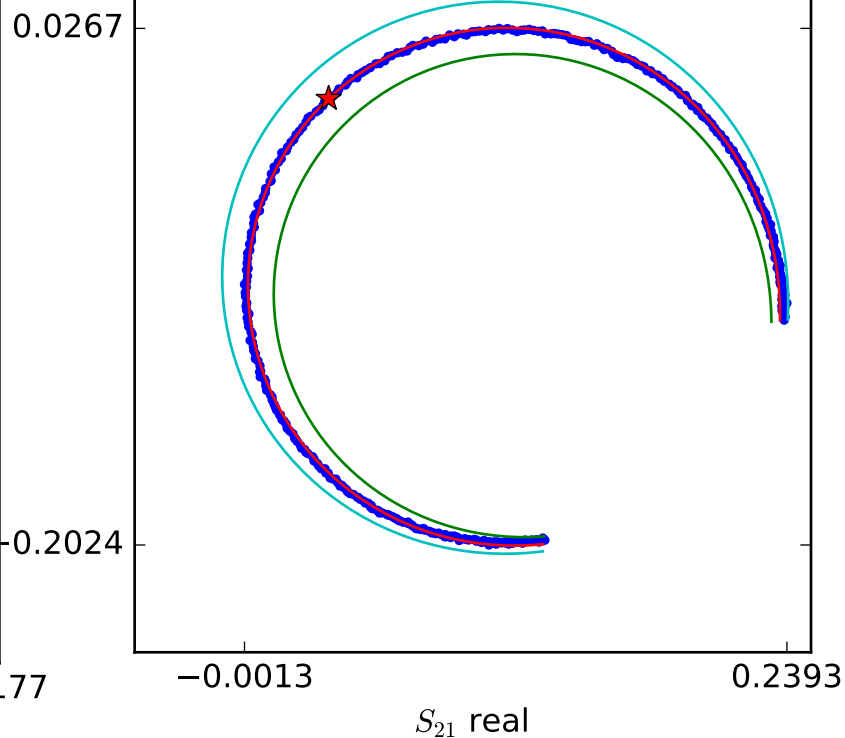
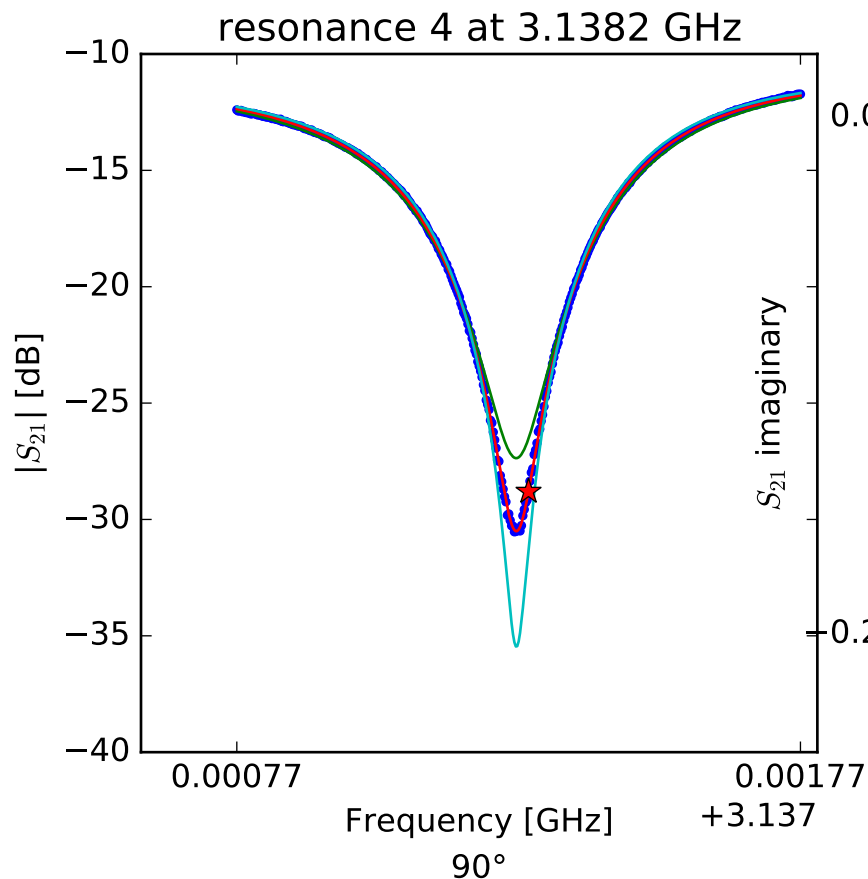
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.12569419502 \\ Q_r &= 52180.8330188 \\ Q_c &= 148575.320801 \\ a &= (0.125592917441 - 0.108963279354j) \\ \phi_0 &= -0.836637305376 \\ \tau &= 53.5268969673 \end{aligned}$$



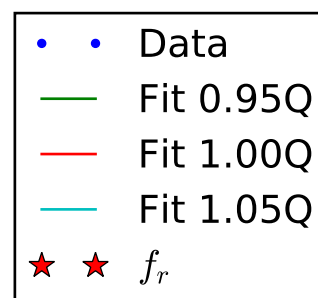
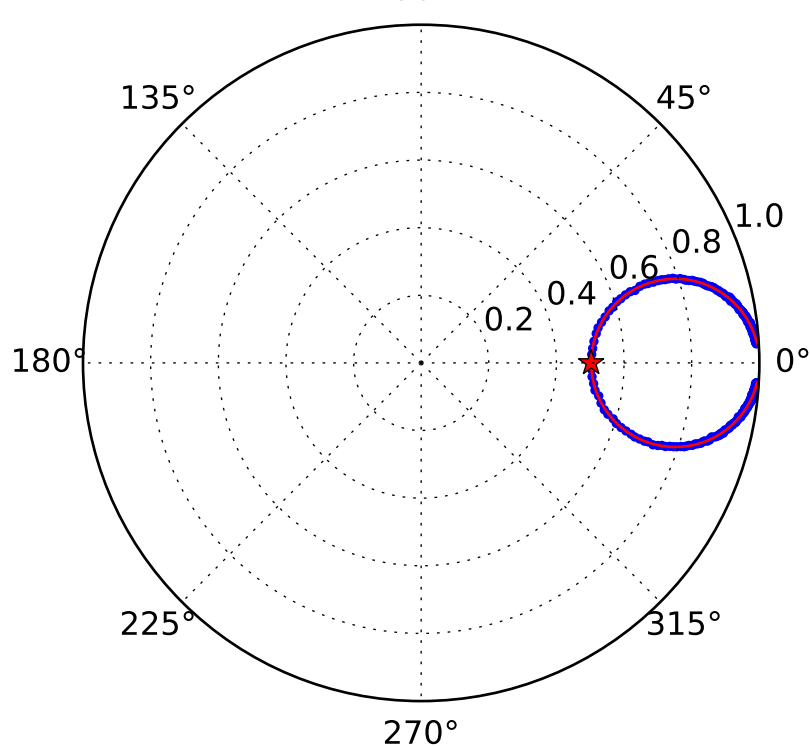
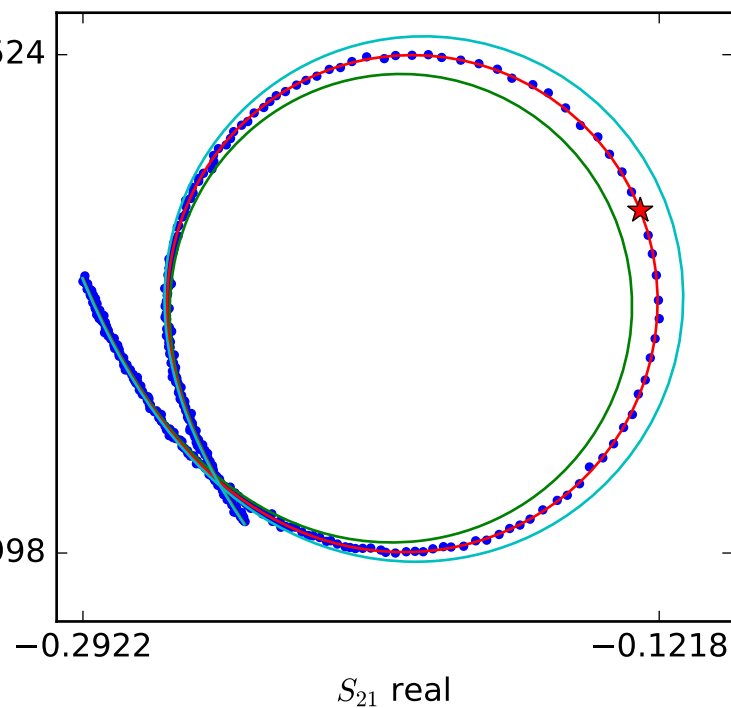
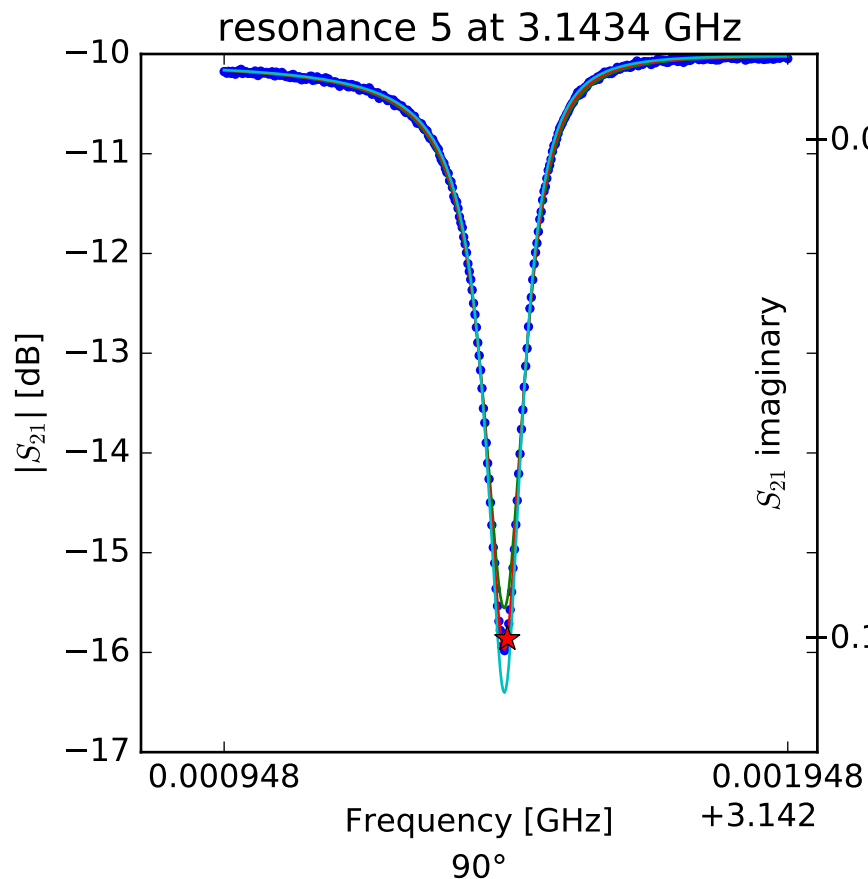
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.13112623644 \\ Q_r &= 12378.5839637 \\ Q_c &= 16975.2035745 \\ a &= (0.149838303456 - 0.153615468816j) \\ \phi_0 &= 0.38997838062 \\ \tau &= 55.7579837027 \end{aligned}$$



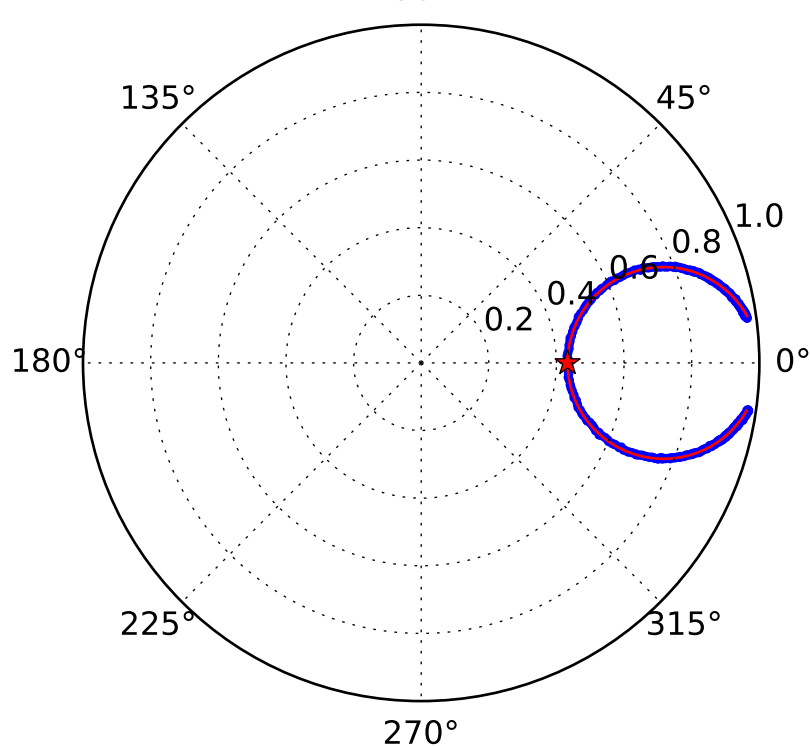
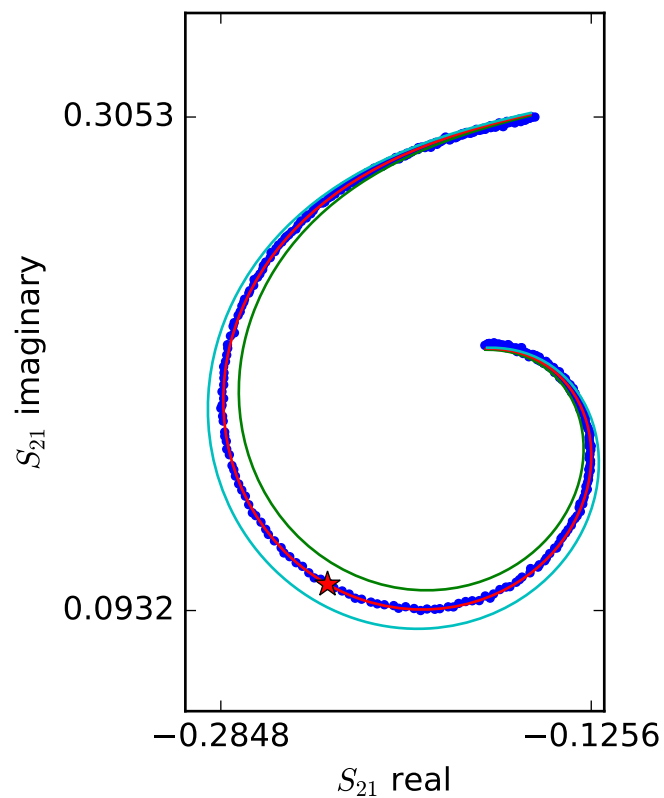
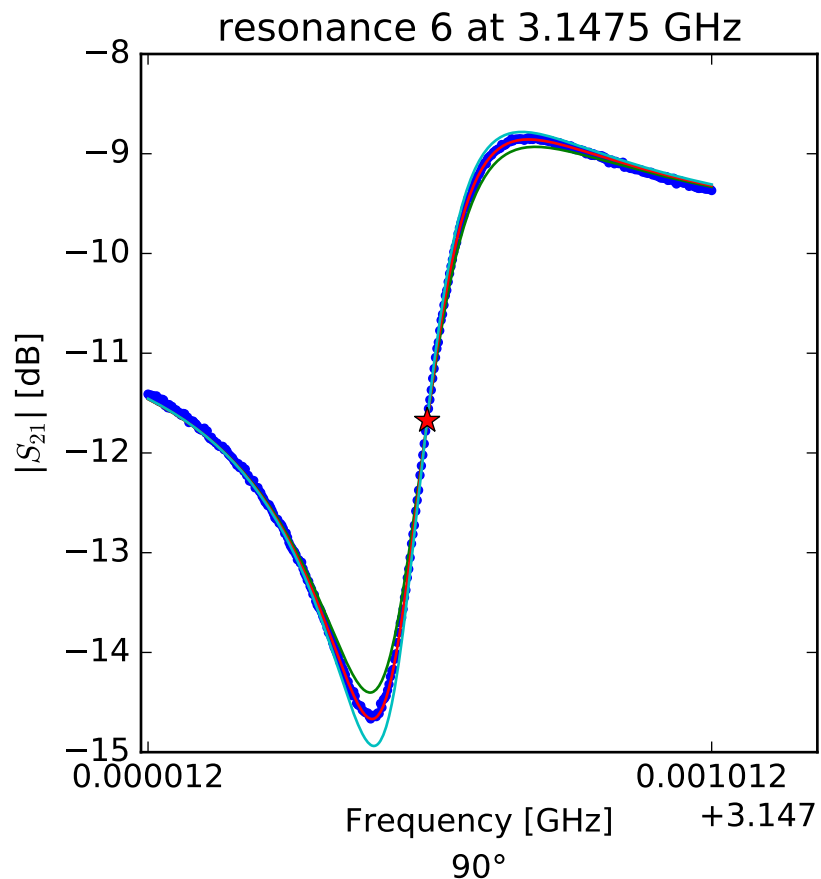
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.13828755166 \\ Q_r &= 5209.28329252 \\ Q_c &= 5789.39354069 \\ a &= (0.0383574448613 + 0.287710977726j) \\ \phi_0 &= -0.0789946493536 \\ \tau &= 60.0149995513 \end{aligned}$$



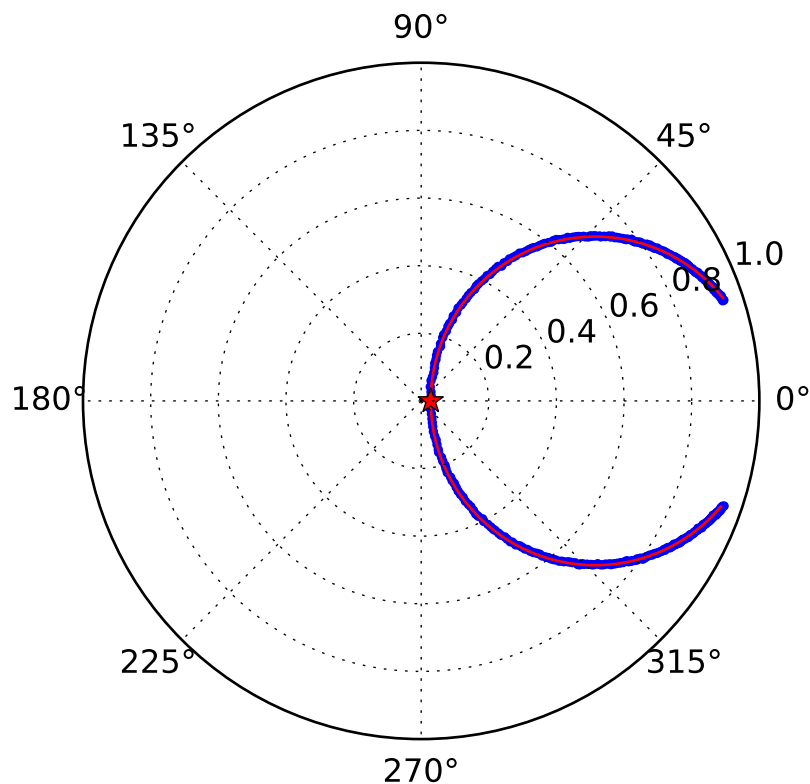
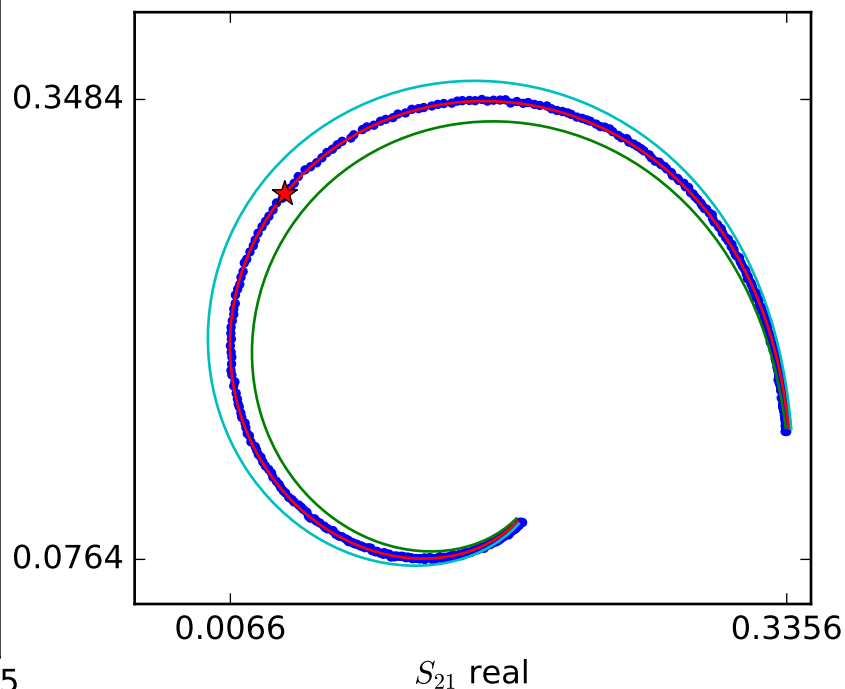
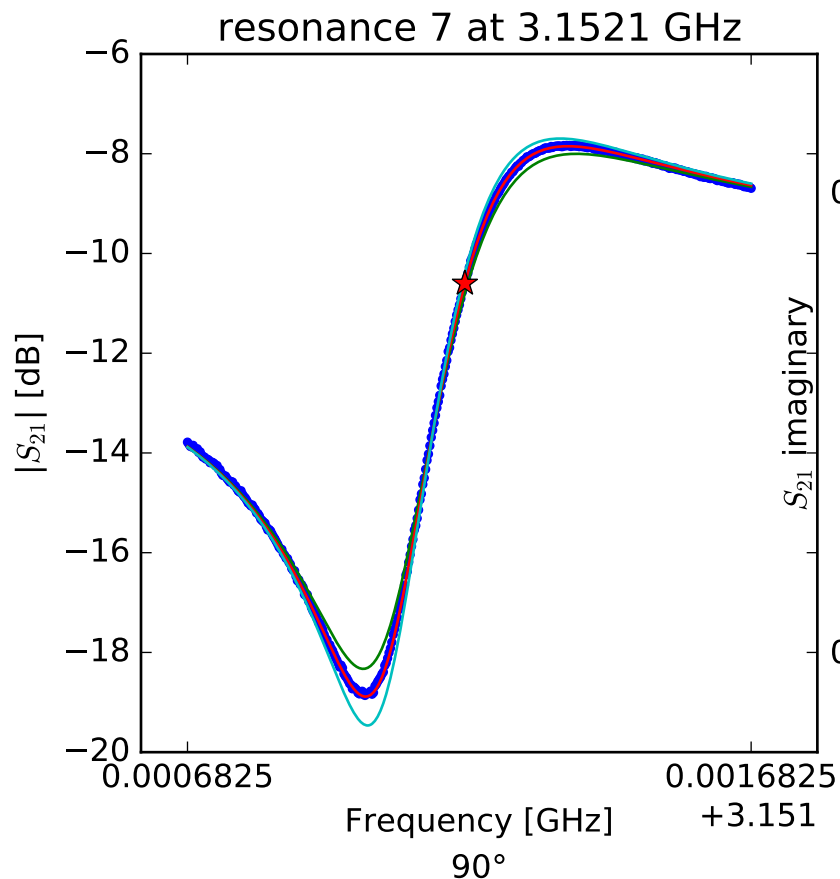
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.14344995253 \\ Q_r &= 26668.7973336 \\ Q_c &= 53614.6749135 \\ a &= (-0.236508819768 - 0.20722800948j) \\ \phi_0 &= -0.138970735118 \\ \tau &= 62.679953021 \end{aligned}$$



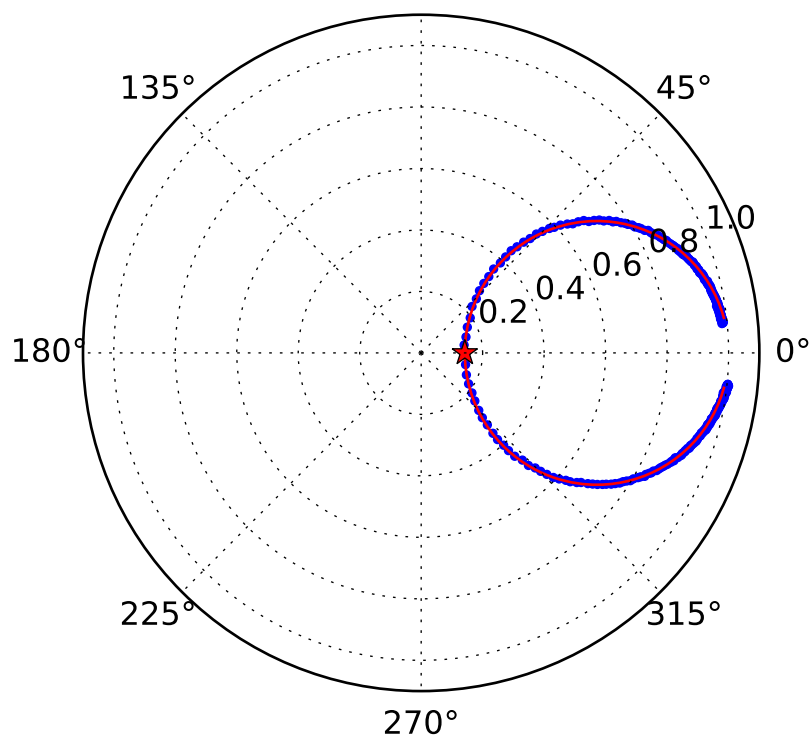
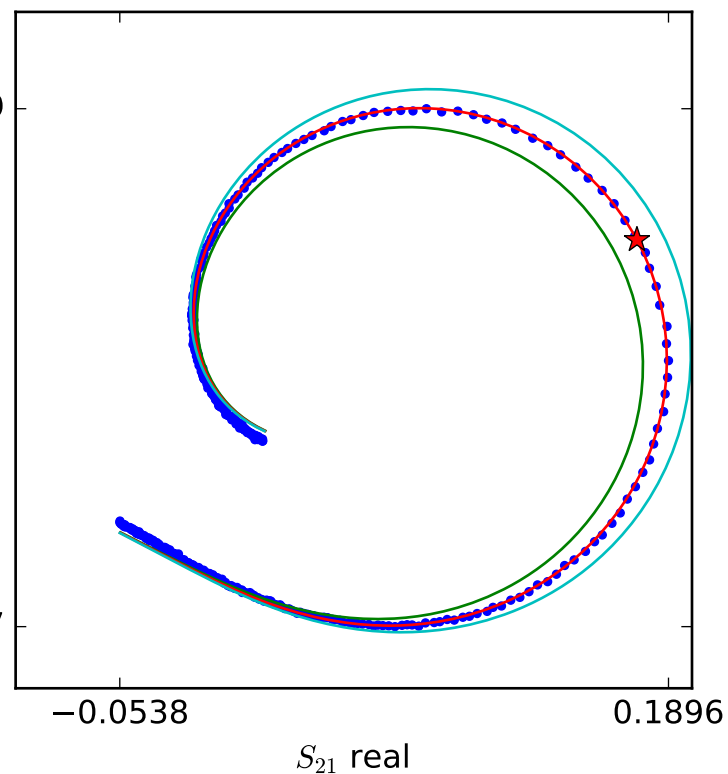
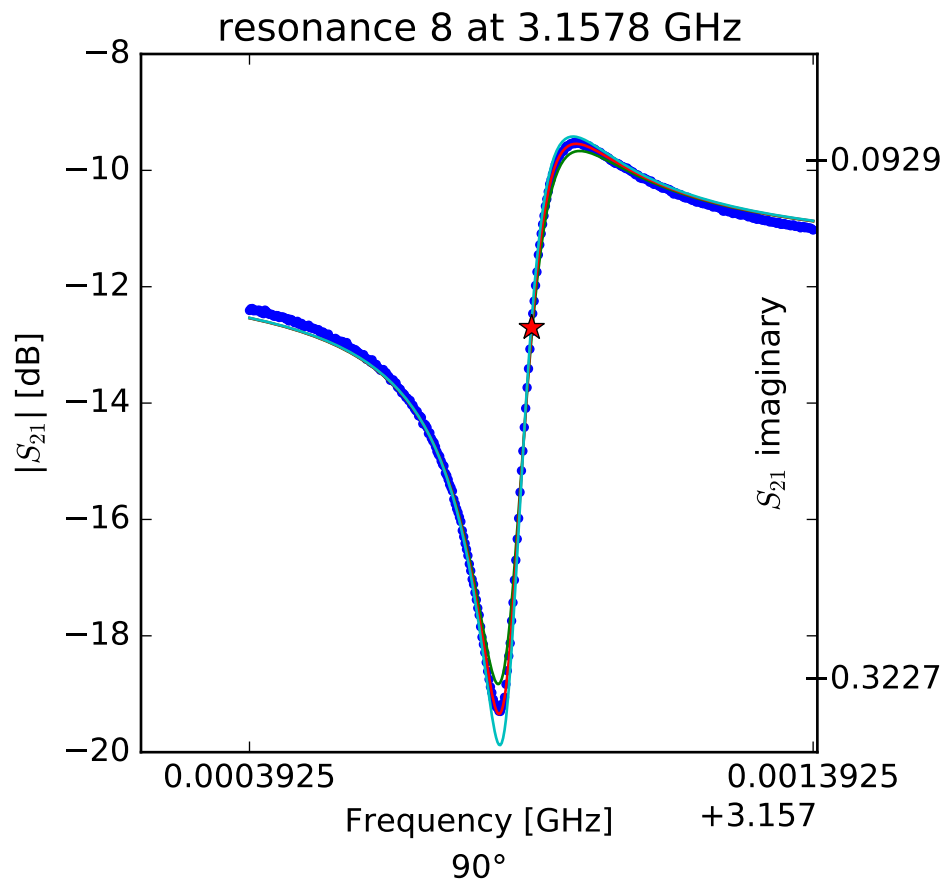
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.14750780843 \\ Q_r &= 11878.1397506 \\ Q_c &= 20943.5676987 \\ a &= (-0.305121033685 - 0.0561980490773j) \\ \phi_0 &= -0.997557715496 \\ \tau &= 60.7434706768 \end{aligned}$$



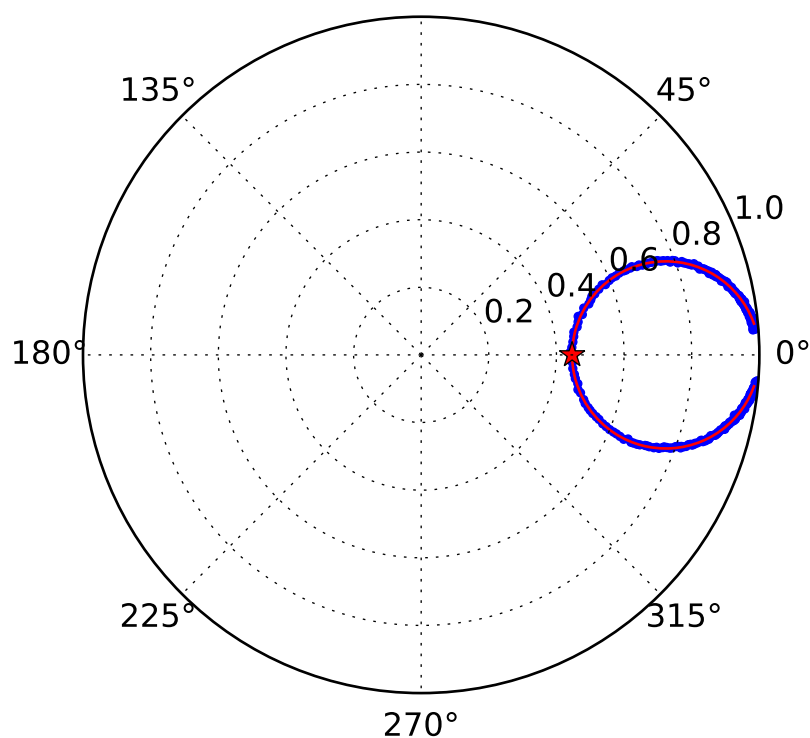
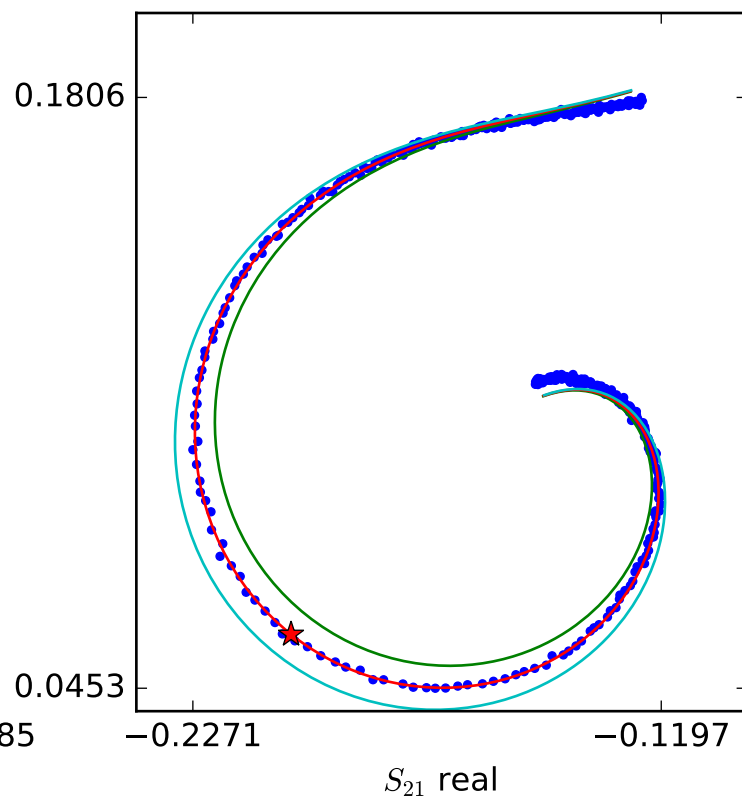
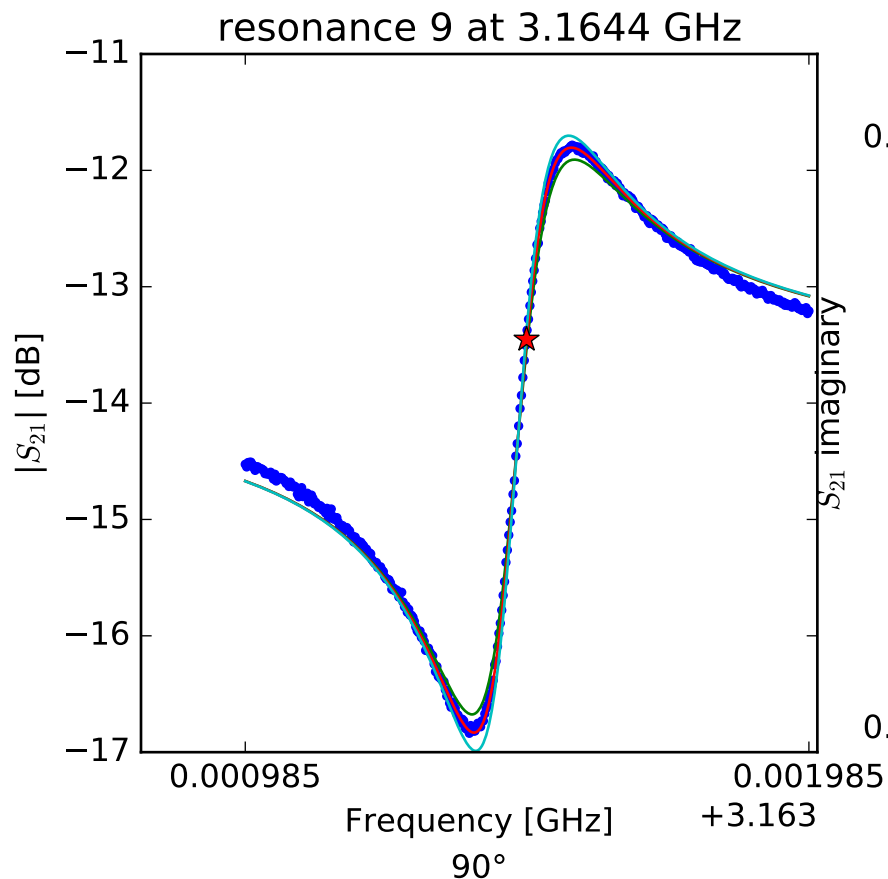
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})} \right]$$

$$\begin{aligned} f_r &= 3.15217457505 \\ Q_r &= 8782.68799412 \\ Q_c &= 9037.43814266 \\ a &= (-0.173187984397 - 0.24479816427j) \\ \phi_0 &= -1.04484463079 \\ \tau &= 58.875515442 \end{aligned}$$



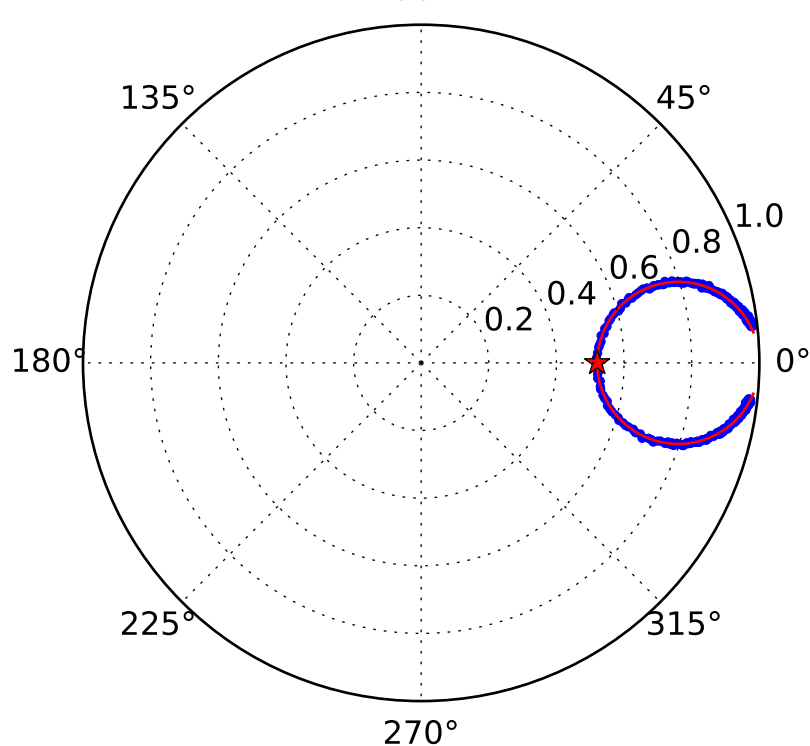
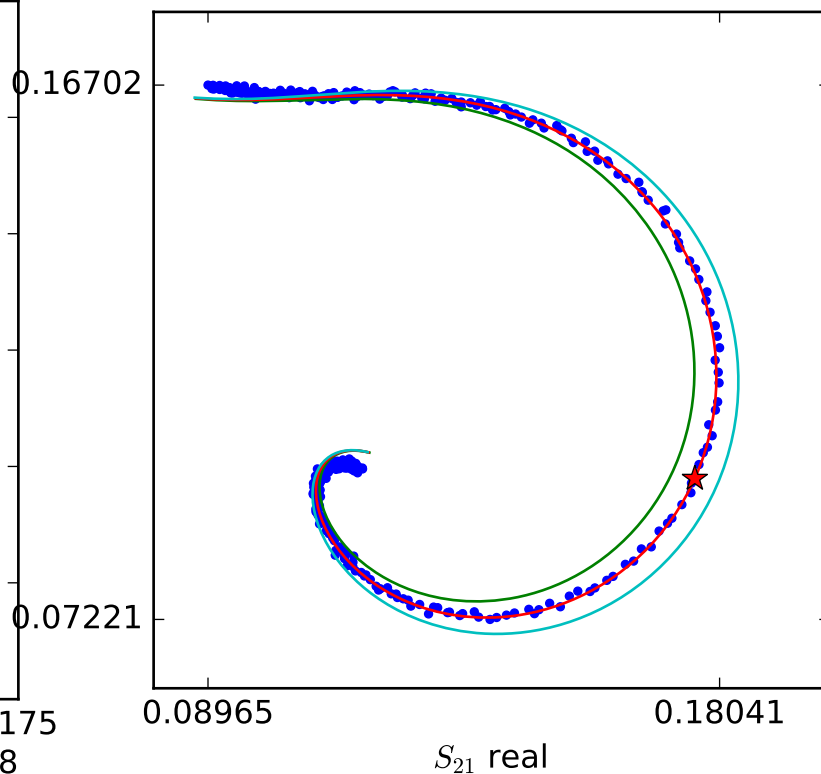
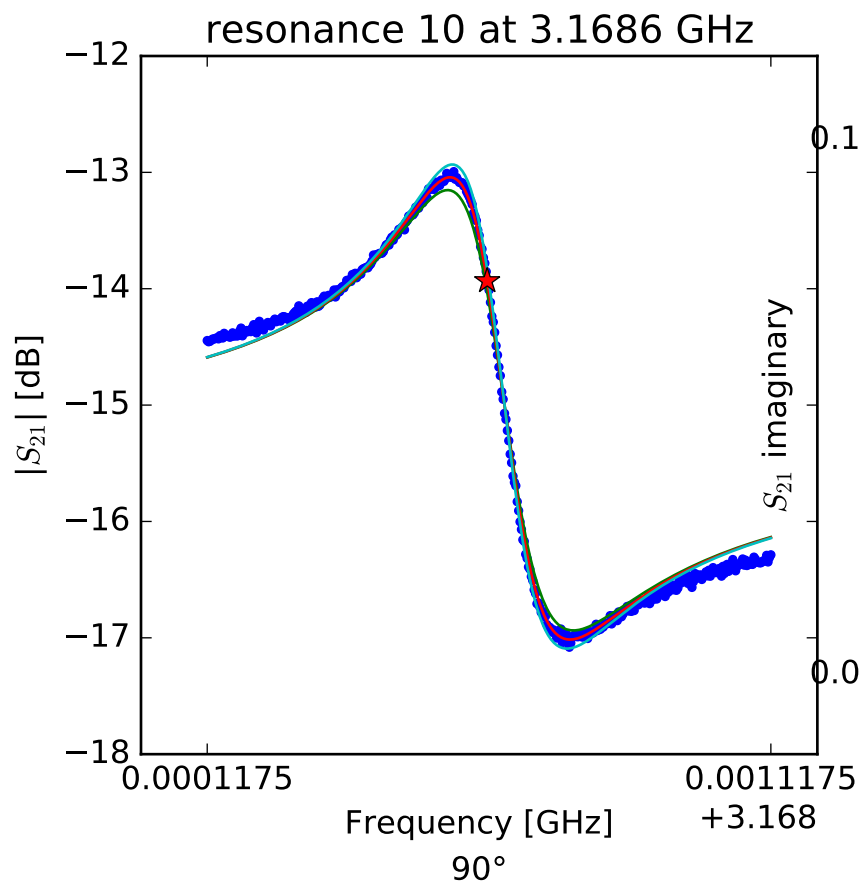
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.15789318212 \\ Q_r &= 23350.0029521 \\ Q_c &= 27212.4989054 \\ a &= (0.163384046669 - 0.205817546832j) \\ \phi_0 &= -0.977663473191 \\ \tau &= 57.3544977823 \end{aligned}$$



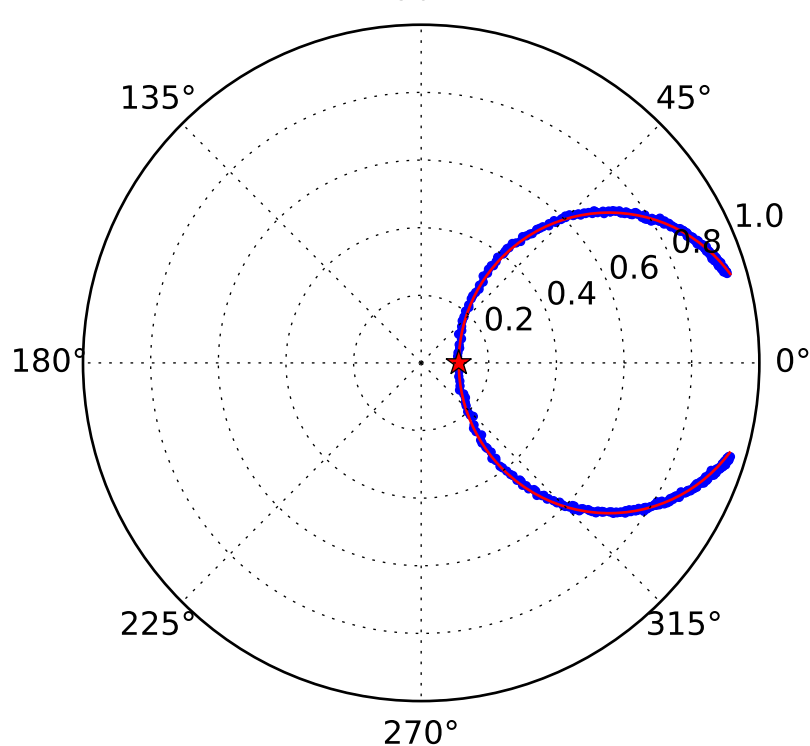
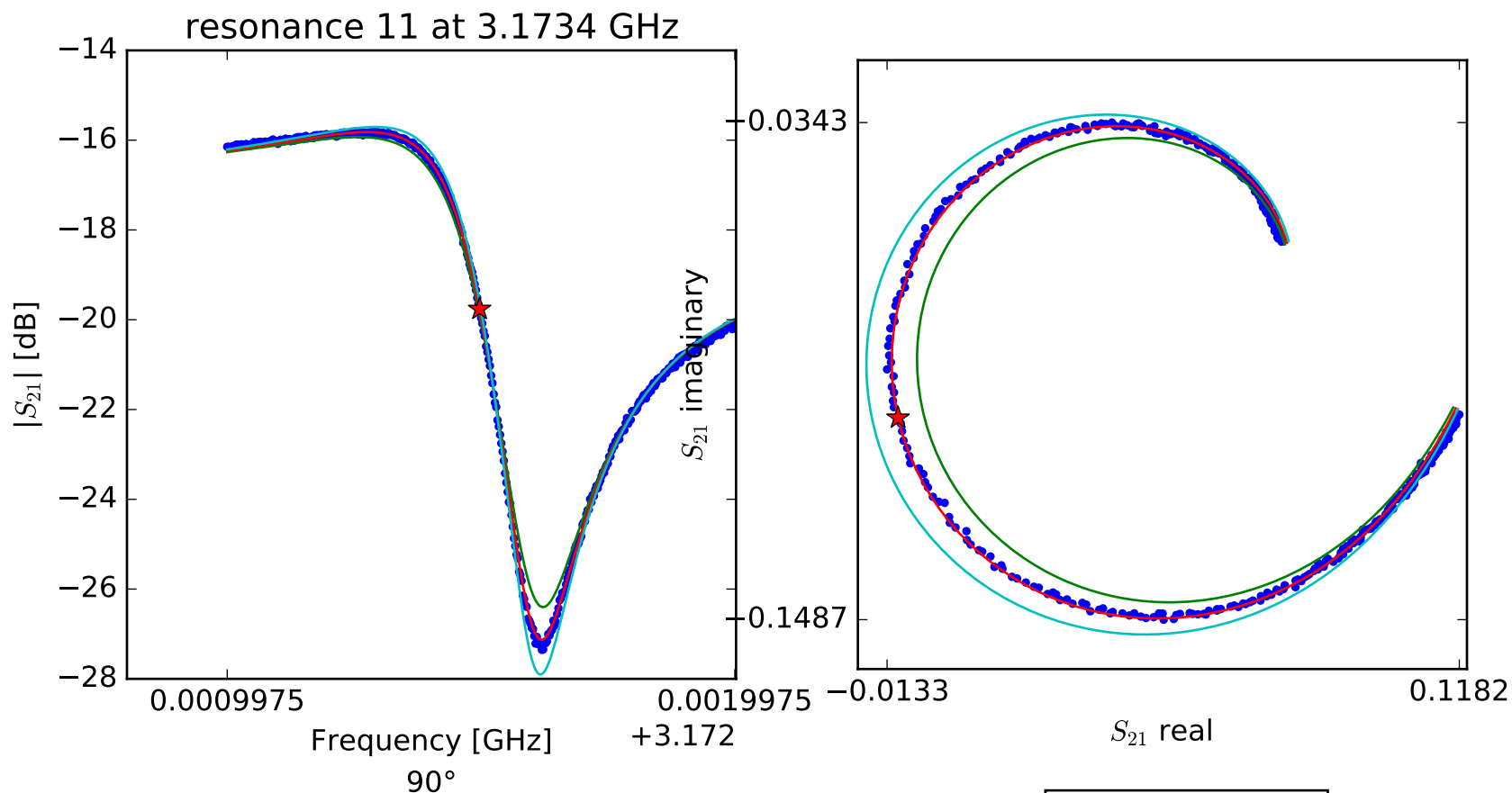
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.16448403496 \\ Q_r &= 18353.3180595 \\ Q_c &= 33150.59807 \\ a &= (-0.202167059527 - 0.0266015255198j) \\ \phi_0 &= -1.37036607726 \\ \tau &= 54.7171845649 \end{aligned}$$



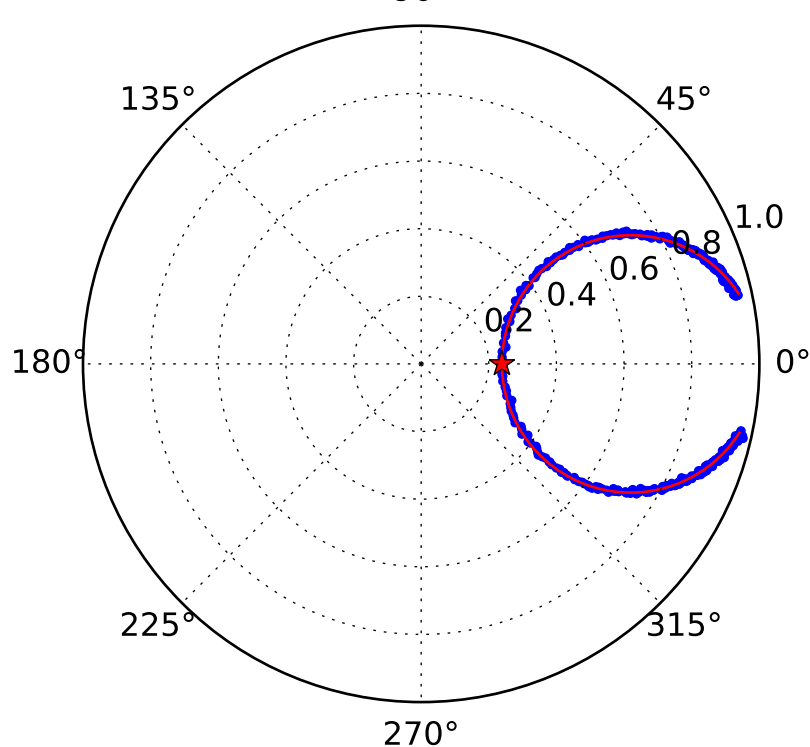
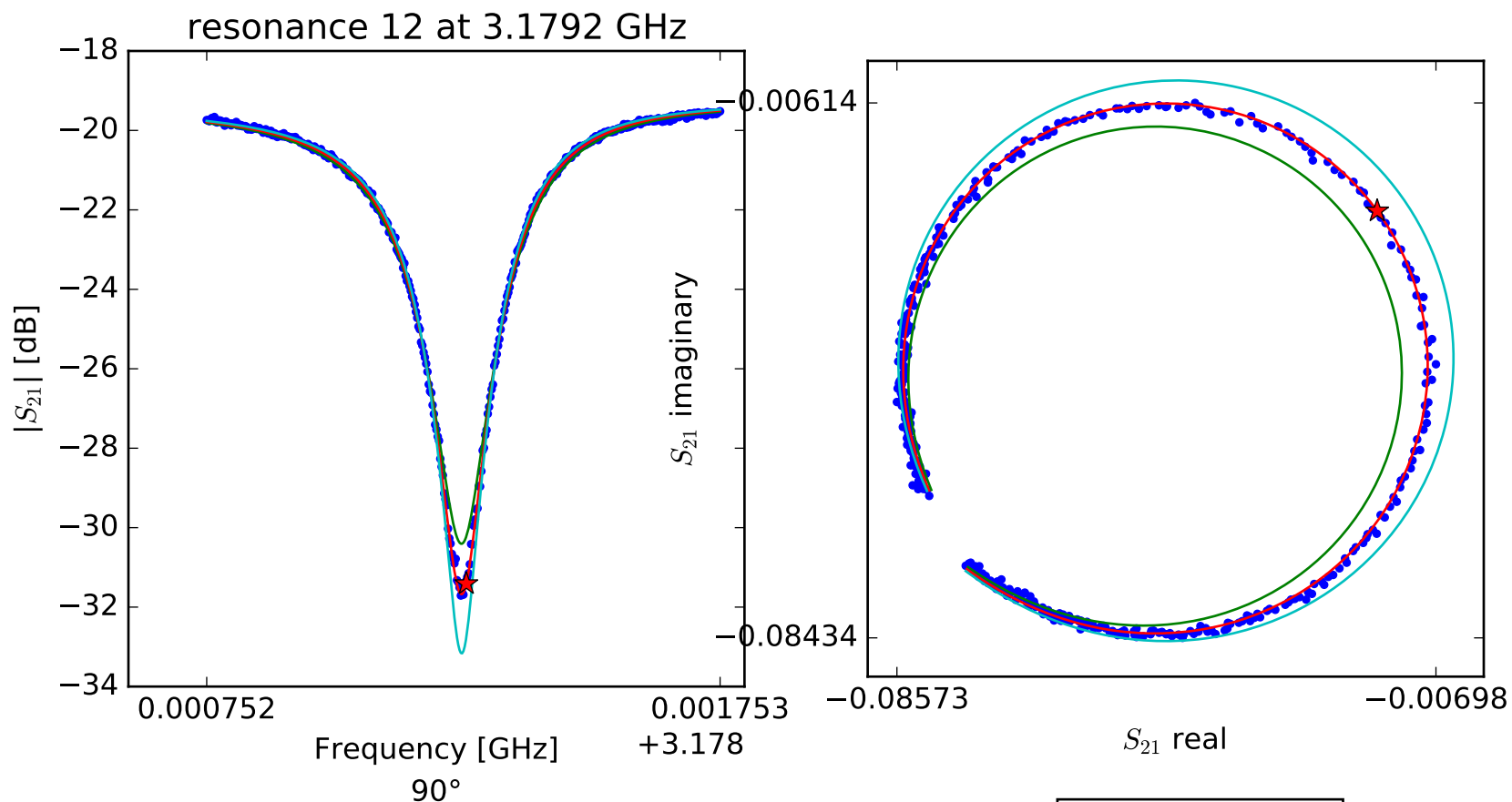
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.16861423827 \\ Q_r &= 16100.3202981 \\ Q_c &= 33574.9406963 \\ a &= (-0.0588558655996 - 0.160079129821j) \\ \phi_0 &= 1.73839246616 \\ \tau &= 53.8241392827 \end{aligned}$$



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

$$\begin{aligned} f_r &= 3.17349469207 \\ Q_r &= 9642.67088598 \\ Q_c &= 10846.2807489 \\ a &= (0.0203312982919 - 0.130957425509j) \\ \phi_0 &= 0.838493364822 \\ \tau &= 51.0096271124 \end{aligned}$$

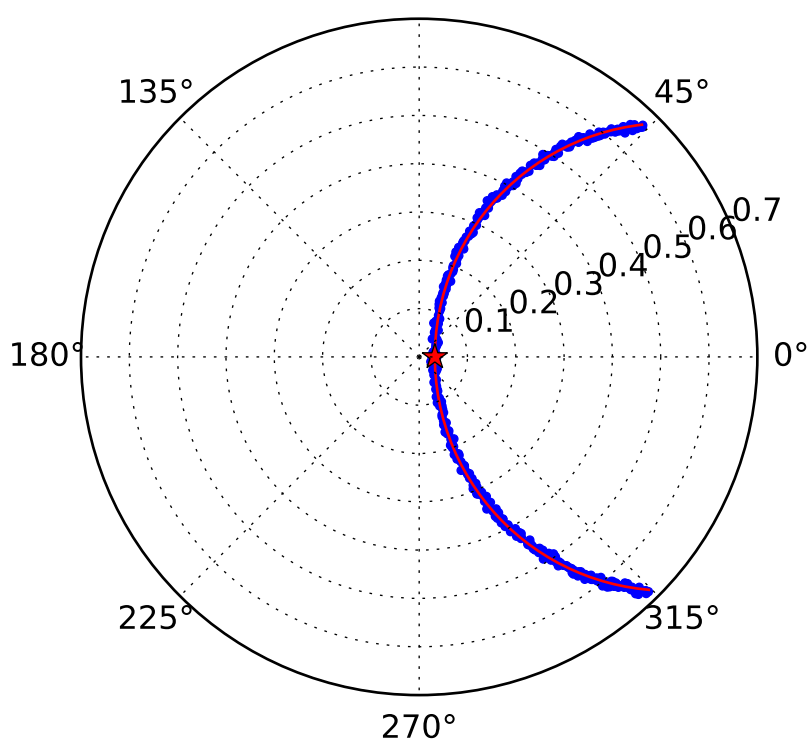
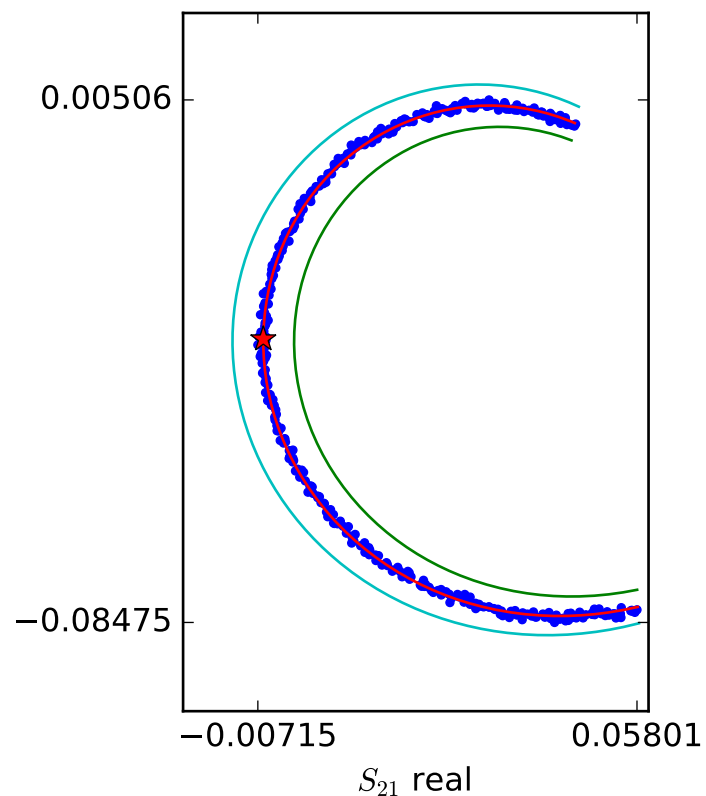
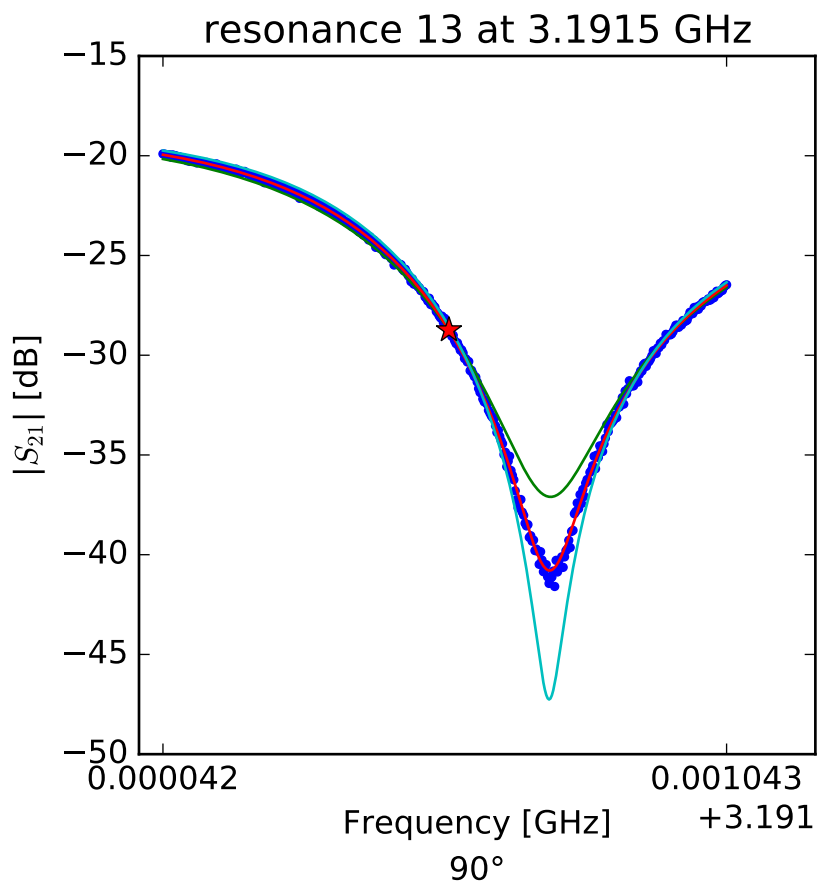


Legend:

- Data
- Fit 0.95Q
- Fit 1.00Q
- Fit 1.05Q
- ★ ★ f_r

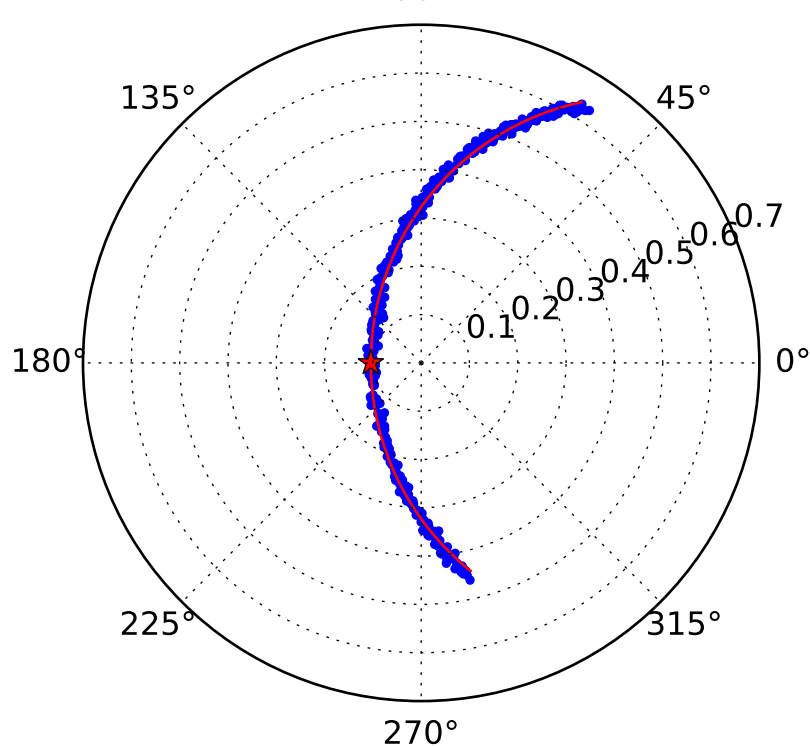
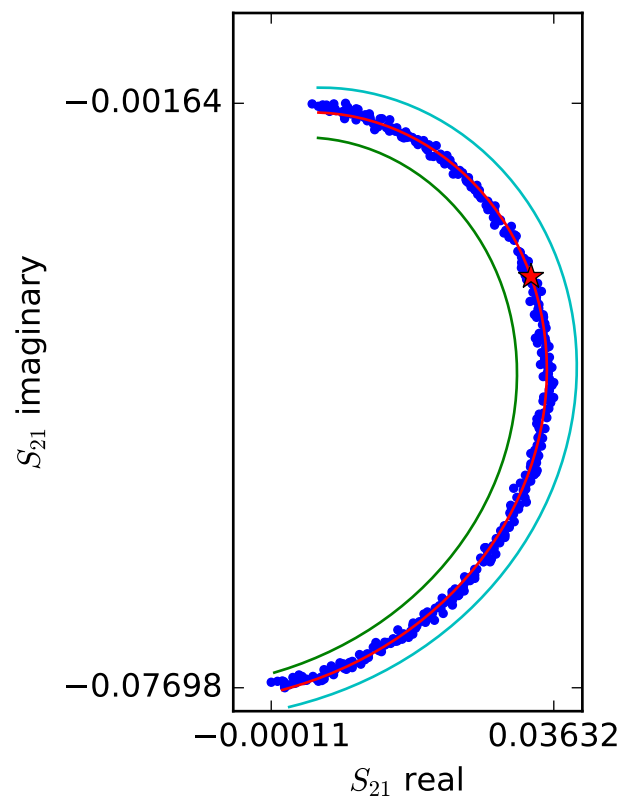
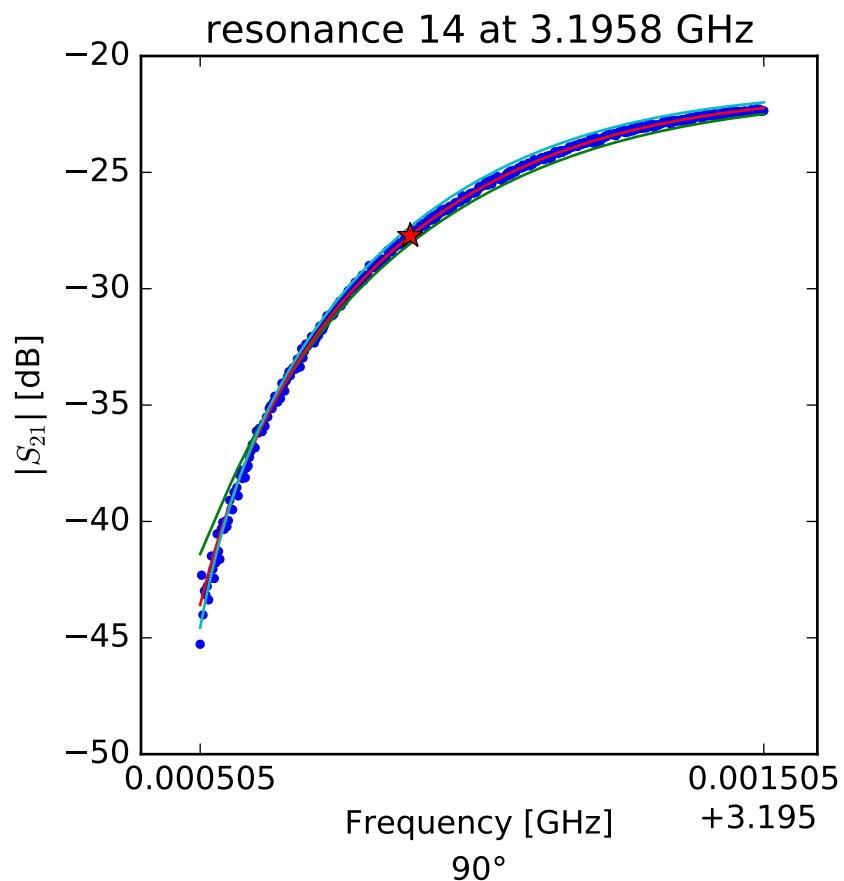
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$f_r = 3.1792581729$
 $Q_r = 10816.0376617$
 $Q_c = 14207.9589244$
 $a = (-0.0431686011666 - 0.0993725160807j)$
 $\phi_0 = -0.0776851720635$
 $\tau = 49.719559508$



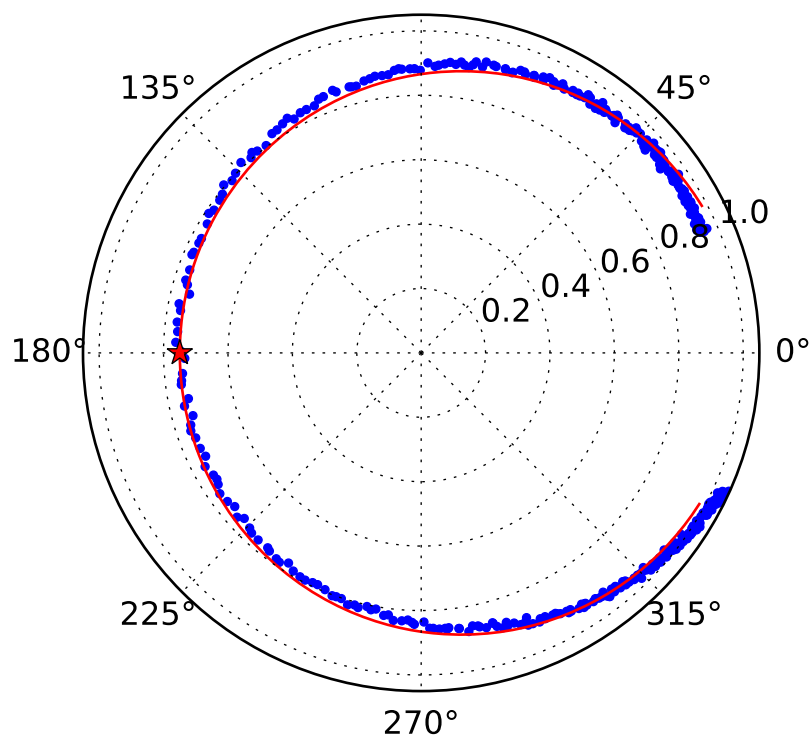
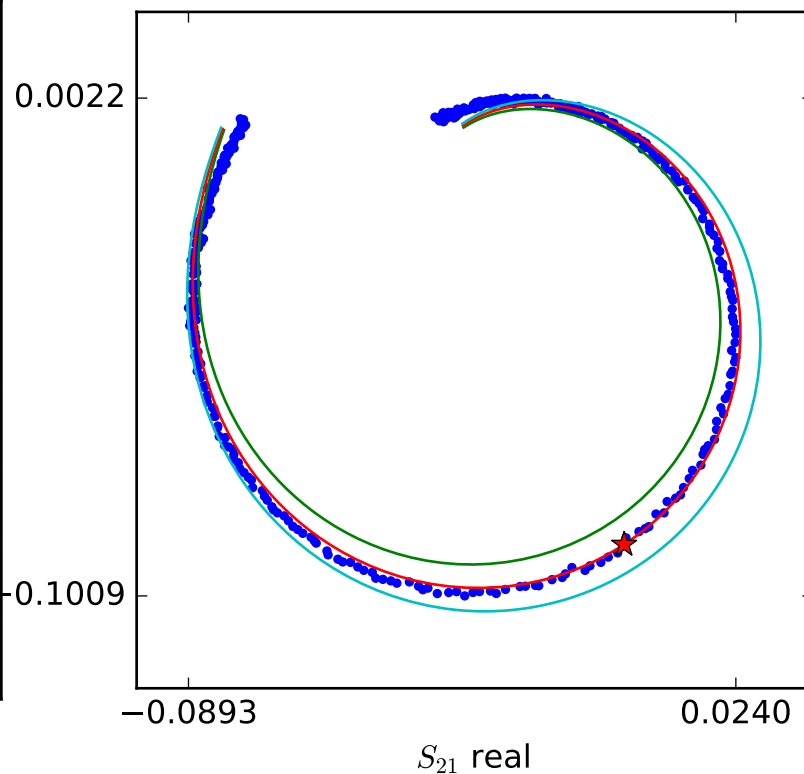
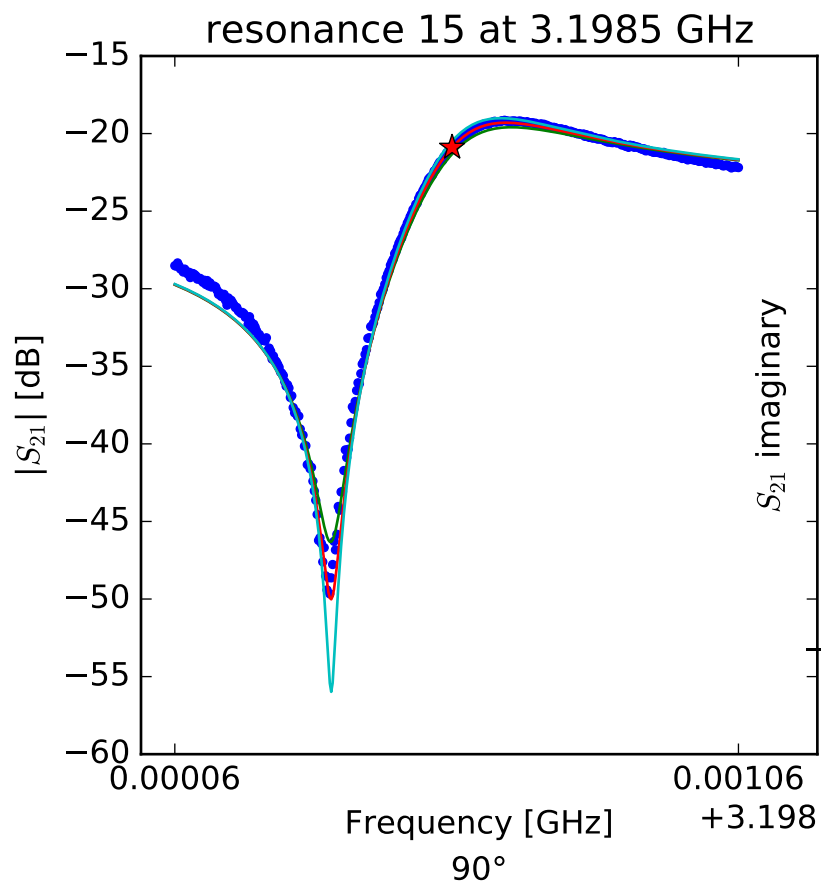
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.1915499357 \\ Q_r &= 2889.32510678 \\ Q_c &= 2986.08408639 \\ a &= (0.109128795824 + 0.0128580564602j) \\ \phi_0 &= 0.338391244073 \\ \tau &= 74.9128380617 \end{aligned}$$



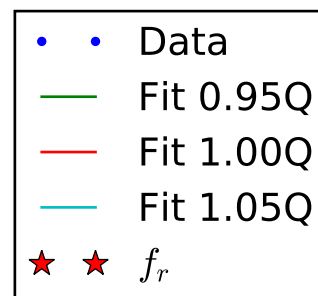
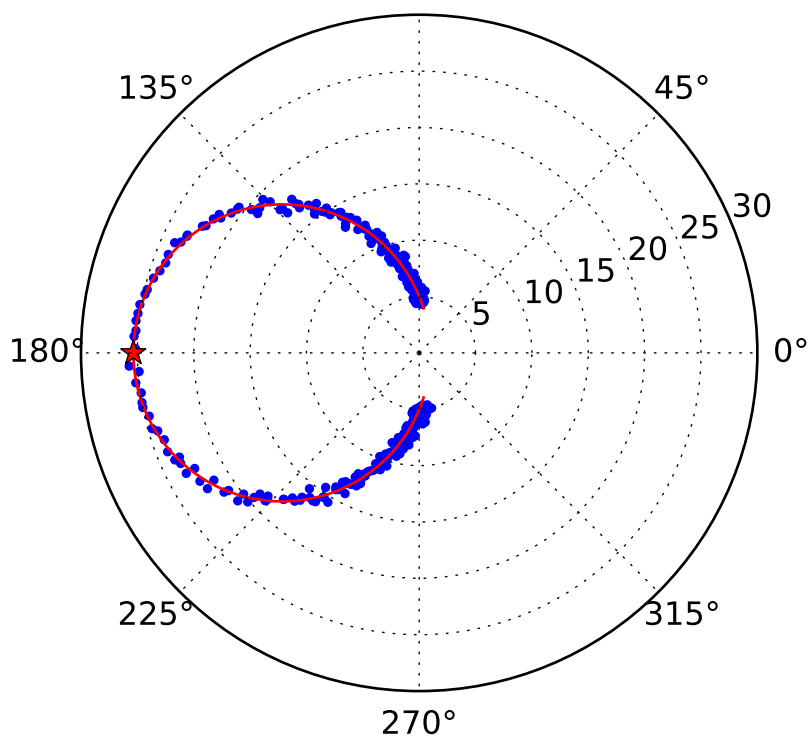
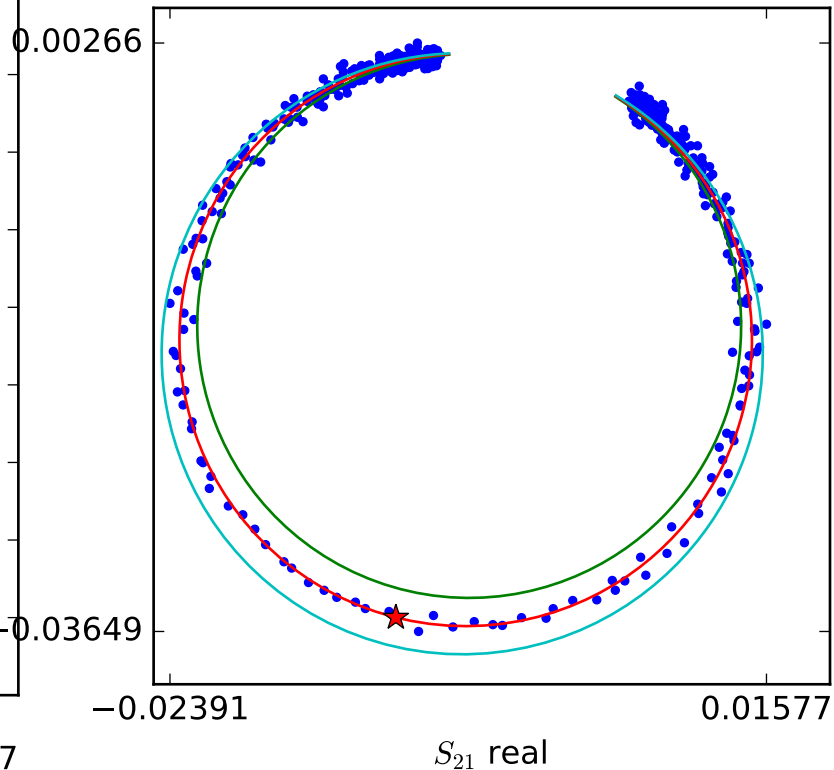
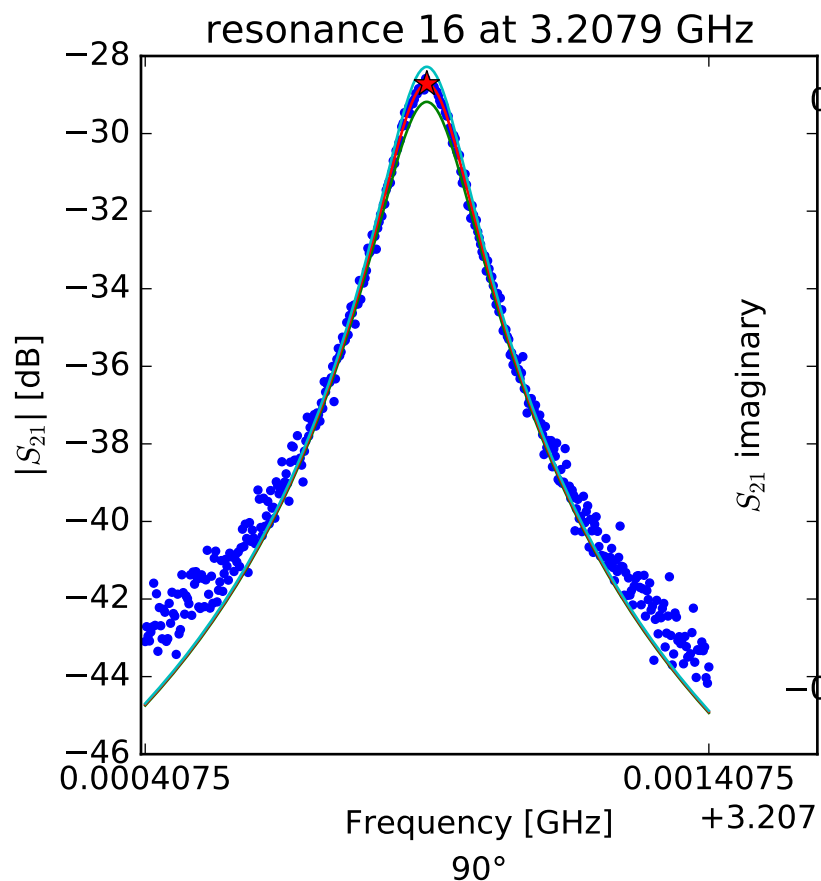
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.19587764316 \\ Q_r &= 2056.39157577 \\ Q_c &= 1862.17666452 \\ a &= (0.0124957370293 + 0.071137912068j) \\ \phi_0 &= -0.538878262879 \\ \tau &= 77.4613061073 \end{aligned}$$



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

$$\begin{aligned} f_r &= 3.19855196001 \\ Q_r &= 11171.3430406 \\ Q_c &= 6385.36433455 \\ a &= (0.0570970353009 + 0.0189540070527j) \\ \phi_0 &= -1.02676407176 \\ \tau &= 87.0829577652 \end{aligned}$$



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

$$f_r = 3.20790712268$$

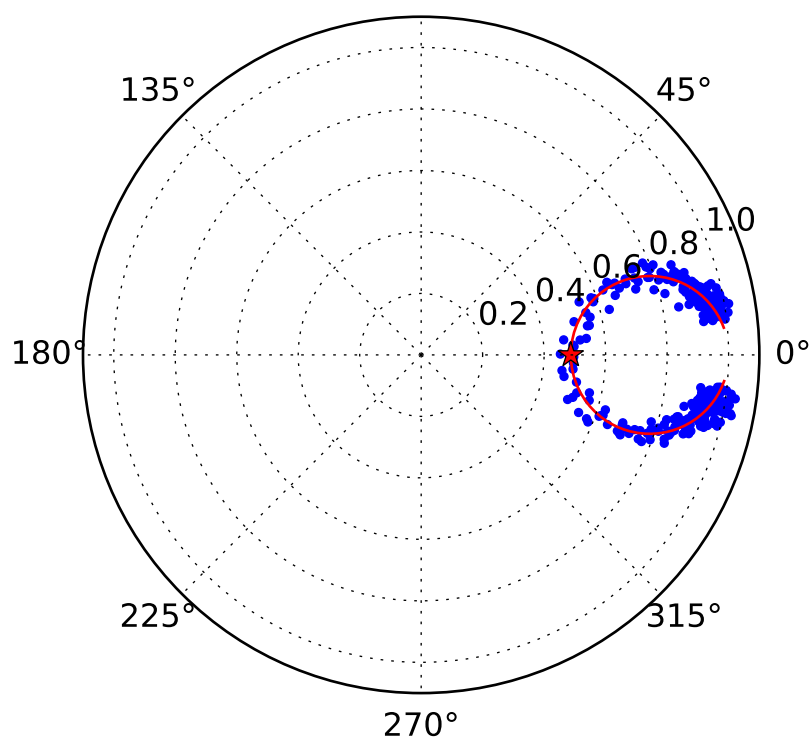
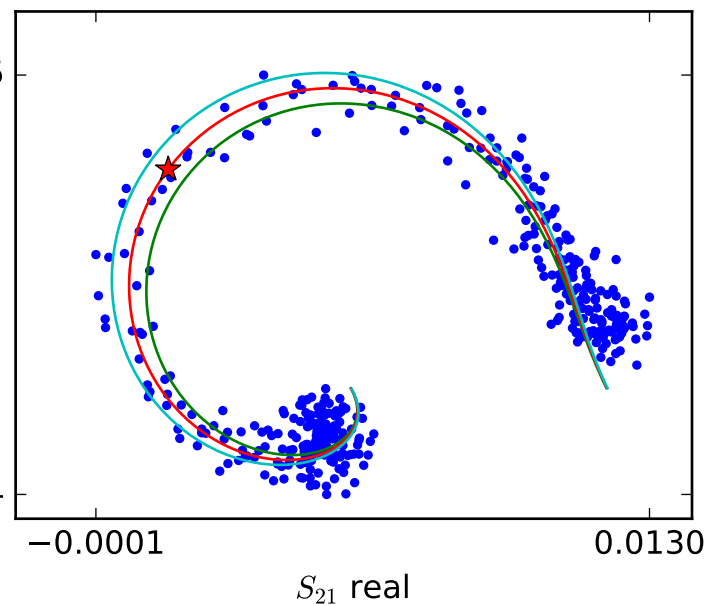
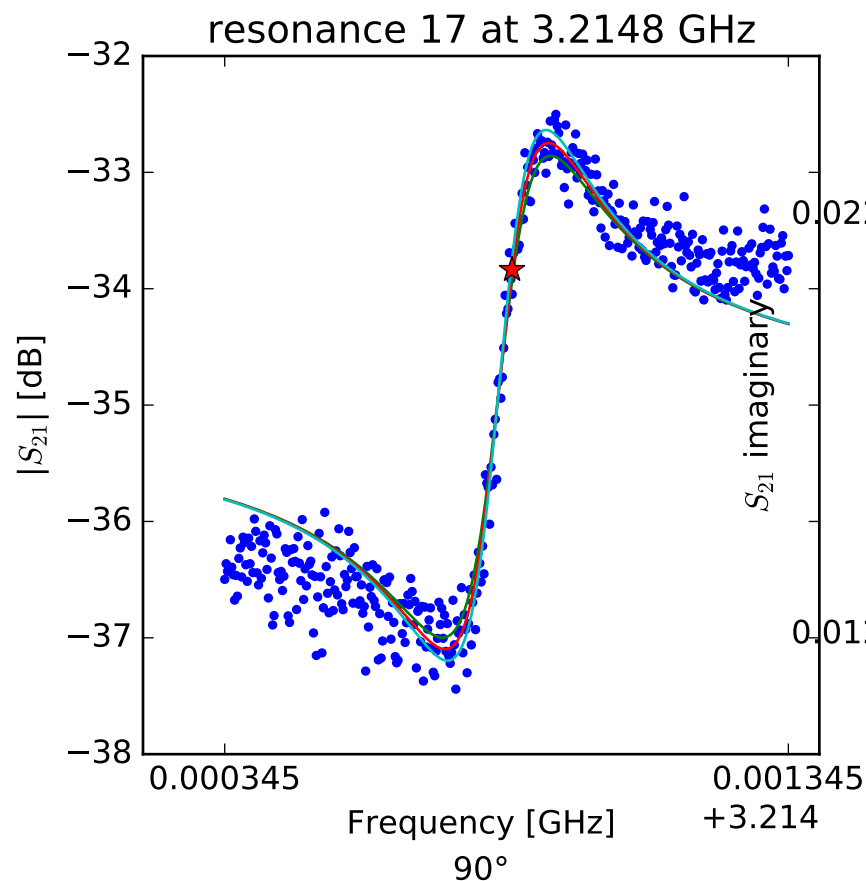
$$Q_r = 20876.3230992$$

$$Q_c = 792.128016123$$

$$a = (0.000409617452995 + 0.00138618933961j)$$

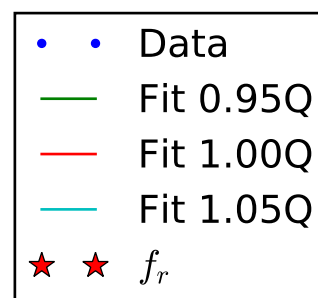
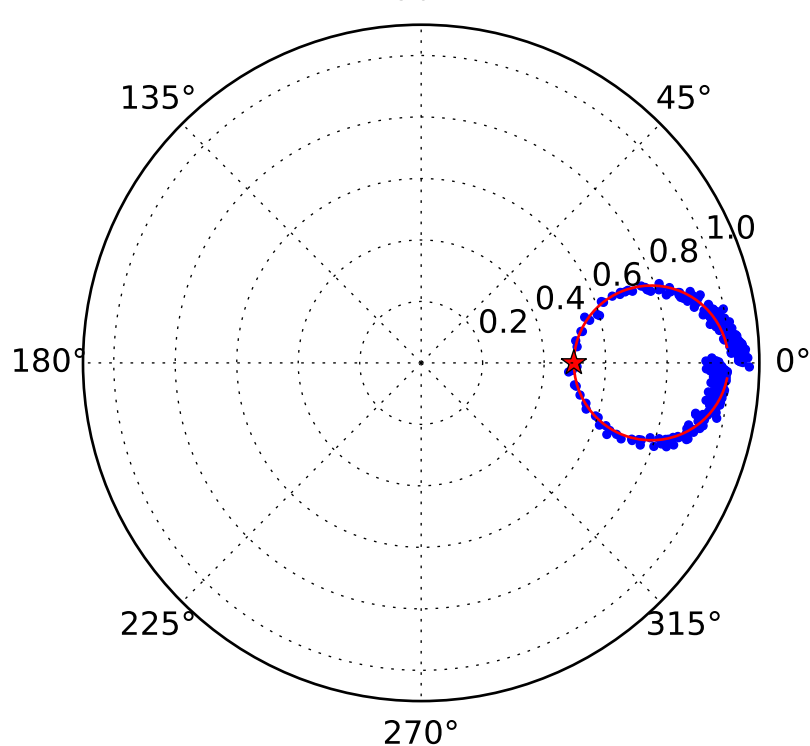
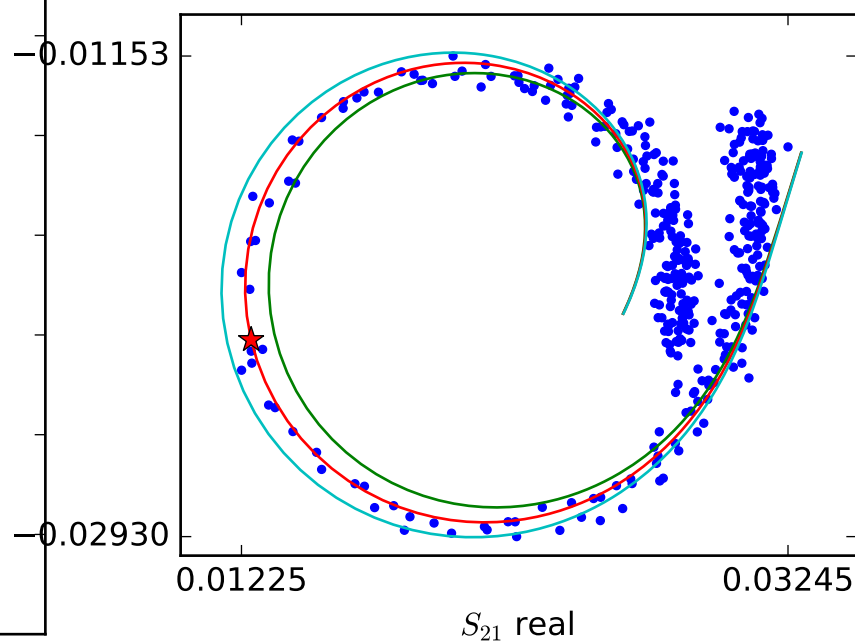
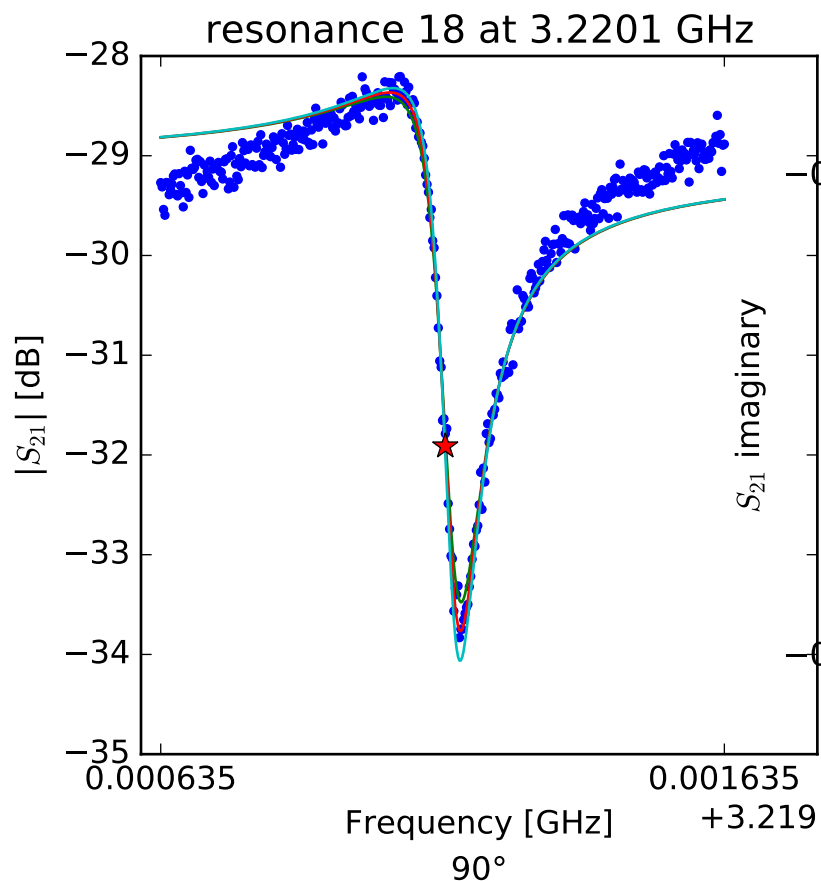
$$\phi_0 = 0.0408570929344$$

$$\tau = 4.19033196e-14$$



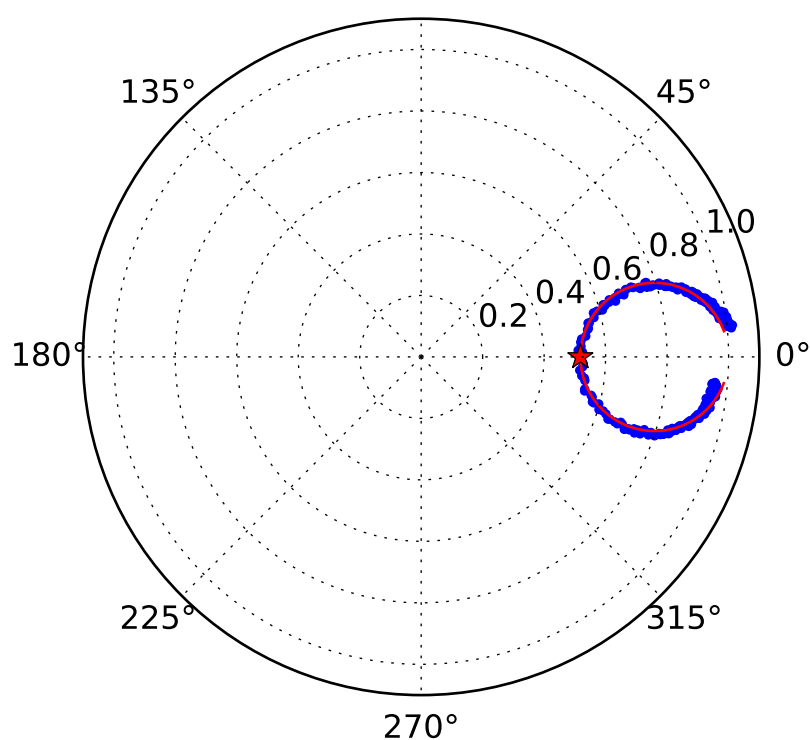
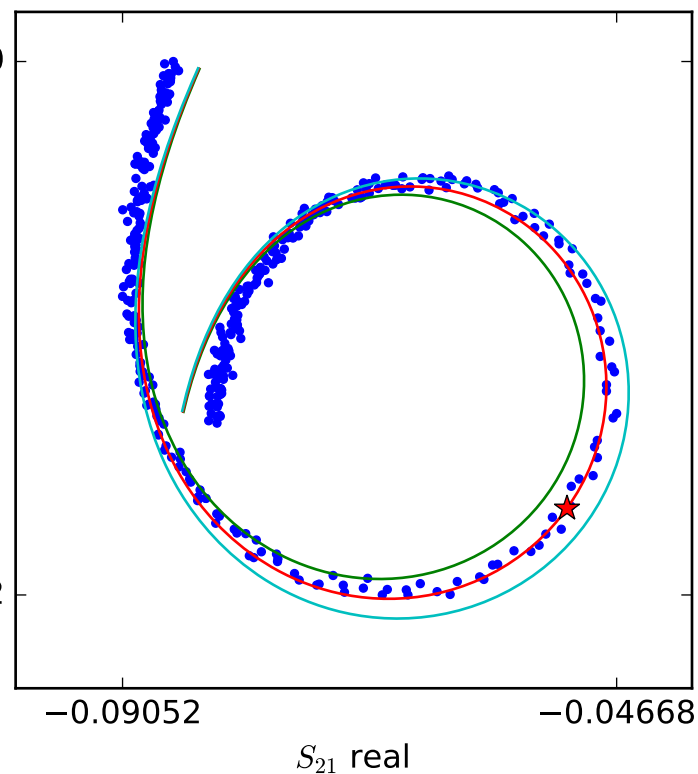
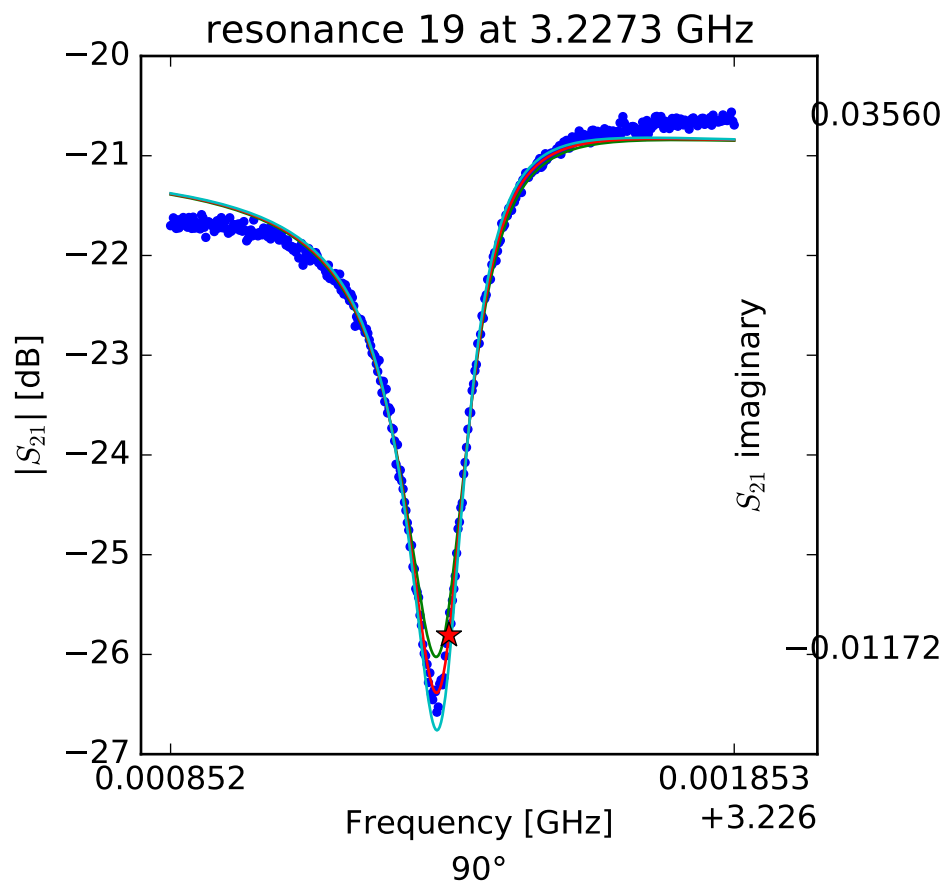
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.21485476881 \\ Q_r &= 18421.1103461 \\ Q_c &= 35881.5808532 \\ a &= (0.014467919426 - 0.0101834703482j) \\ \phi_0 &= -1.62632142961 \\ \tau &= 45.3328683673 \end{aligned}$$



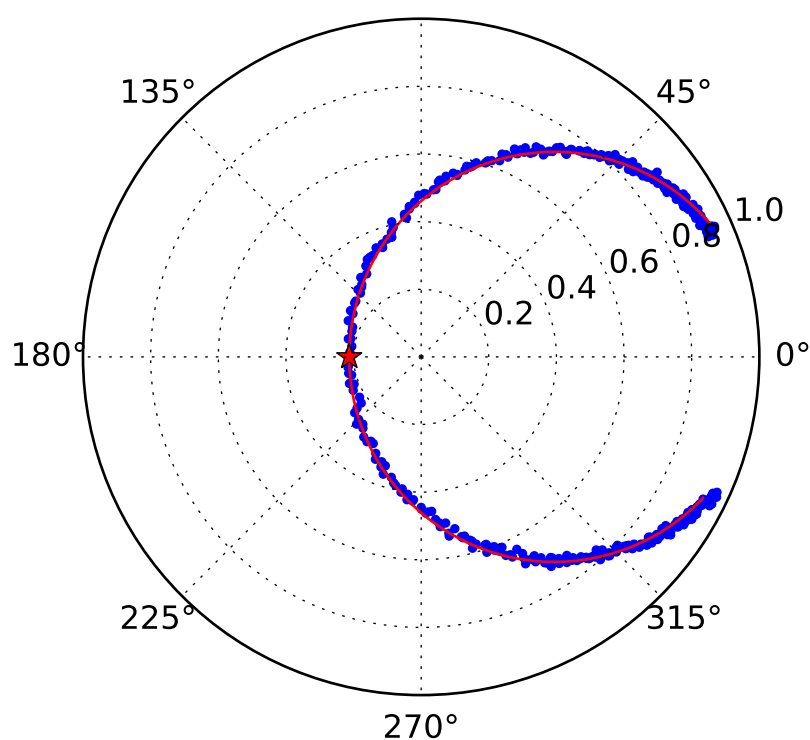
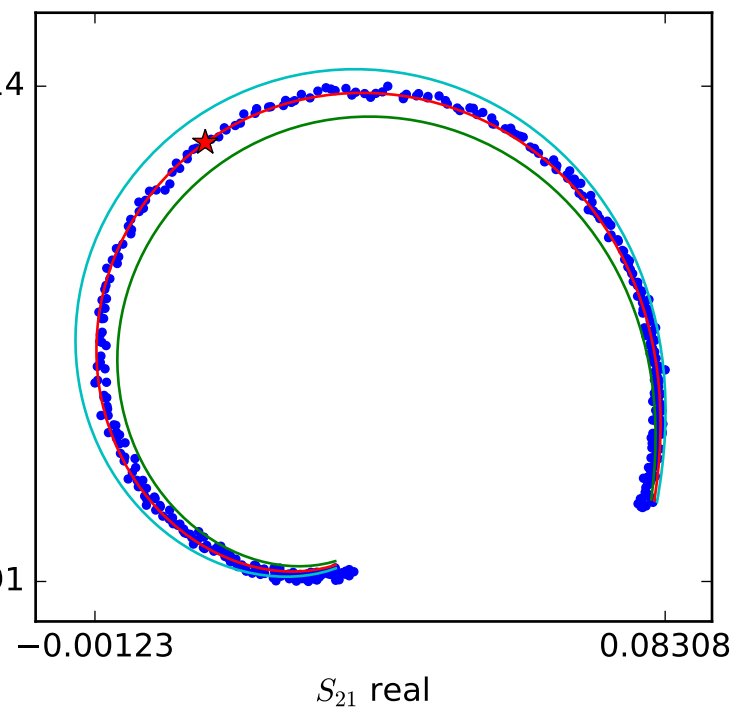
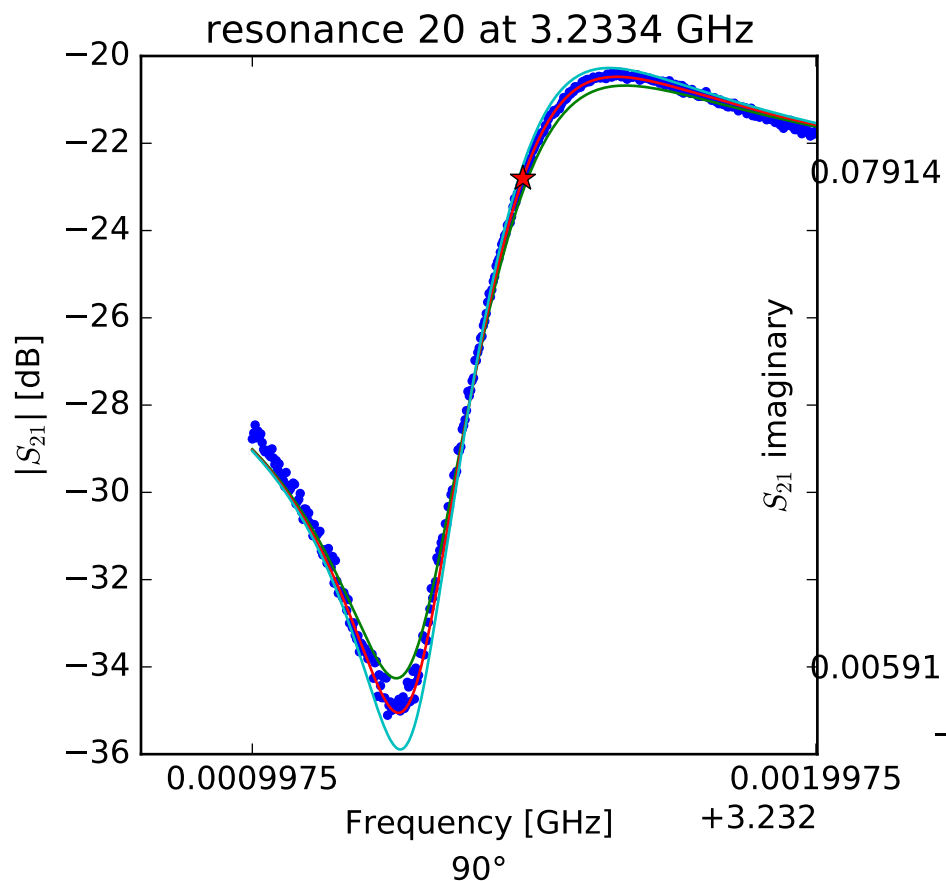
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.22013985091 \\ Q_r &= 31035.4873081 \\ Q_c &= 61651.4245751 \\ a &= (-0.0268730974838 + 0.0226012769479j) \\ \phi_0 &= 0.757968676253 \\ \tau &= 50.7668912343 \end{aligned}$$



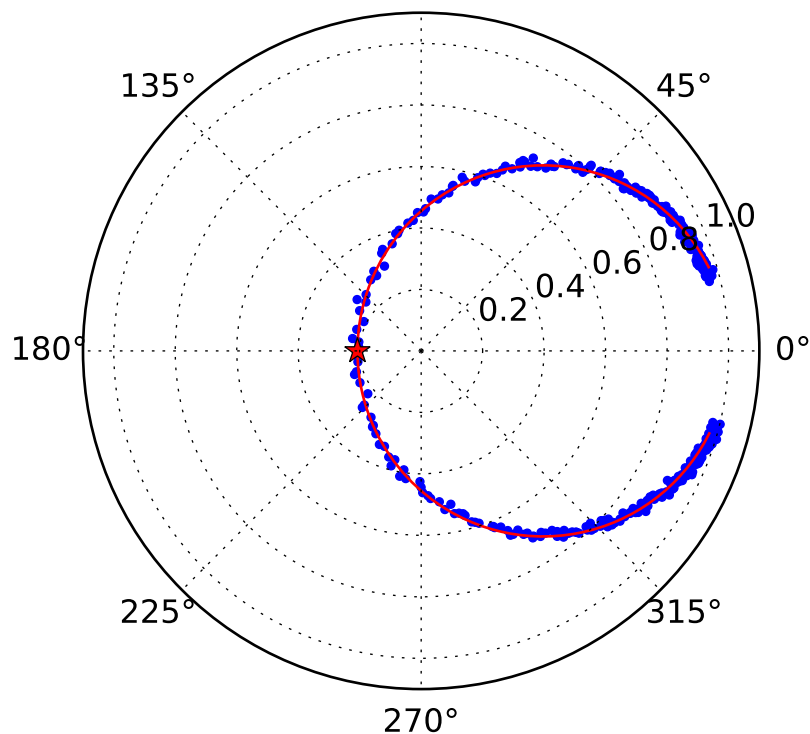
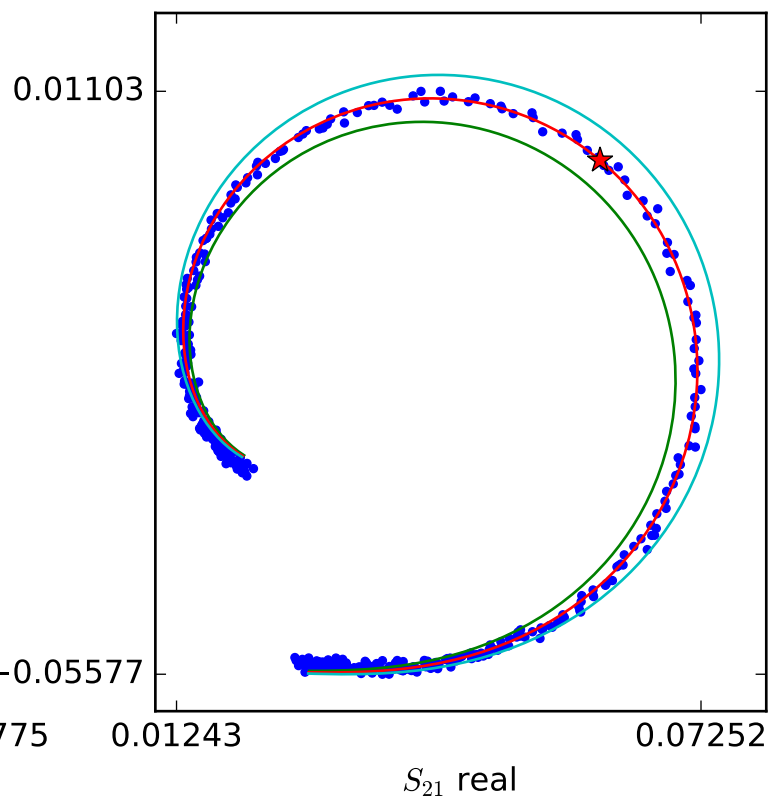
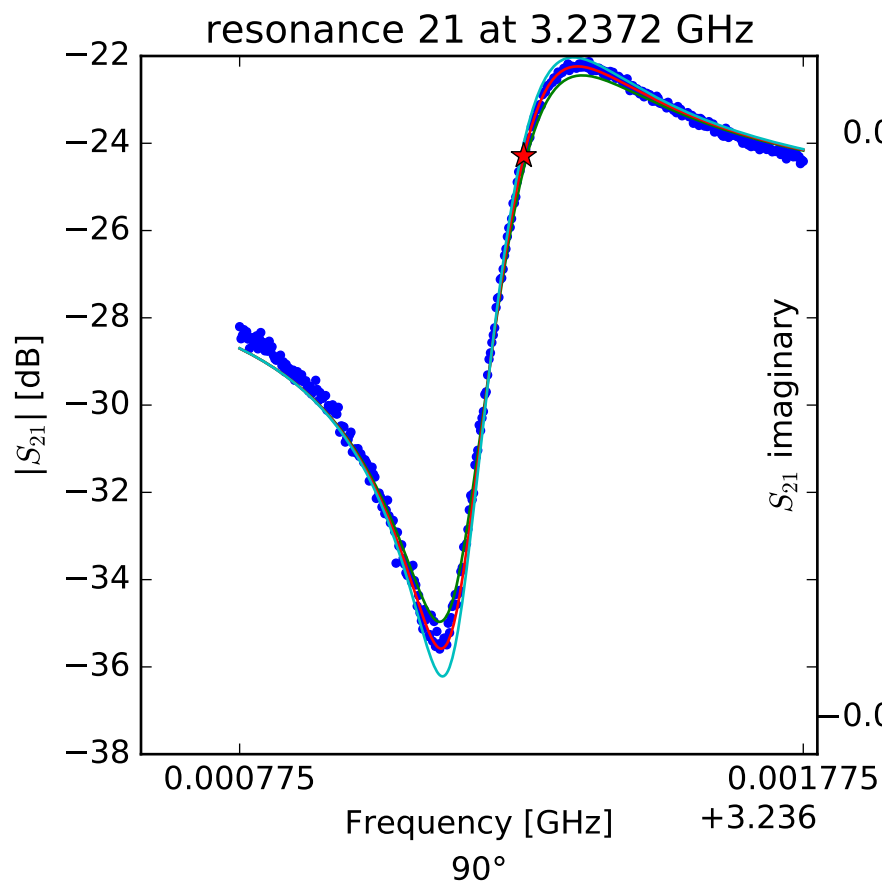
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.22734635912 \\ Q_r &= 17775.306699 \\ Q_c &= 36864.5893267 \\ a &= (-0.0095162587077 + 0.0885448224457j) \\ \phi_0 &= -0.363435691206 \\ \tau &= 79.880681439 \end{aligned}$$



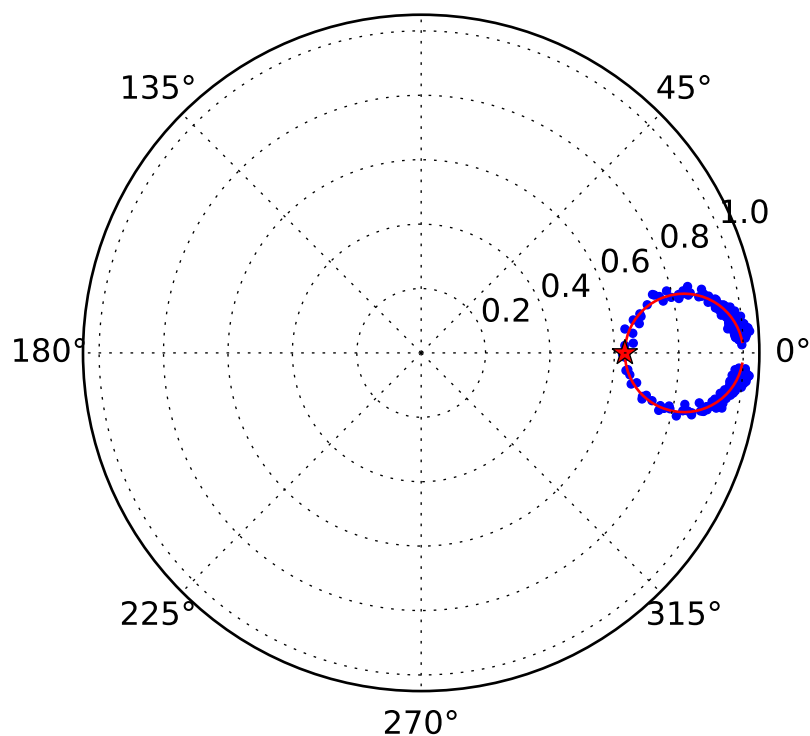
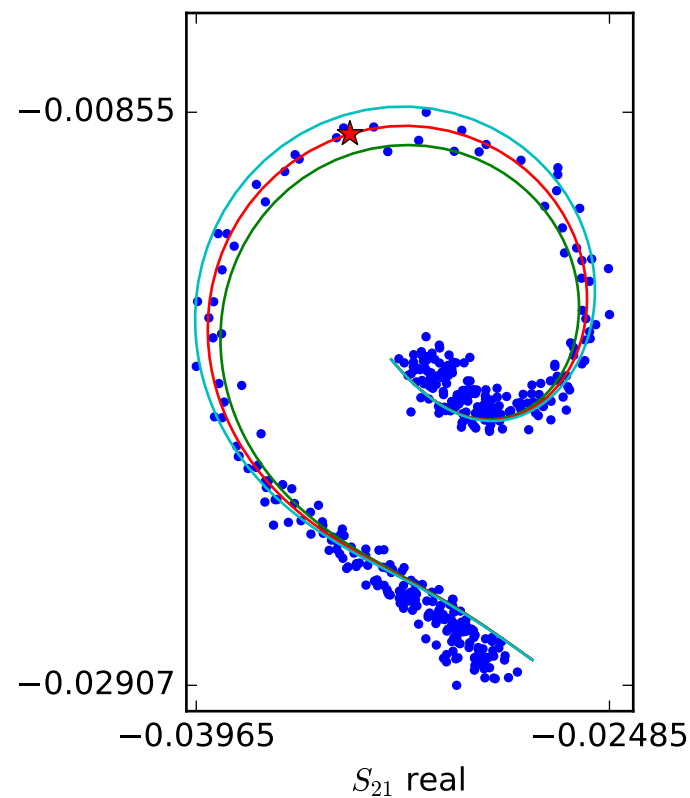
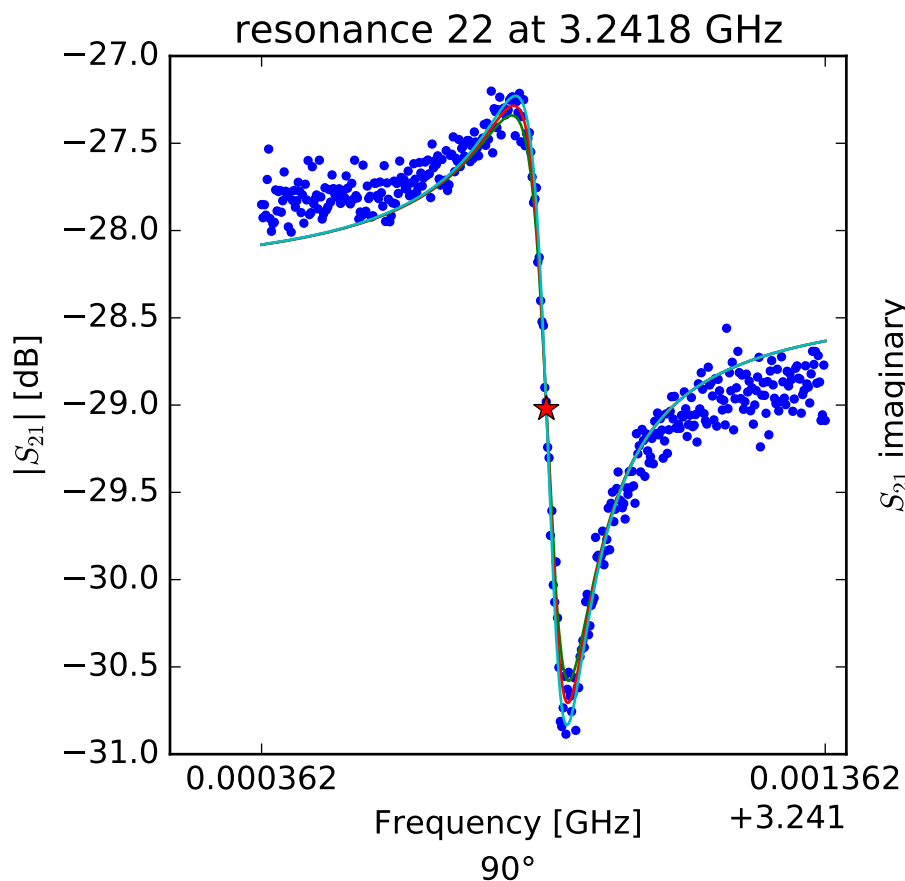
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.23347760659 \\ Q_r &= 8432.26525679 \\ Q_c &= 6953.83390532 \\ a &= (-0.0583178246649 - 0.0251130792754j) \\ \phi_0 &= -1.06730552507 \\ \tau &= 58.3083796929 \end{aligned}$$



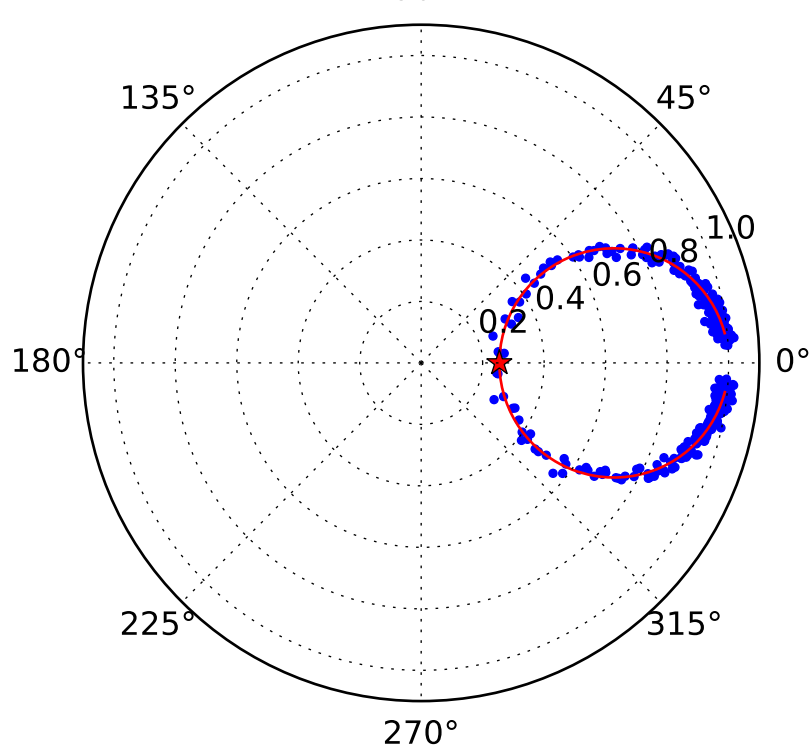
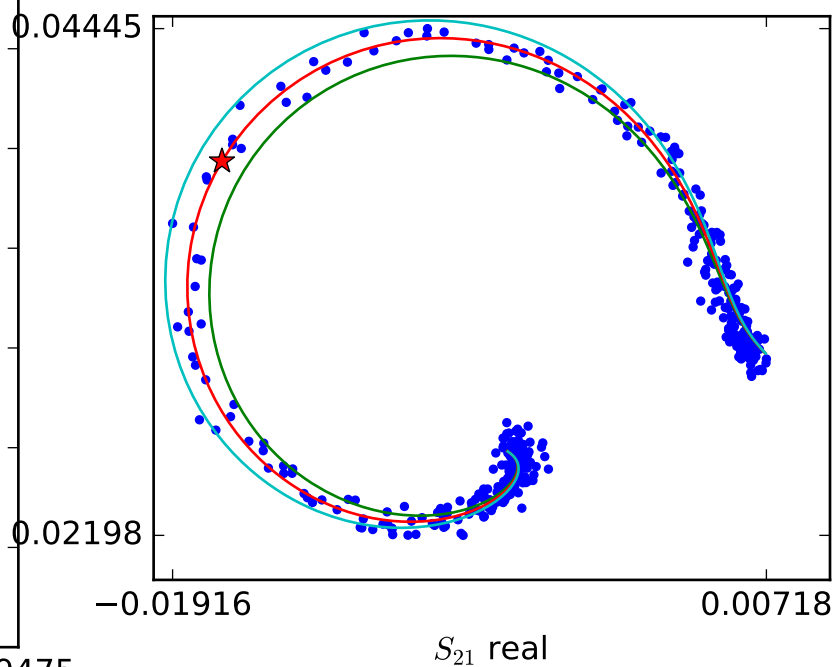
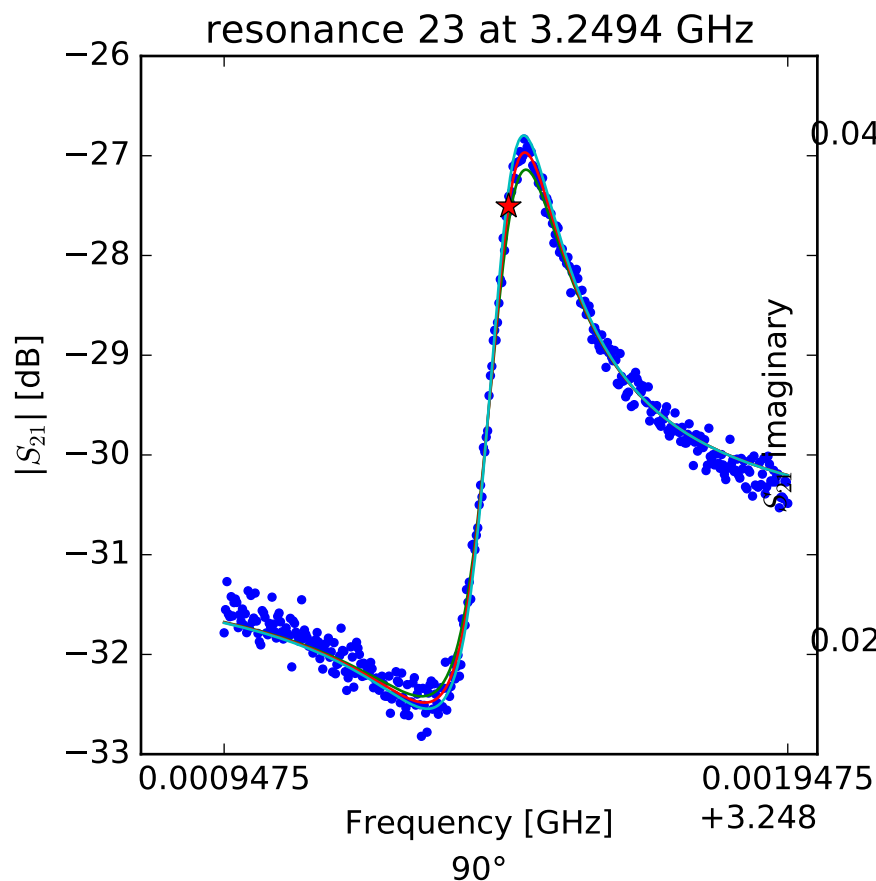
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.23727906611 \\ Q_r &= 13685.1411036 \\ Q_c &= 11335.7439654 \\ a &= (-0.0343988796308 + 0.03661774855j) \\ \phi_0 &= -1.15209904511 \\ \tau &= 51.7542782652 \end{aligned}$$



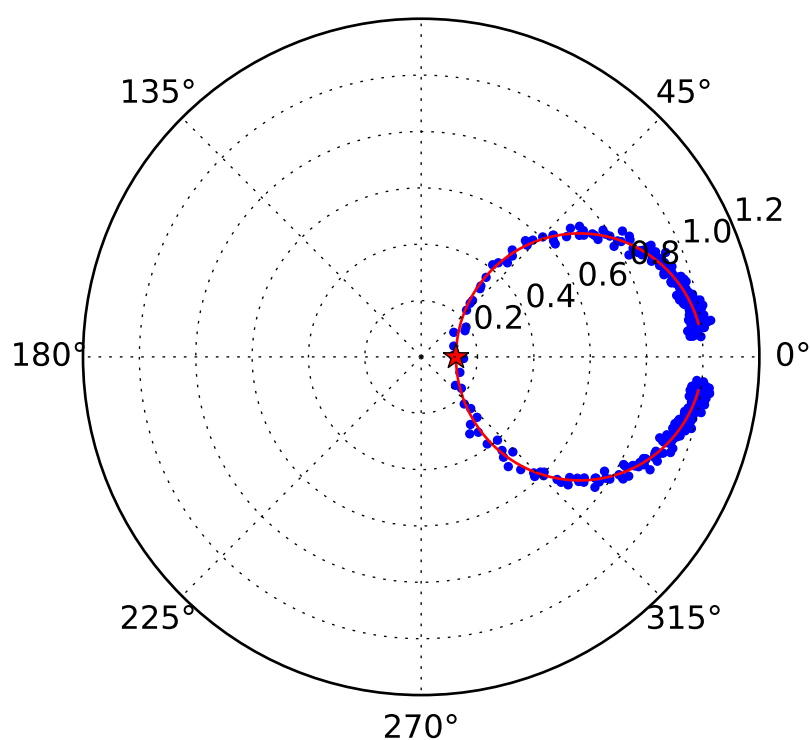
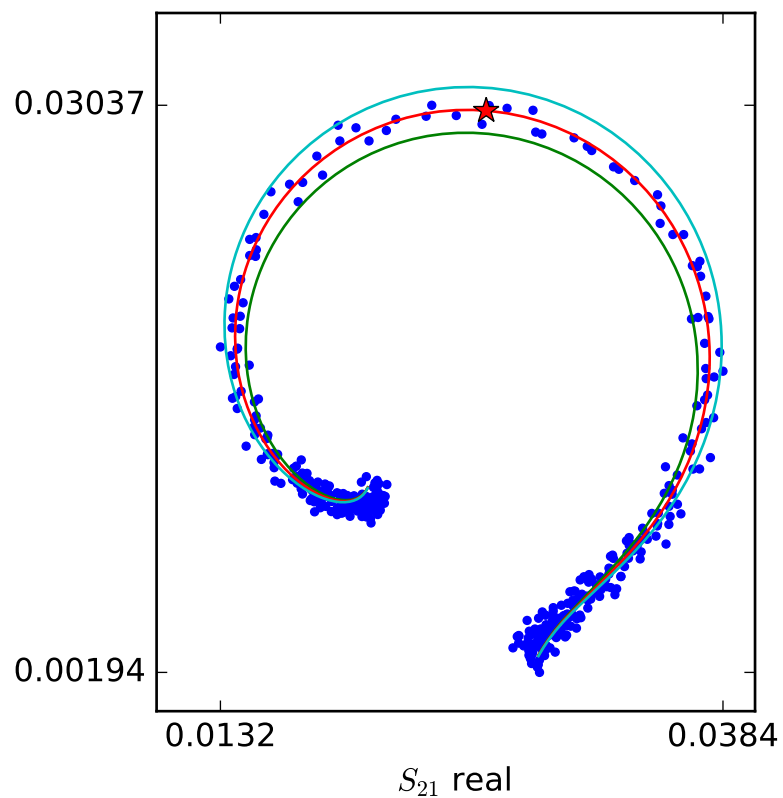
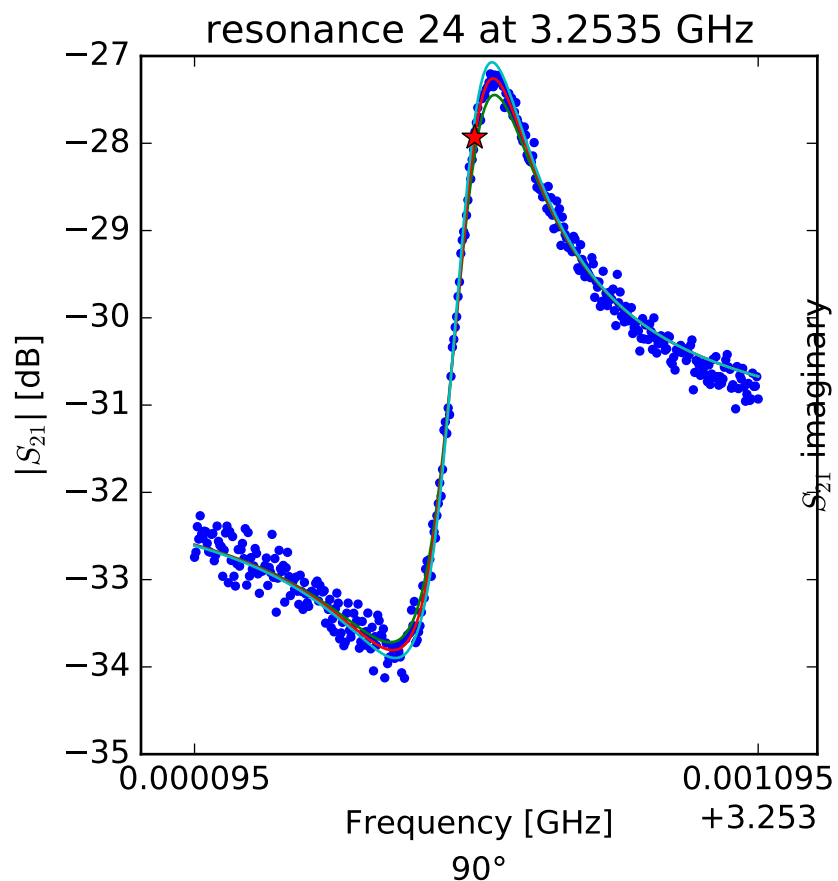
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.24186771462 \\ Q_r &= 34526.2269146 \\ Q_c &= 93892.1118022 \\ a &= (-0.0382803652152 - 0.000455035407427j) \\ \phi_0 &= 1.17971849152 \\ \tau &= 52.716377323 \end{aligned}$$



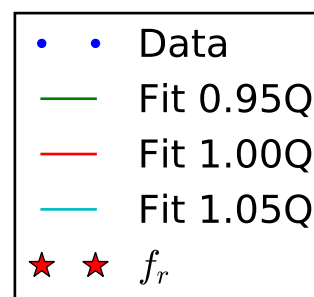
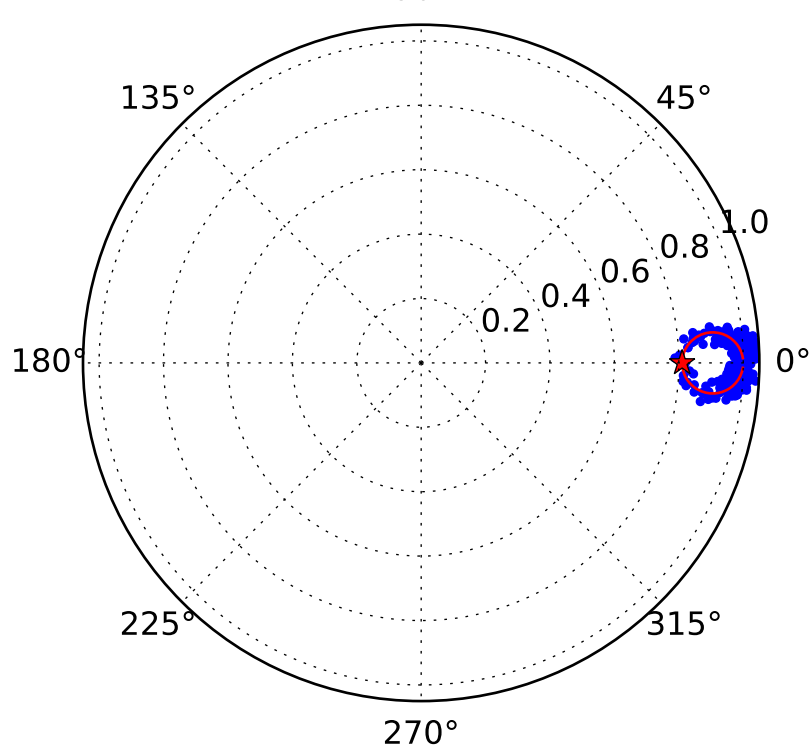
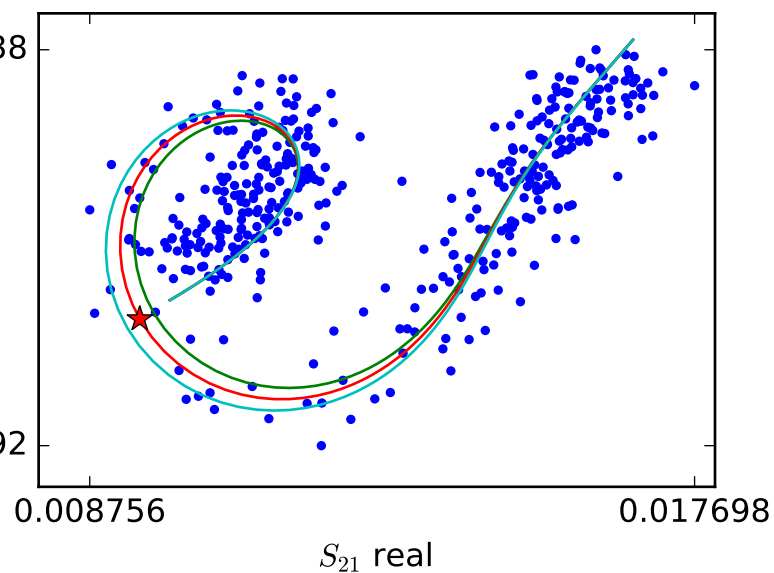
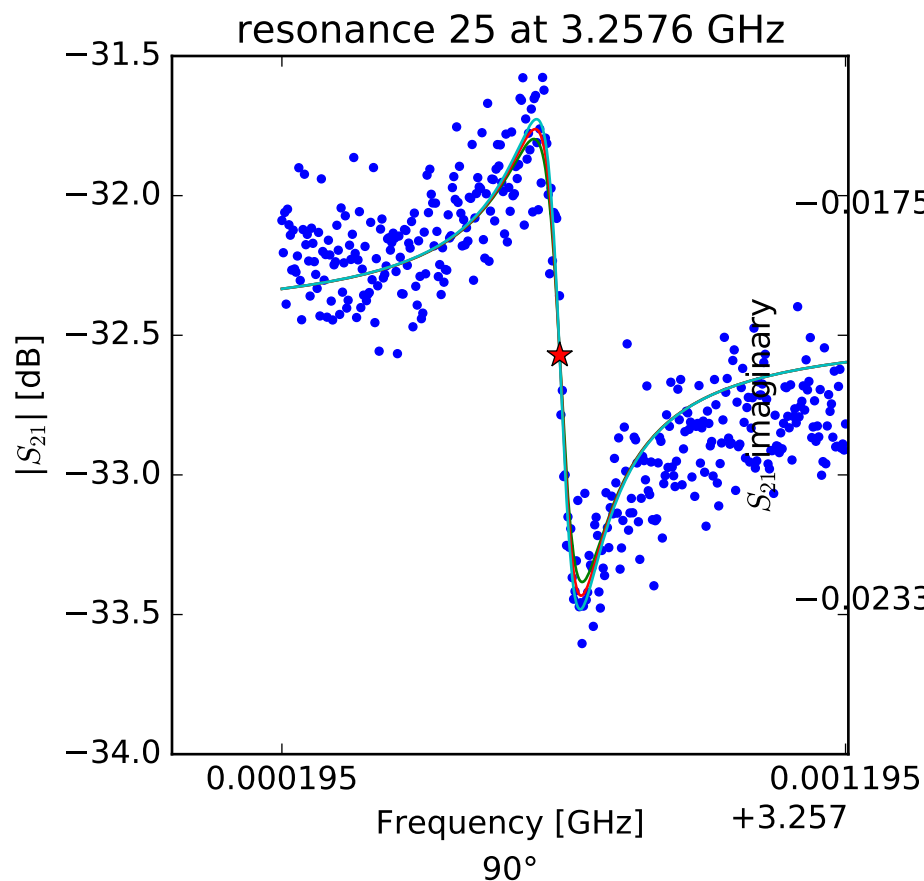
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.24945210899 \\ Q_r &= 24820.5202315 \\ Q_c &= 33285.9232698 \\ a &= (-0.0242245314396 + 0.0145660465895j) \\ \phi_0 &= -2.03416792309 \\ \tau &= 49.5996562306 \end{aligned}$$



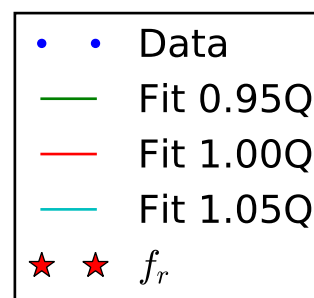
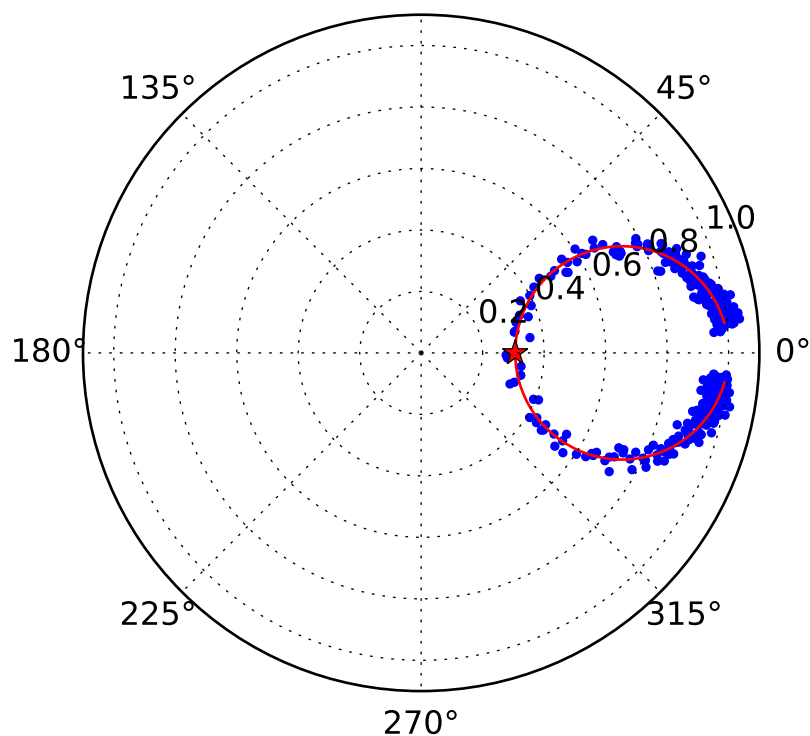
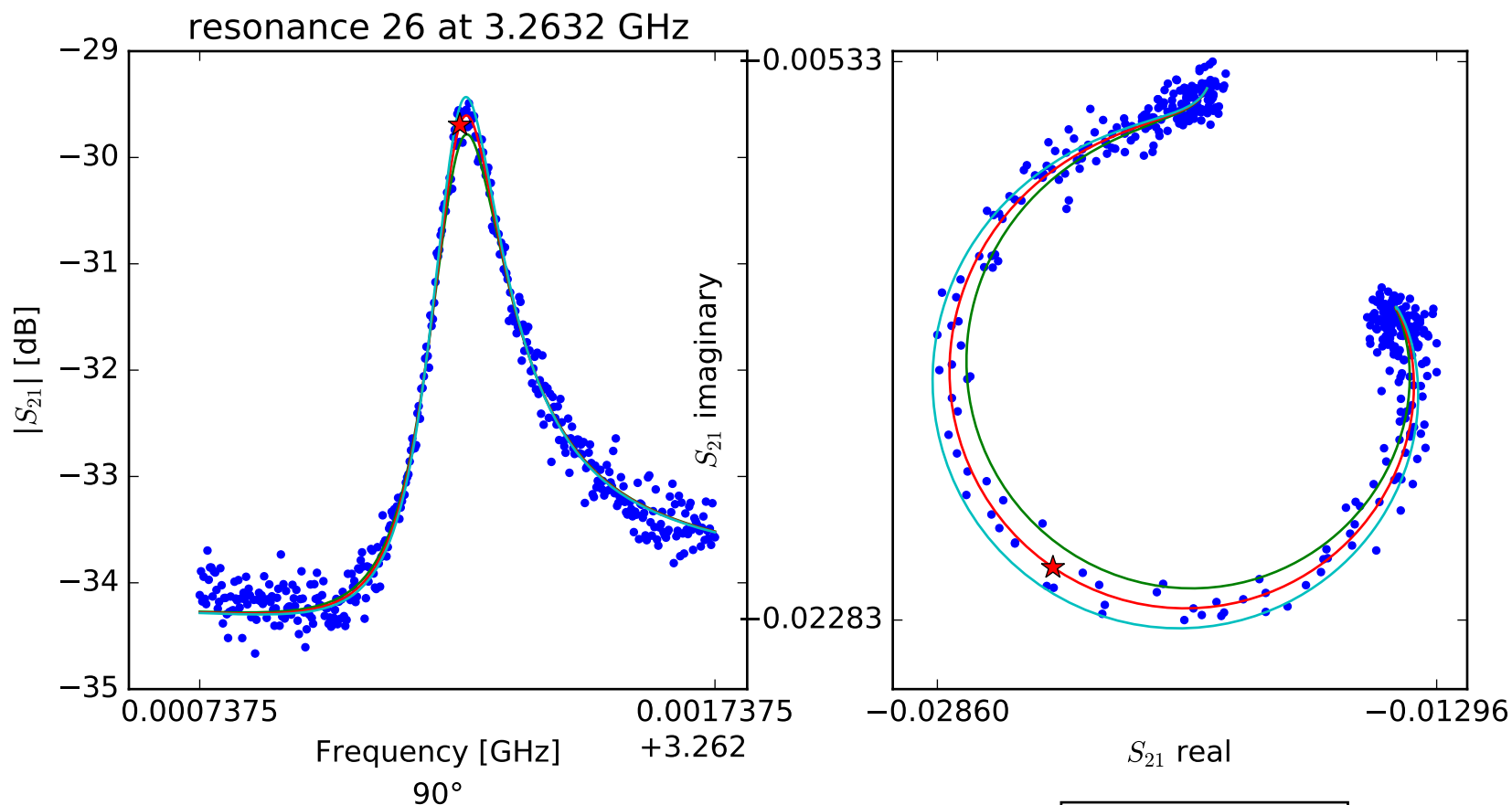
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.25359191622 \\ Q_r &= 23542.505615 \\ Q_c &= 26856.5341861 \\ a &= (0.0261499694921 - 0.00162903083775j) \\ \phi_0 &= -1.90593199595 \\ \tau &= 51.0039206519 \end{aligned}$$



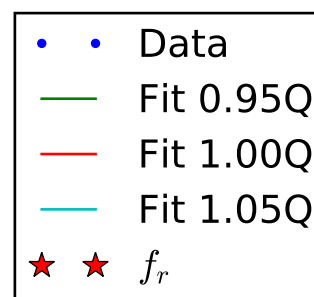
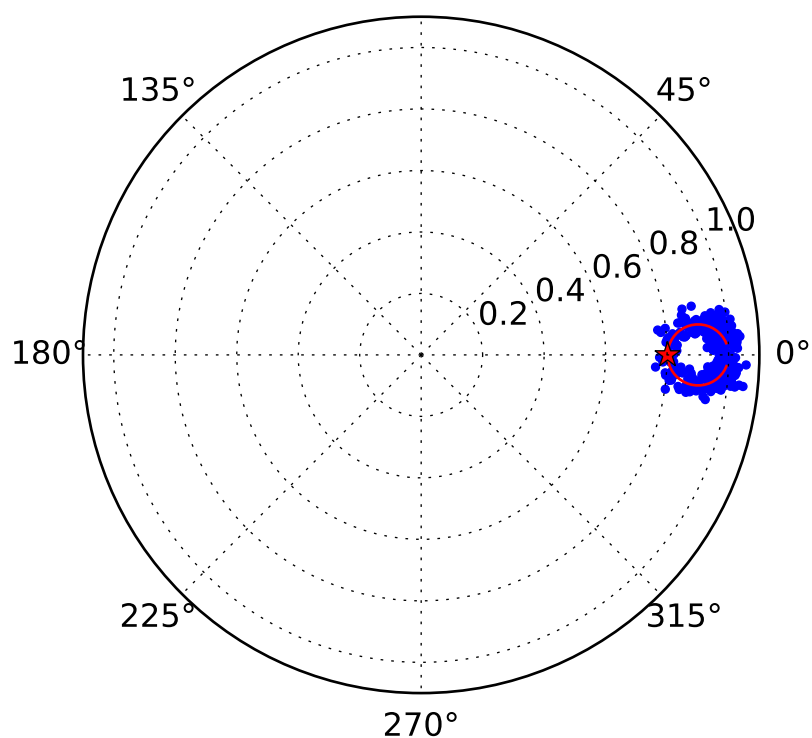
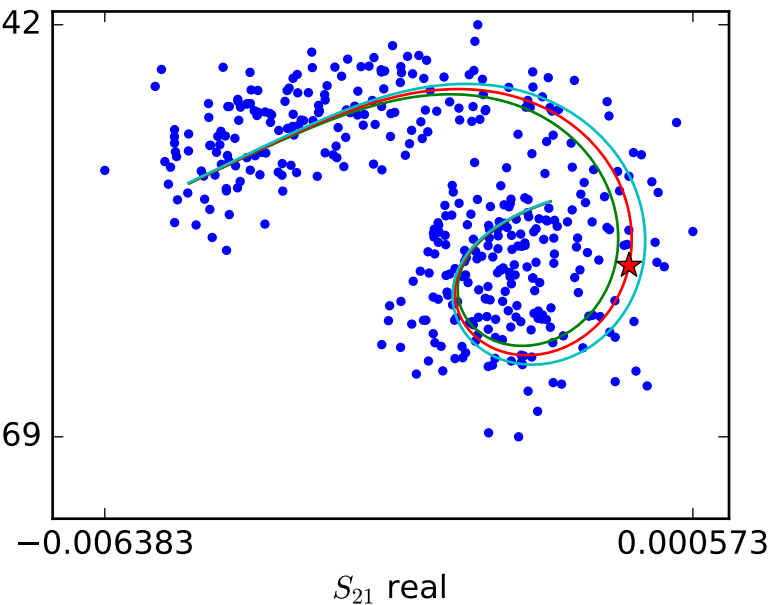
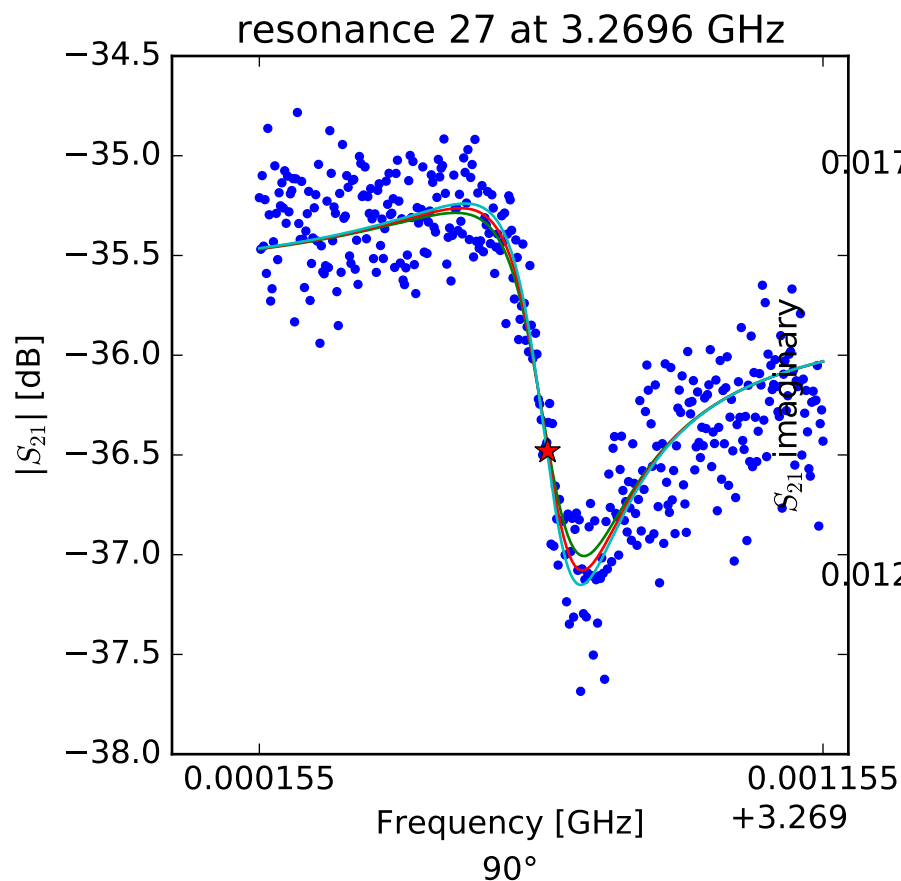
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.25768785379 \\ Q_r &= 40096.5402309 \\ Q_c &= 211294.555363 \\ a &= (-0.0236664700237 - 0.00262218234489j) \\ \phi_0 &= 1.41129364832 \\ \tau &= 53.3111411544 \end{aligned}$$



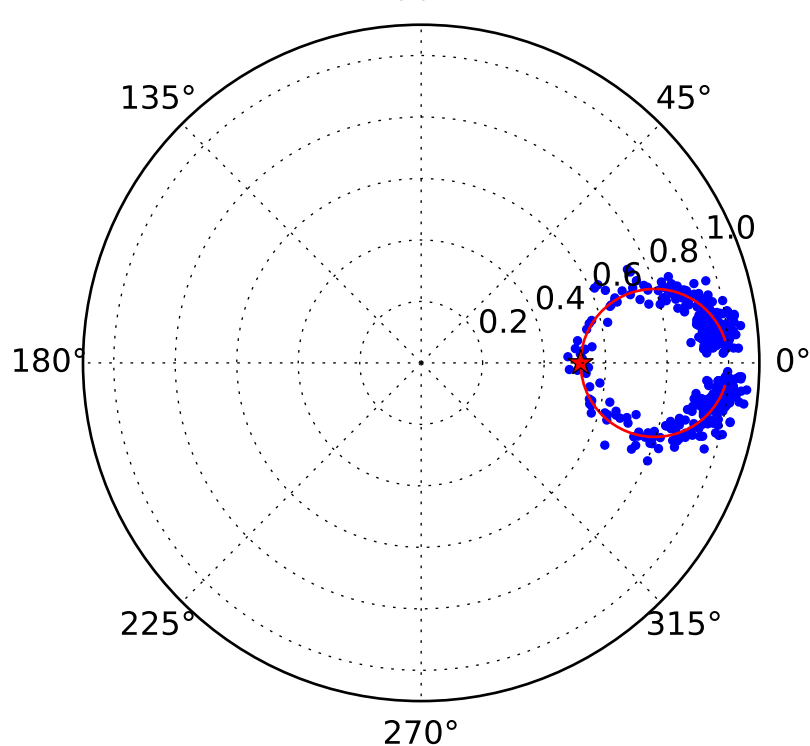
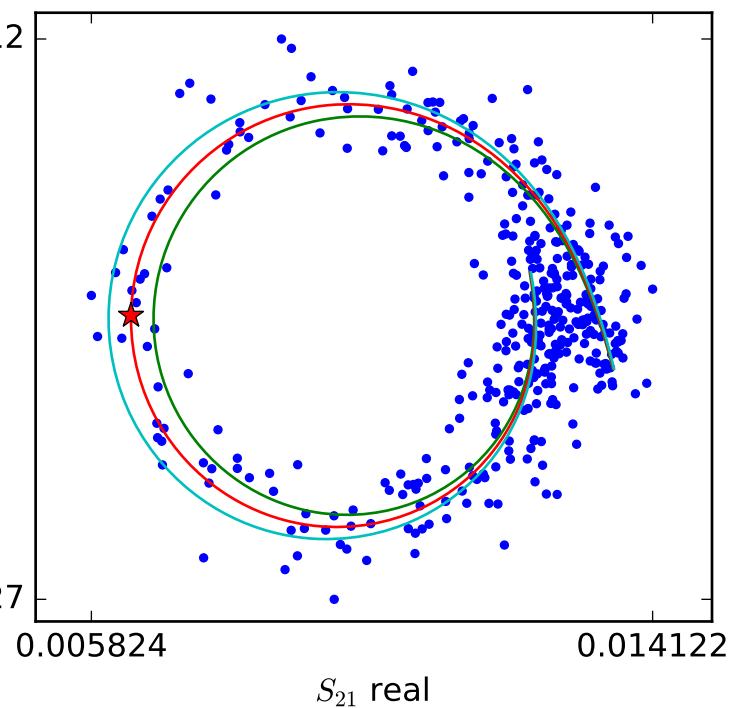
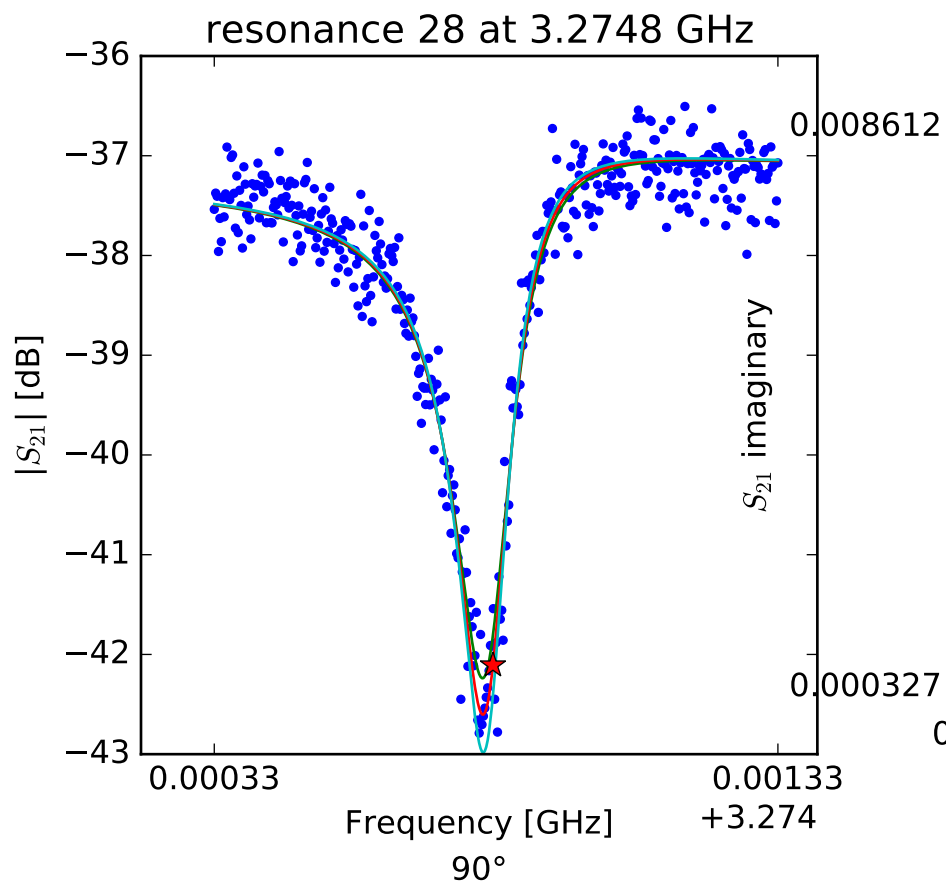
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.26324223453 \\ Q_r &= 22668.8315112 \\ Q_c &= 32654.7878076 \\ a &= (0.0119516120862 + 0.015875292273j) \\ \phi_0 &= -2.66749567719 \\ \tau &= 43.6884947961 \end{aligned}$$



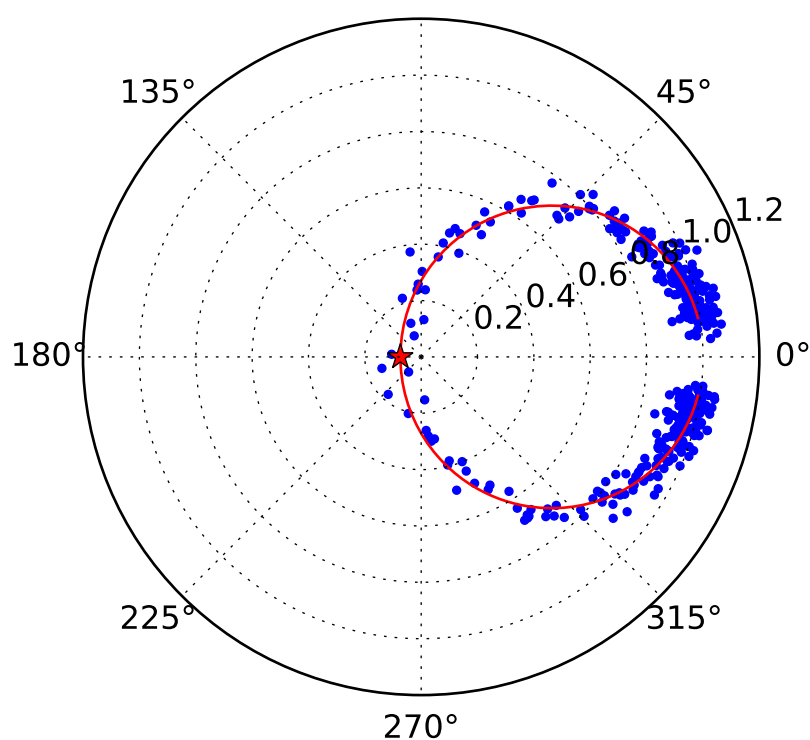
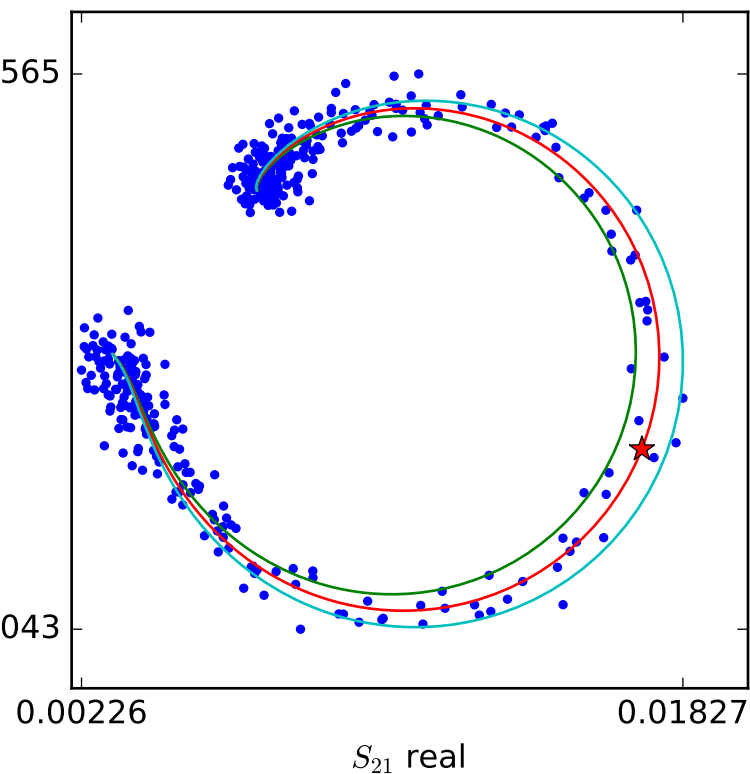
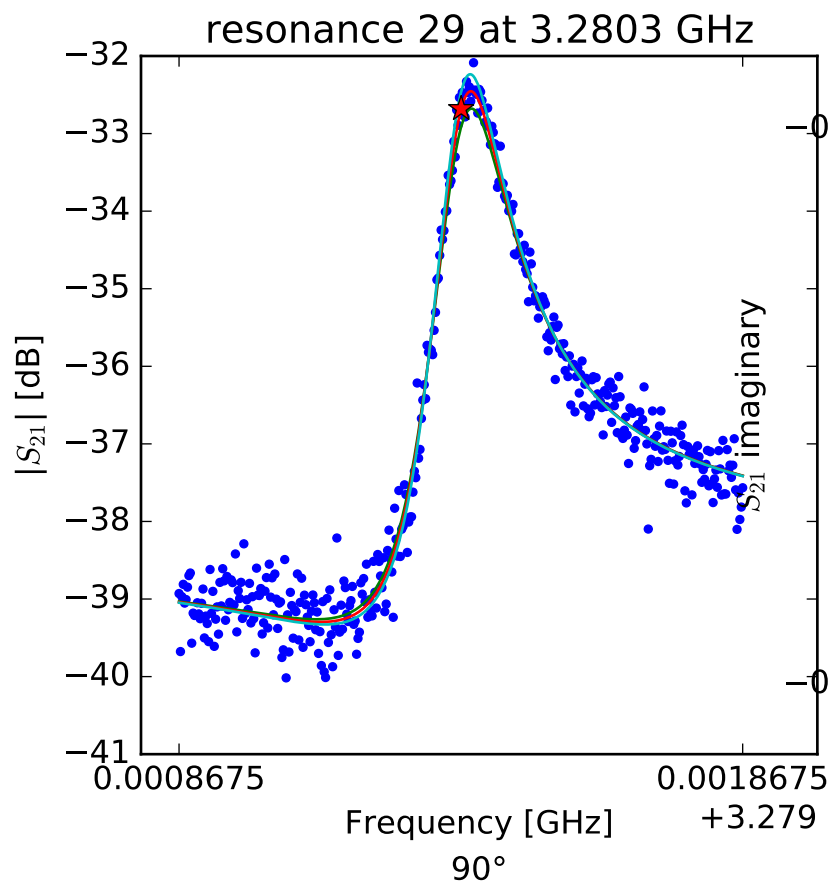
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.26966642125 \\ Q_r &= 16769.4028696 \\ Q_c &= 84441.165953 \\ a &= (-0.00107031493643 + 0.0163570704862j) \\ \phi_0 &= 1.03576083101 \\ \tau &= 46.4813665682 \end{aligned}$$



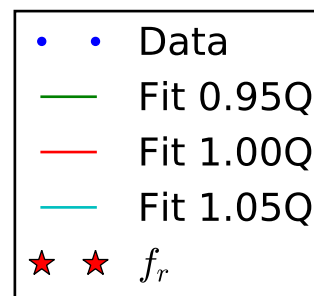
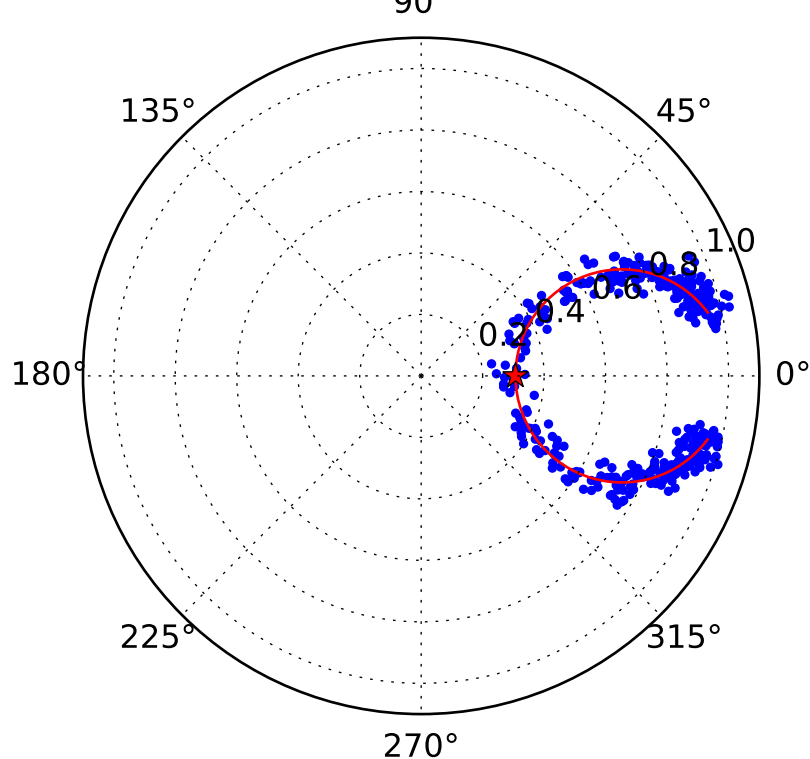
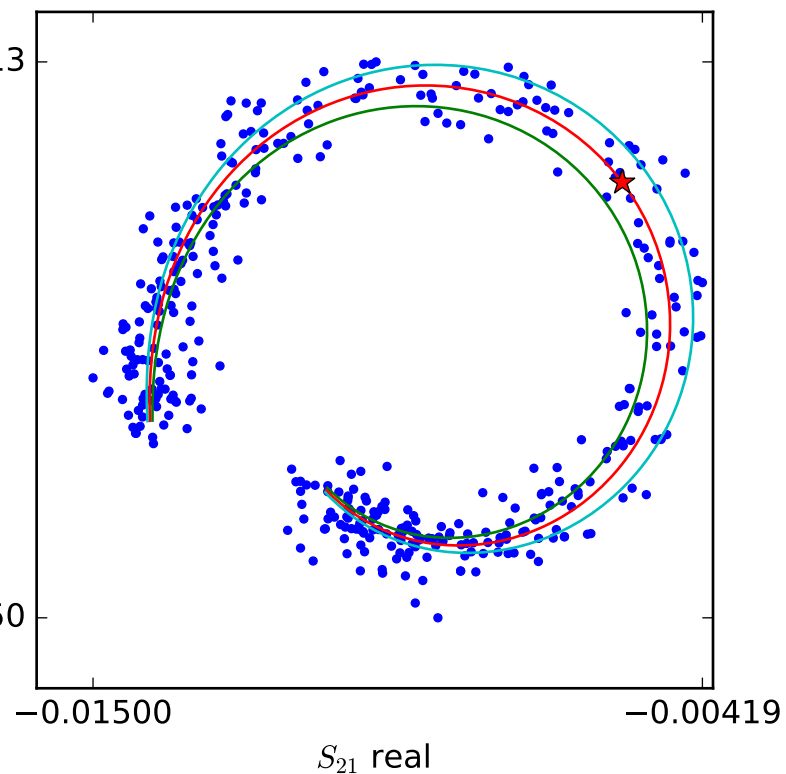
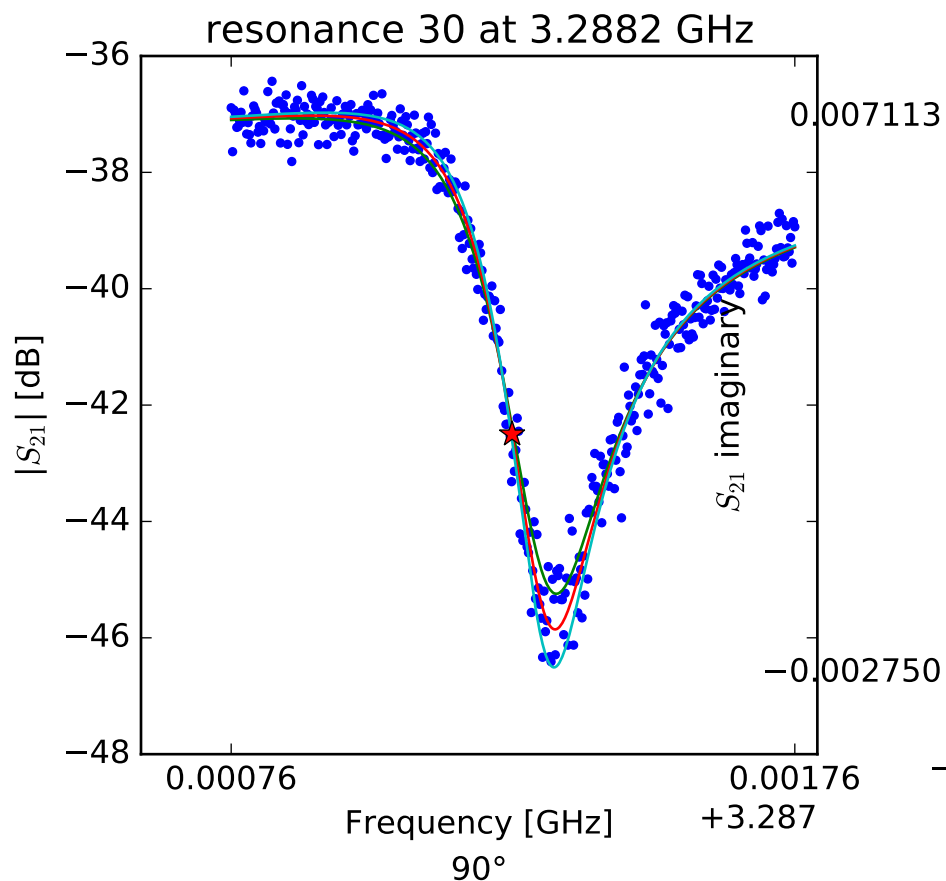
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.27482445343 \\ Q_r &= 20299.7638936 \\ Q_c &= 42162.7360704 \\ a &= (0.00482572343828 - 0.012958520756j) \\ \phi_0 &= -0.333522621656 \\ \tau &= 43.2859007984 \end{aligned}$$



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

$$\begin{aligned} f_r &= 3.28036810416 \\ Q_r &= 25114.5060799 \\ Q_c &= 23388.1997912 \\ a &= (-0.00705626941979 - 0.00983205291641j) \\ \phi_0 &= -2.36397418759 \\ \tau &= 38.3593077622 \end{aligned}$$



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

$$f_r = 3.28825841064$$

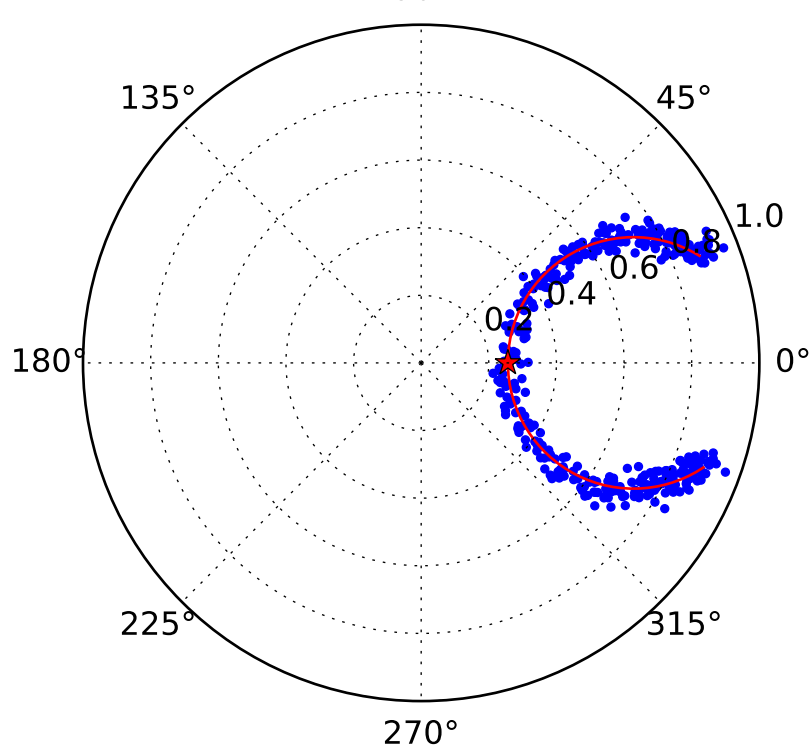
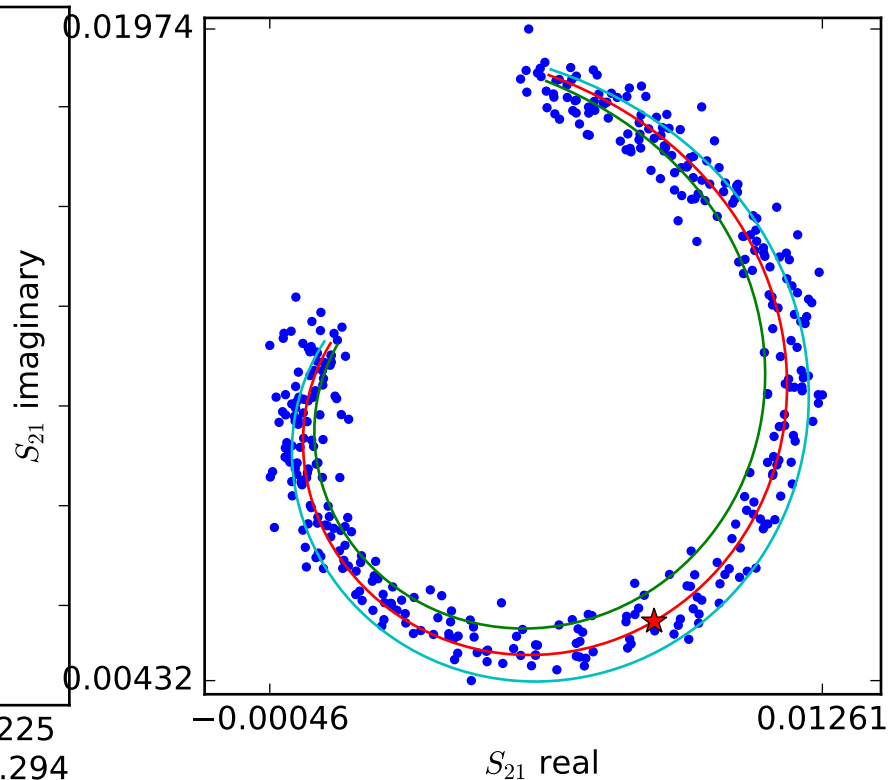
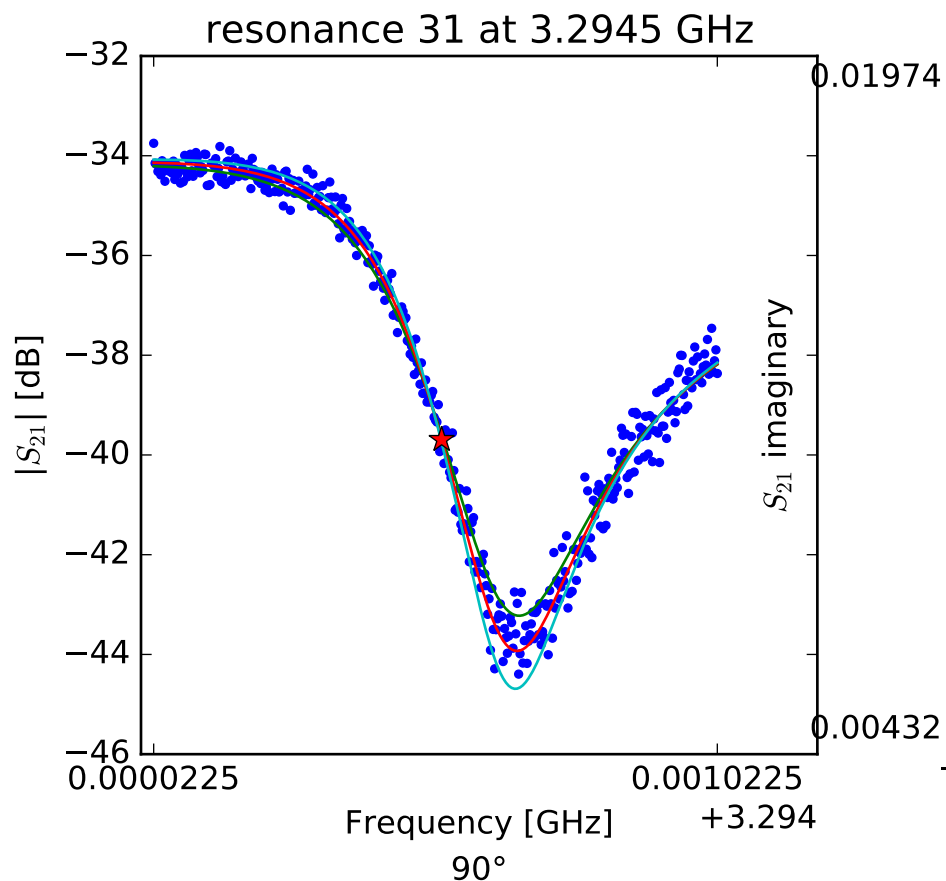
$$Q_r = 9946.5525694$$

$$Q_c = 14346.373034$$

$$a = (-0.00975112343435 + 0.00854985418515j)$$

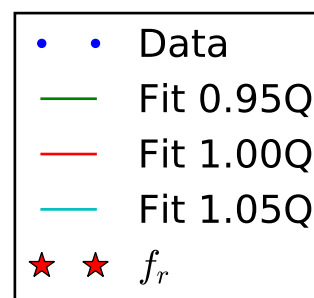
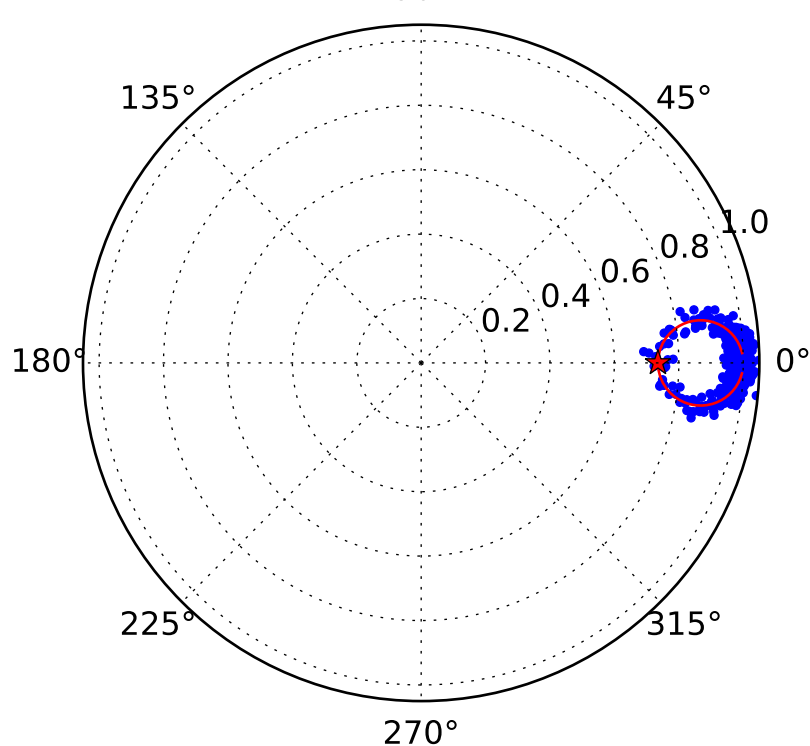
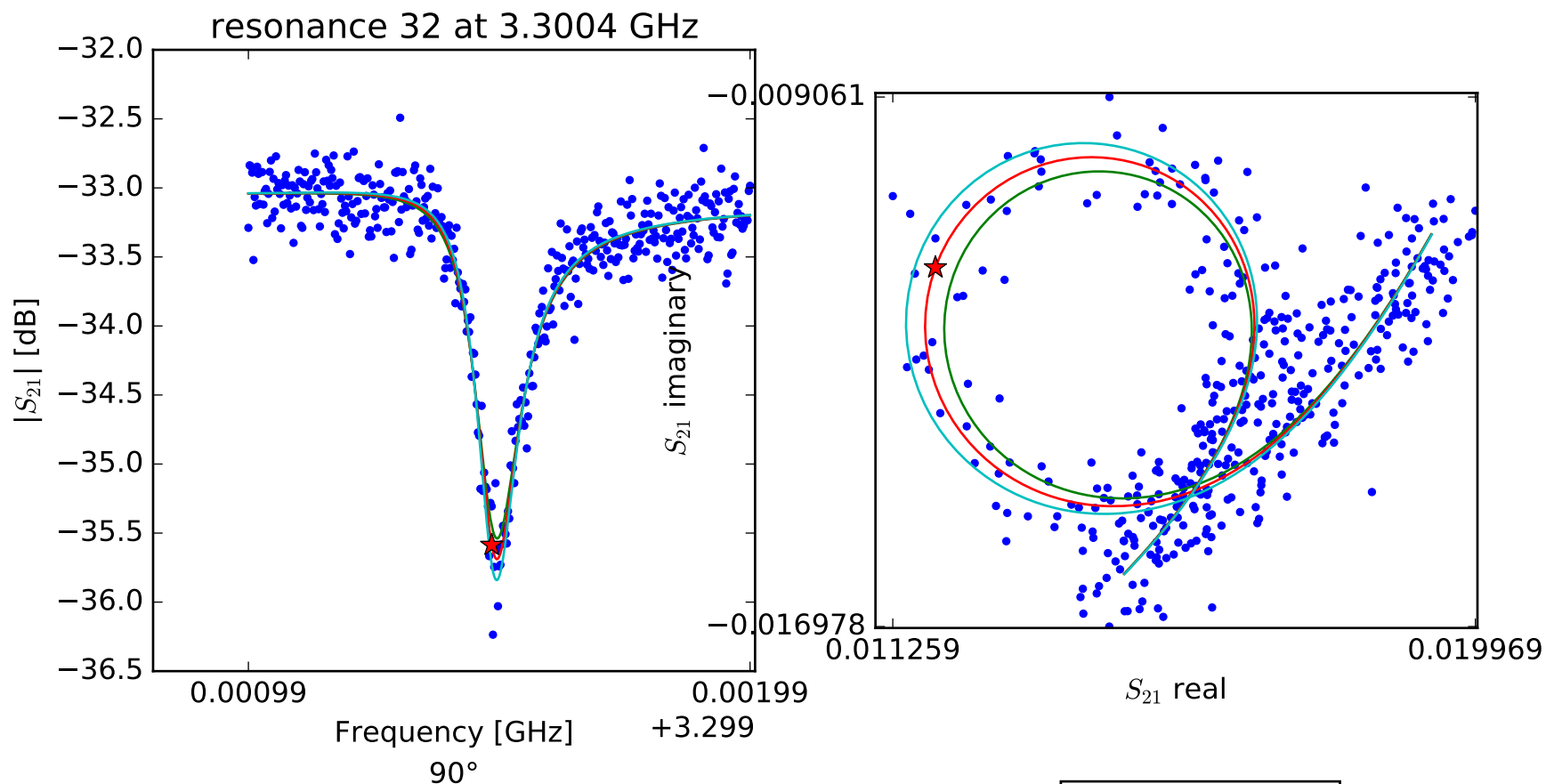
$$\phi_0 = 0.597598849844$$

$$\tau = 40.7154988326$$



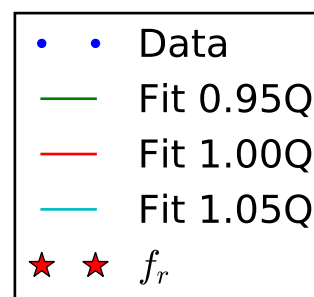
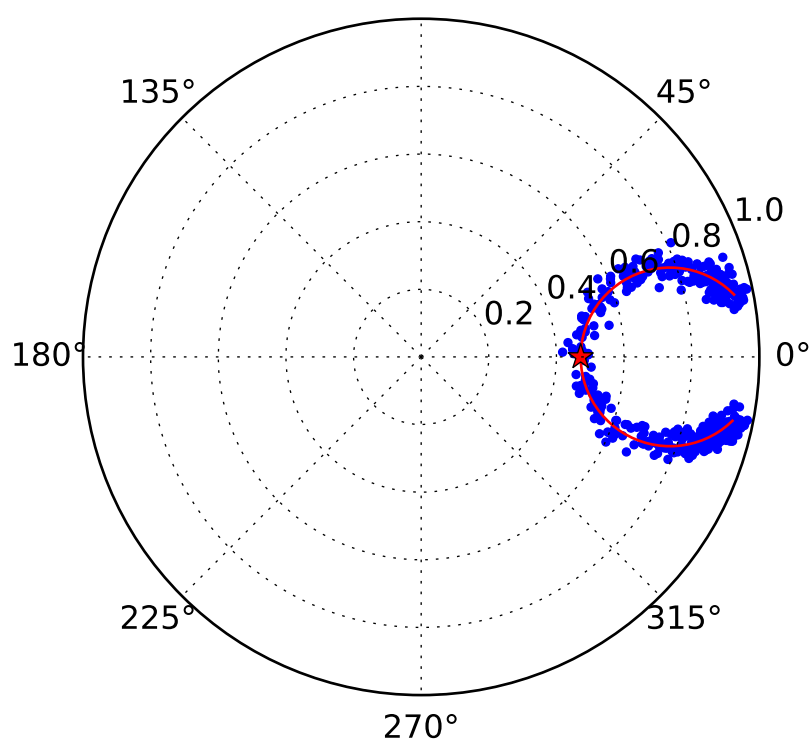
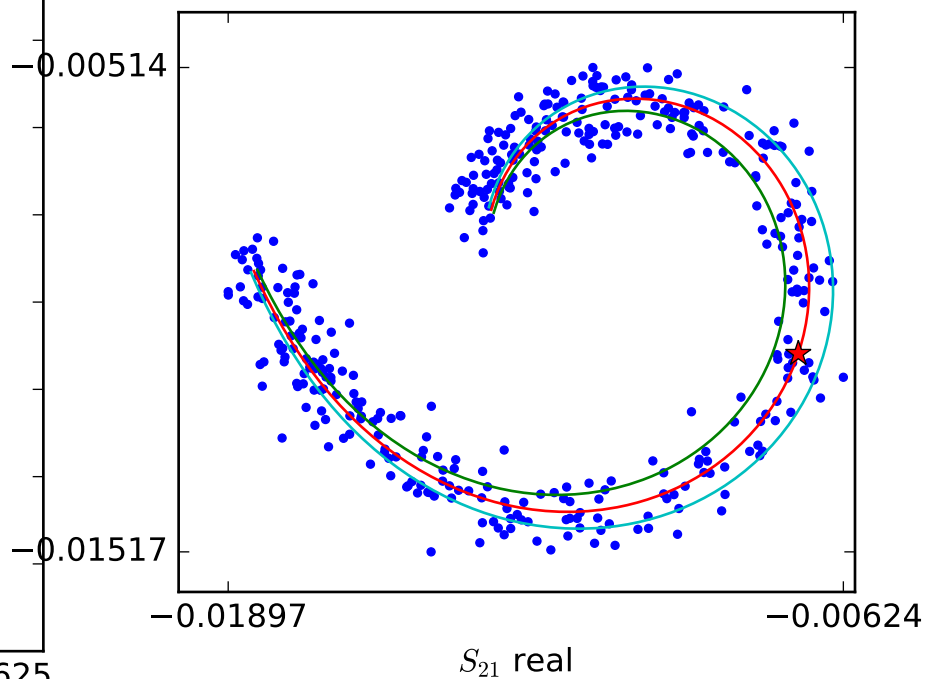
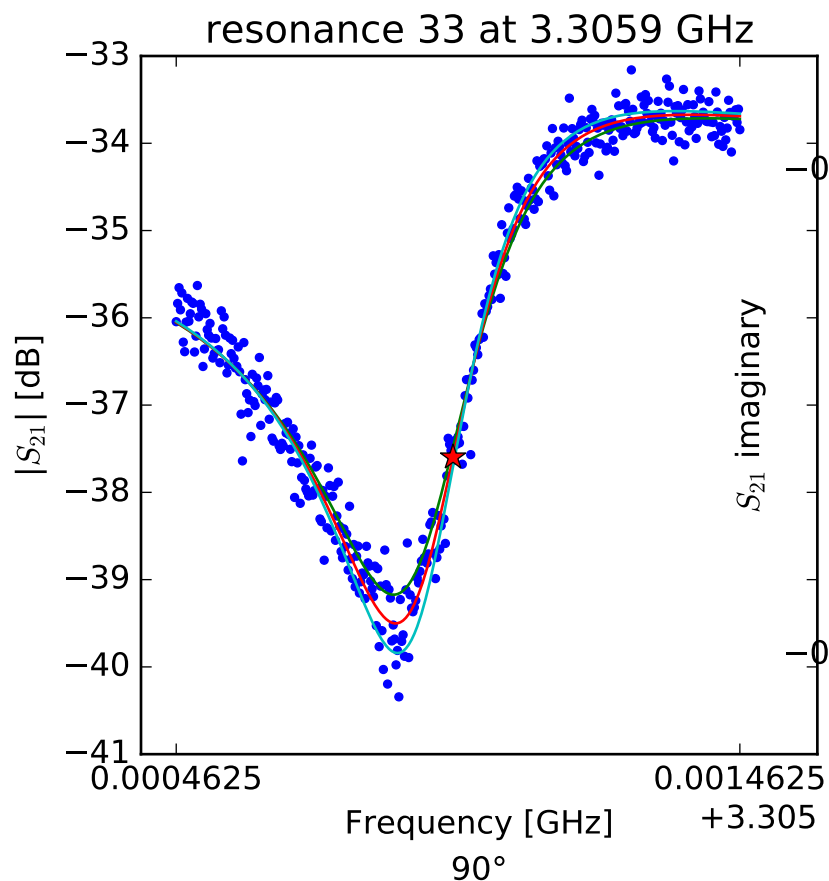
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.2945333794 \\ Q_r &= 6025.87799537 \\ Q_c &= 8102.55677147 \\ a &= (-0.0176448689464 + 0.00277140608029j) \\ \phi_0 &= 0.612878179767 \\ \tau &= 49.8553109542 \end{aligned}$$



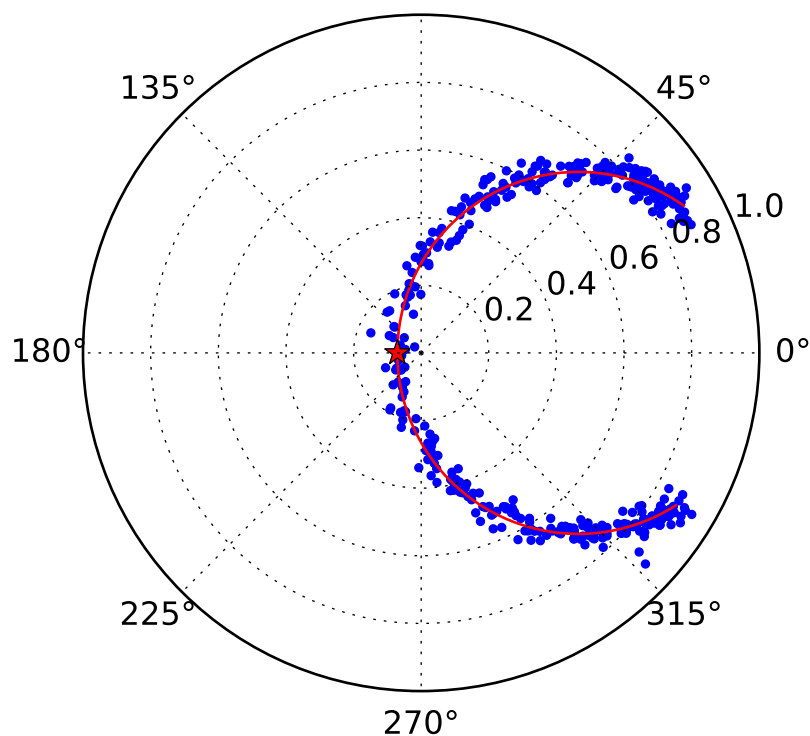
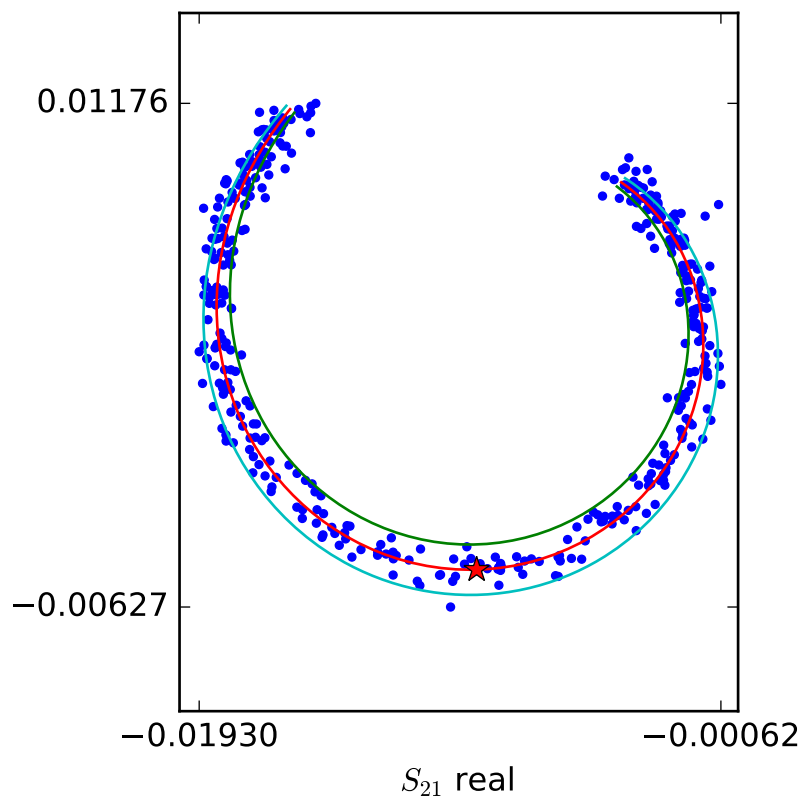
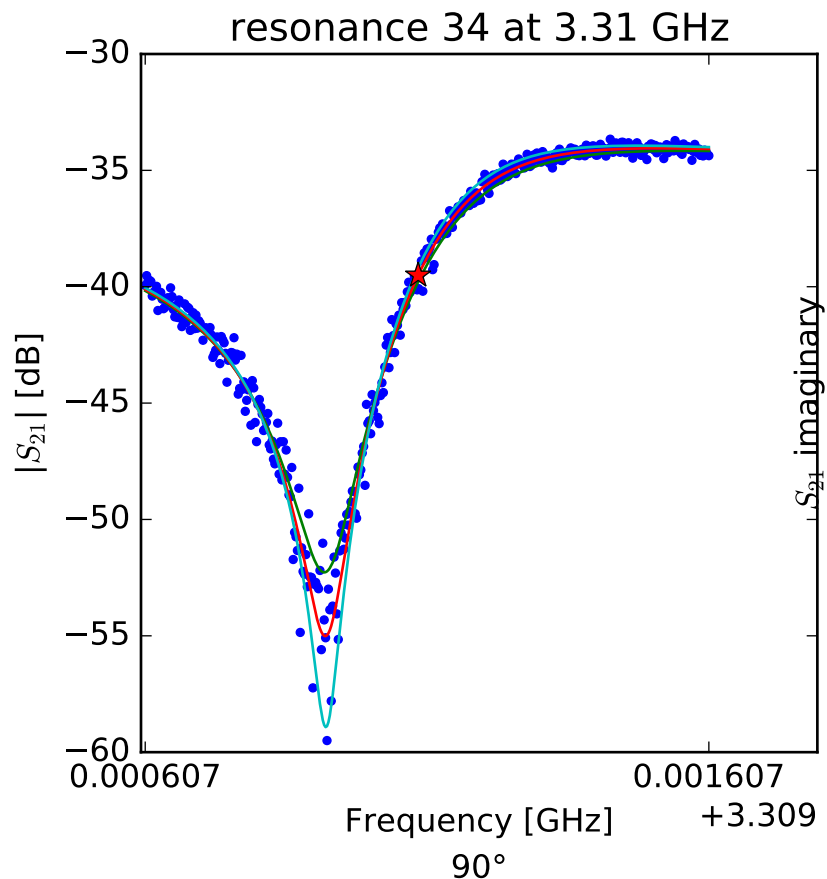
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.30047501393 \\ Q_r &= 27272.2703542 \\ Q_c &= 102935.506037 \\ a &= (0.0214785917182 + 0.0054032822996j) \\ \phi_0 &= 0.295360070105 \\ \tau &= 59.1266110611 \end{aligned}$$



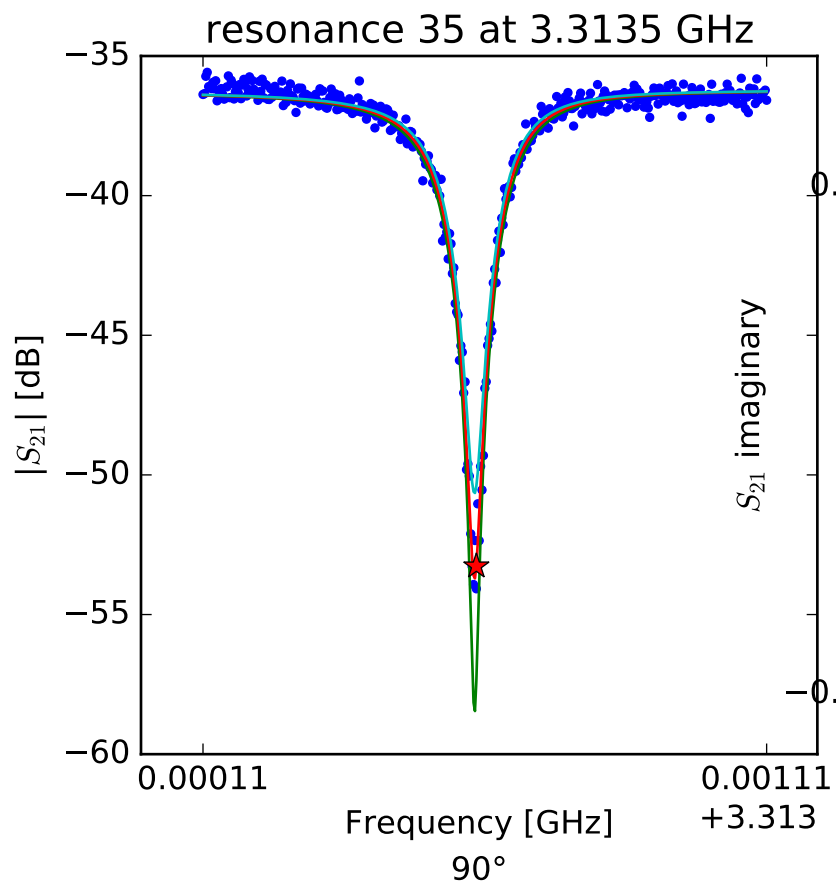
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})} \right]$$

$$\begin{aligned} f_r &= 3.3059536003 \\ Q_r &= 7990.17301852 \\ Q_c &= 15123.6427811 \\ a &= (0.0171038909662 + 0.00865611557013j) \\ \phi_0 &= -0.703376295032 \\ \tau &= 57.0179907887 \end{aligned}$$



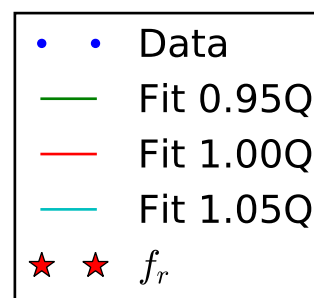
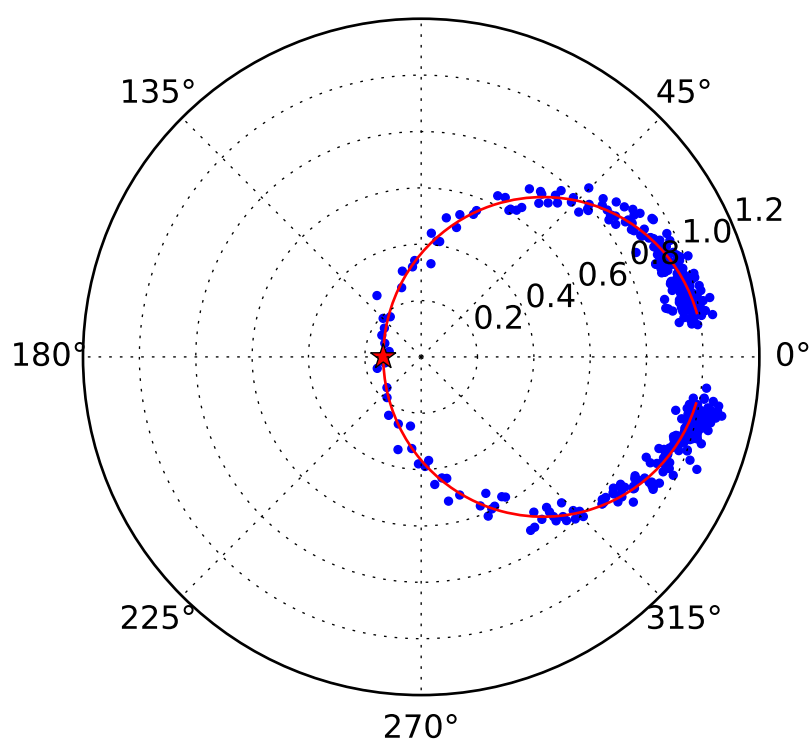
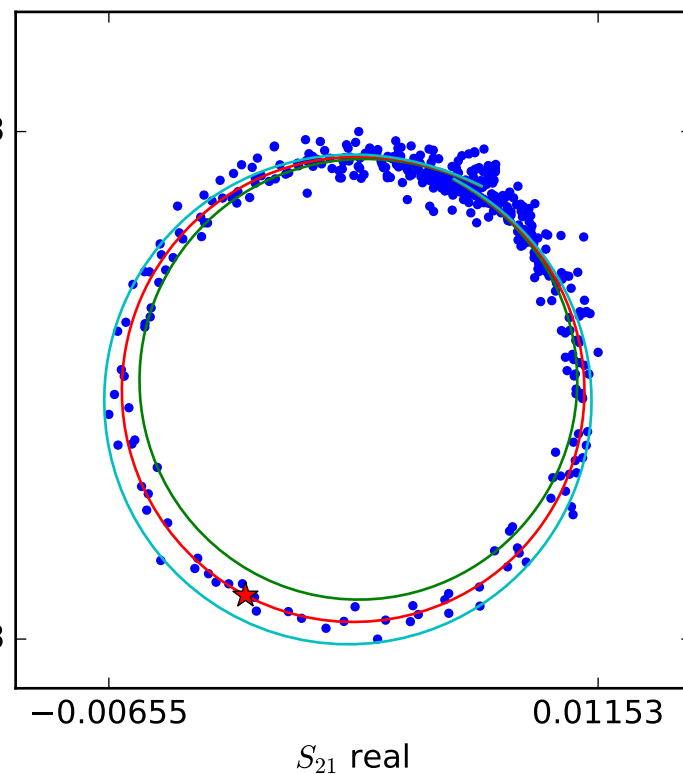
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.31009174433 \\ Q_r &= 6243.29086134 \\ Q_c &= 5832.0855705 \\ a &= (-0.00459916498784 + 0.0162316809111j) \\ \phi_0 &= -0.611883679712 \\ \tau &= 50.4321865425 \end{aligned}$$



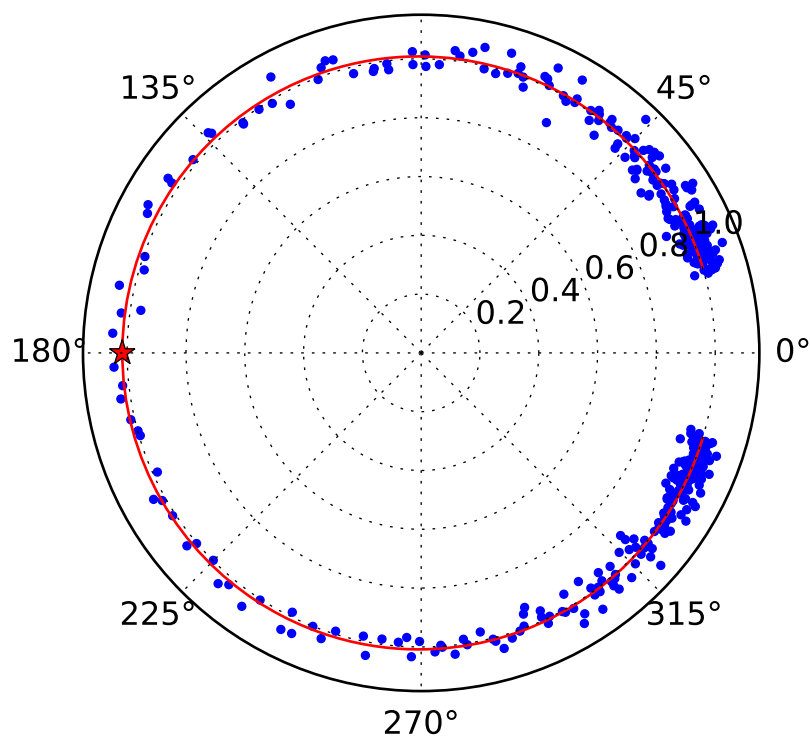
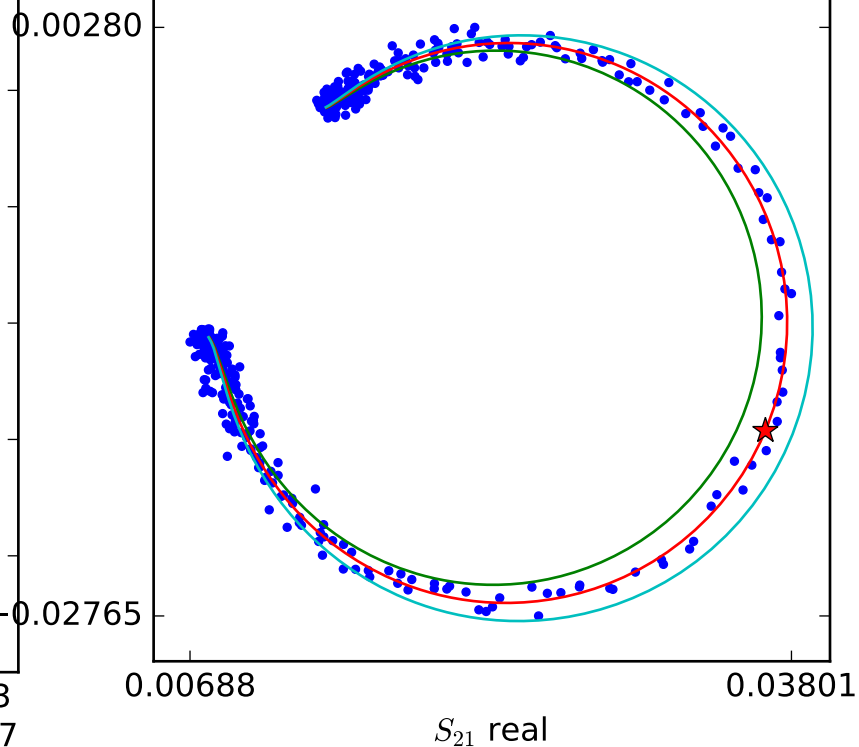
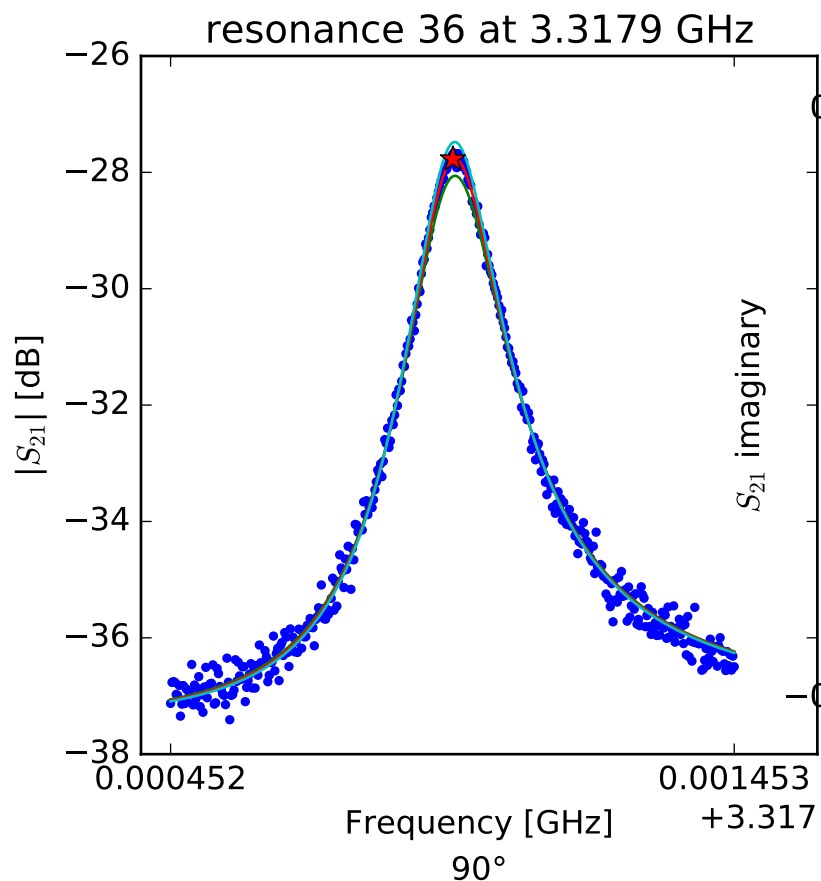
0.01558

-0.00318



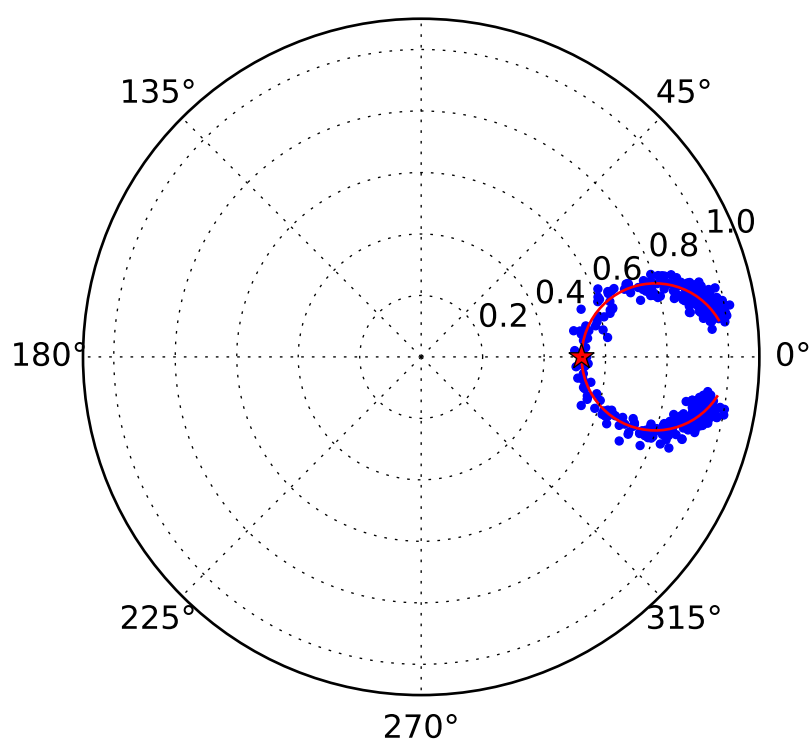
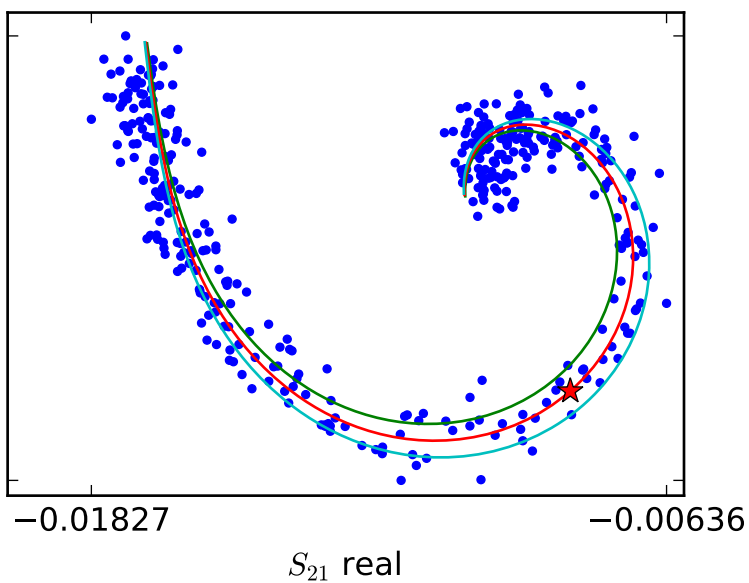
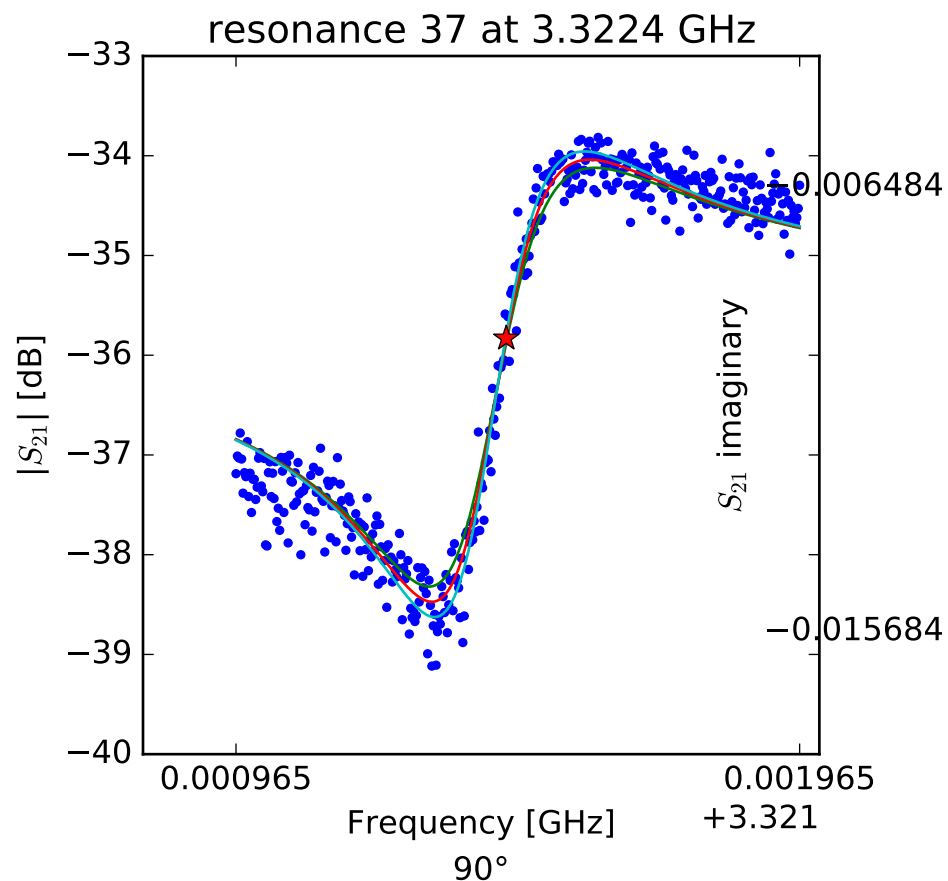
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.31359499567 \\ Q_r &= 22945.5137248 \\ Q_c &= 20223.7941679 \\ a &= (-0.015321525239 + 0.00157495914005j) \\ \phi_0 &= -0.0392635653938 \\ \tau &= 62.5618047442 \end{aligned}$$



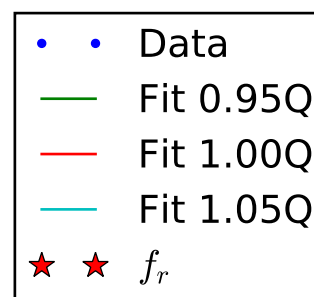
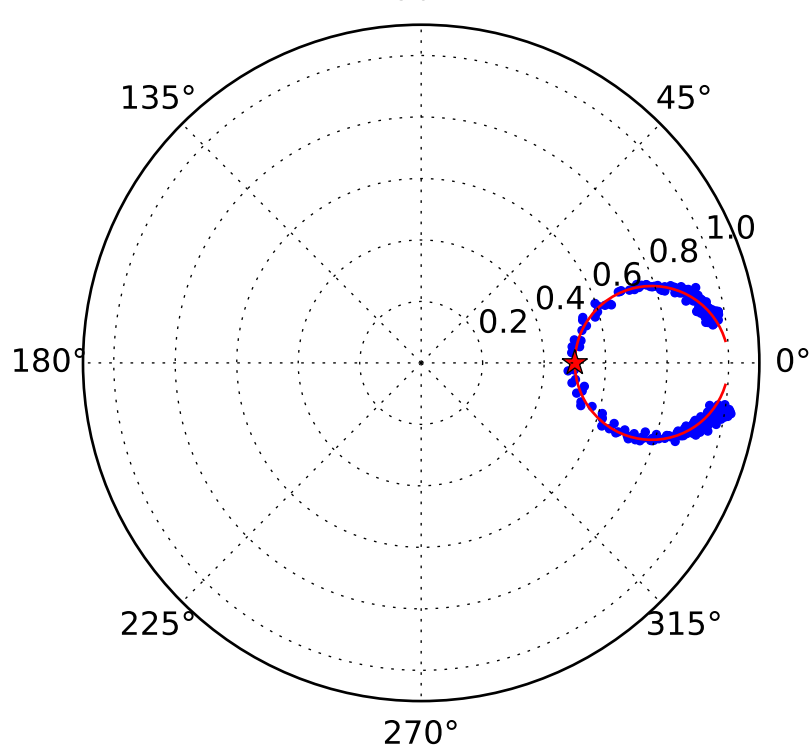
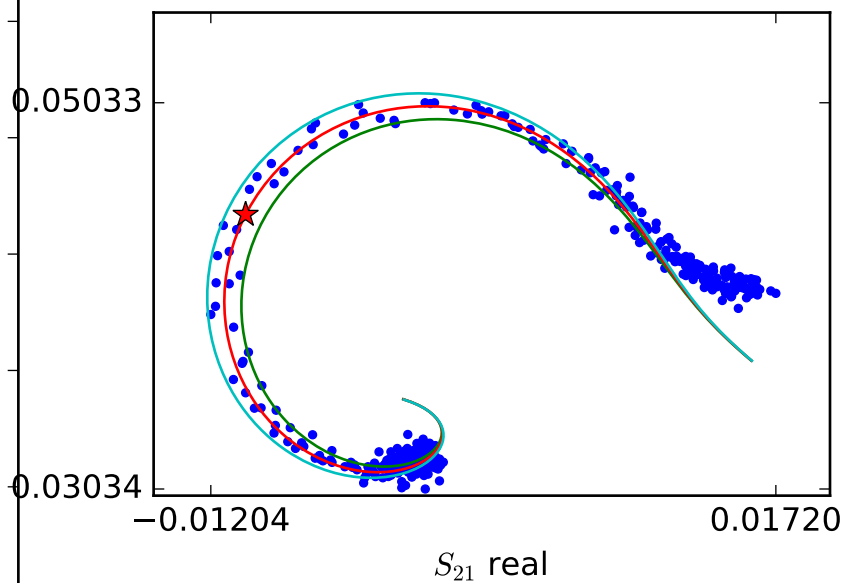
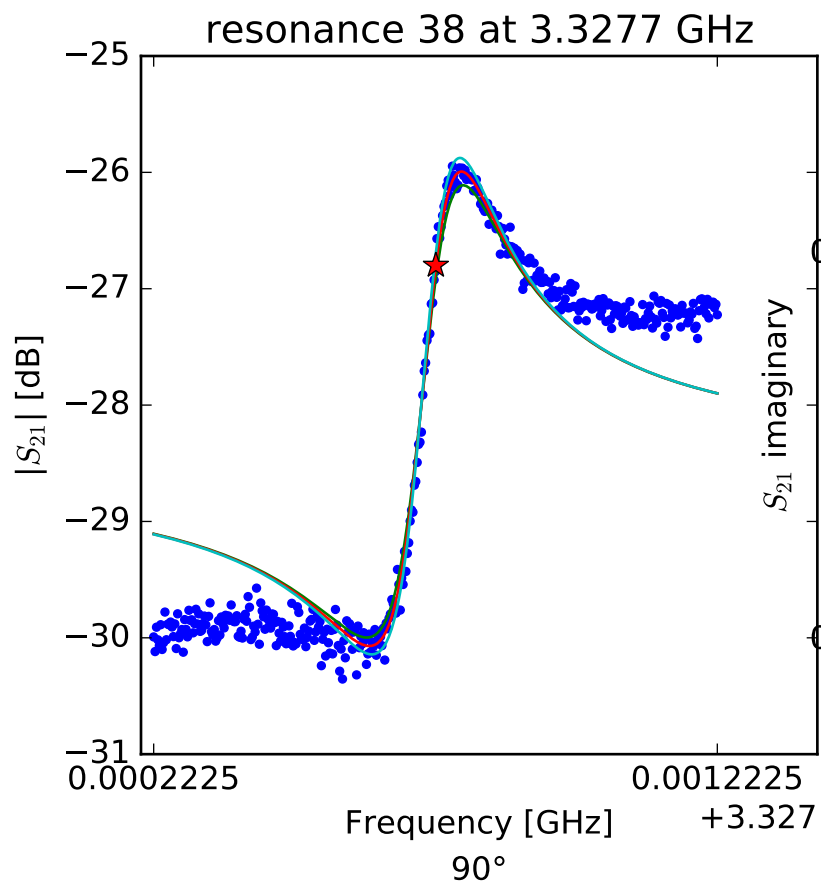
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.31795337891 \\ Q_r &= 22515.2662346 \\ Q_c &= 11165.706891 \\ a &= (0.00535238385172 + 0.0125063269031j) \\ \phi_0 &= -2.94989022409 \\ \tau &= 63.9788766421 \end{aligned}$$



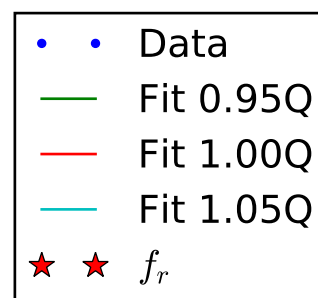
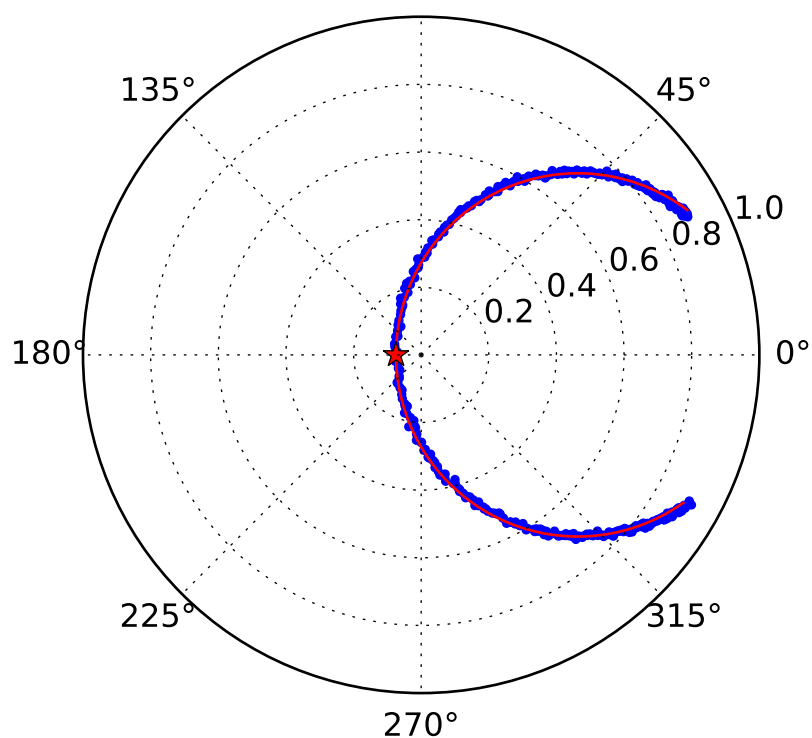
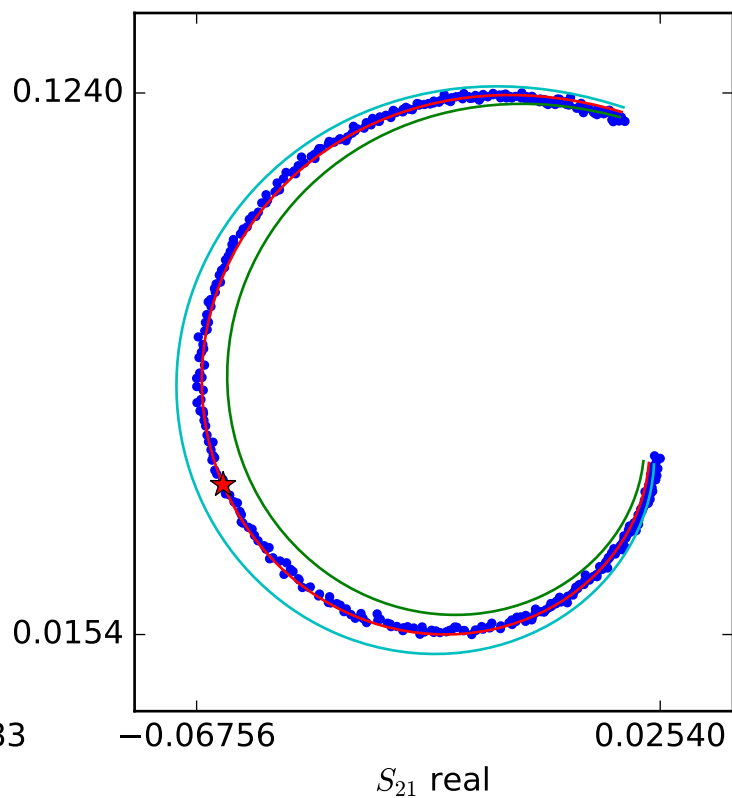
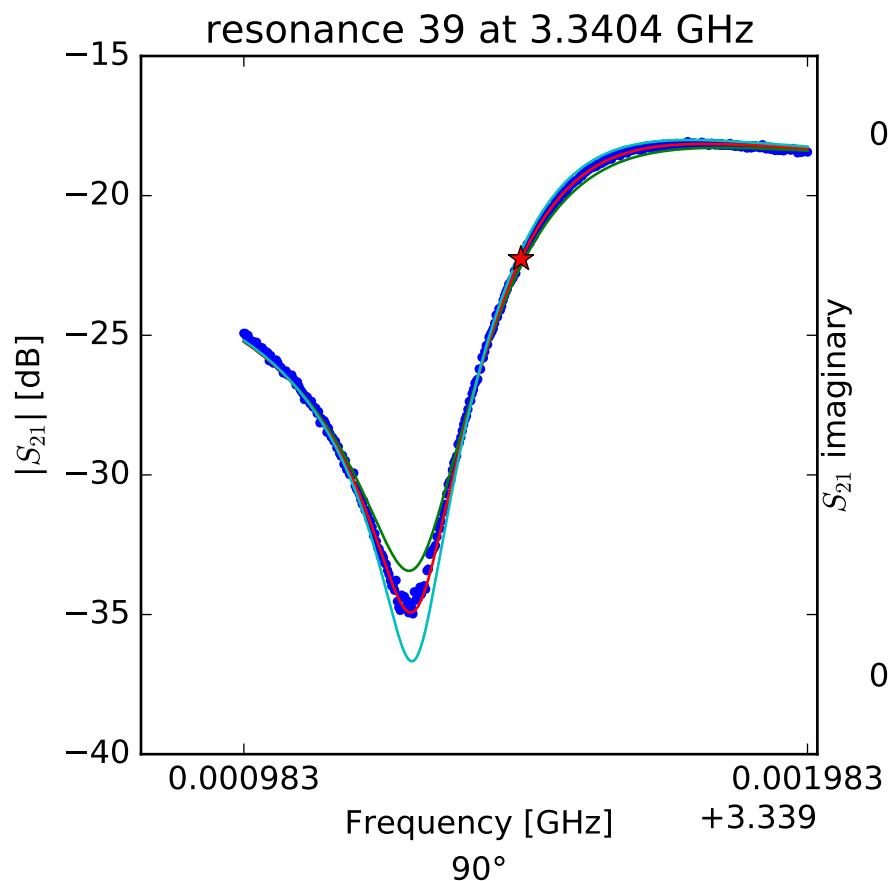
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})} \right]$$

$$\begin{aligned} f_r &= 3.32244450506 \\ Q_r &= 11883.3206332 \\ Q_c &= 24839.9187138 \\ a &= (-0.0165891779057 - 0.000555826198706j) \\ \phi_0 &= -1.27293003022 \\ \tau &= 70.1048887252 \end{aligned}$$



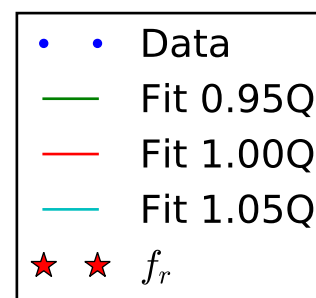
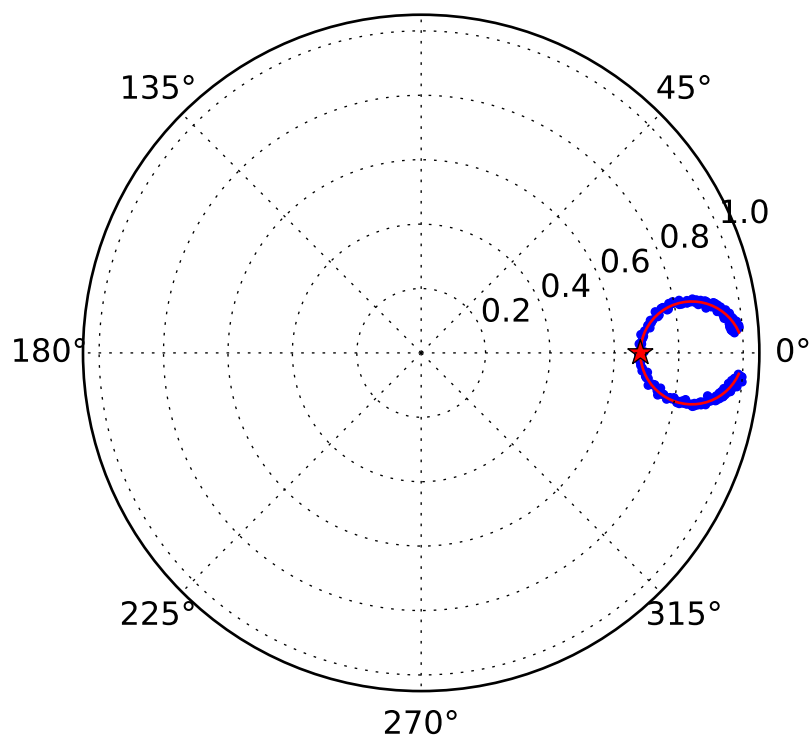
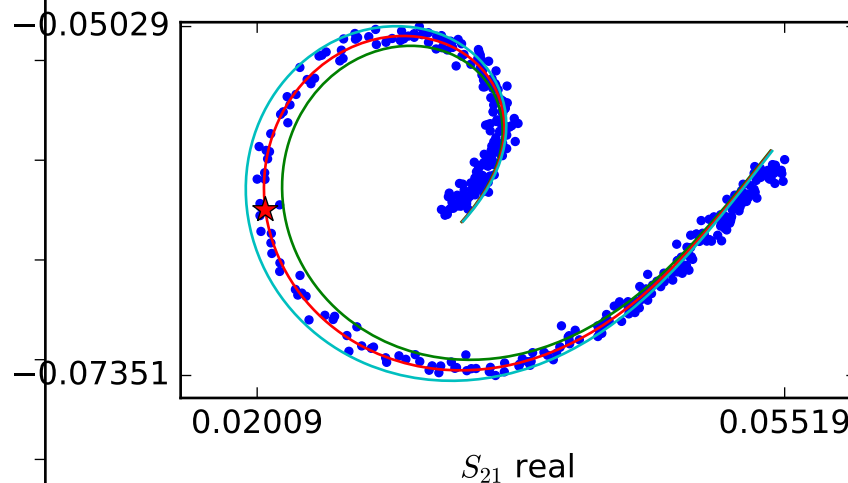
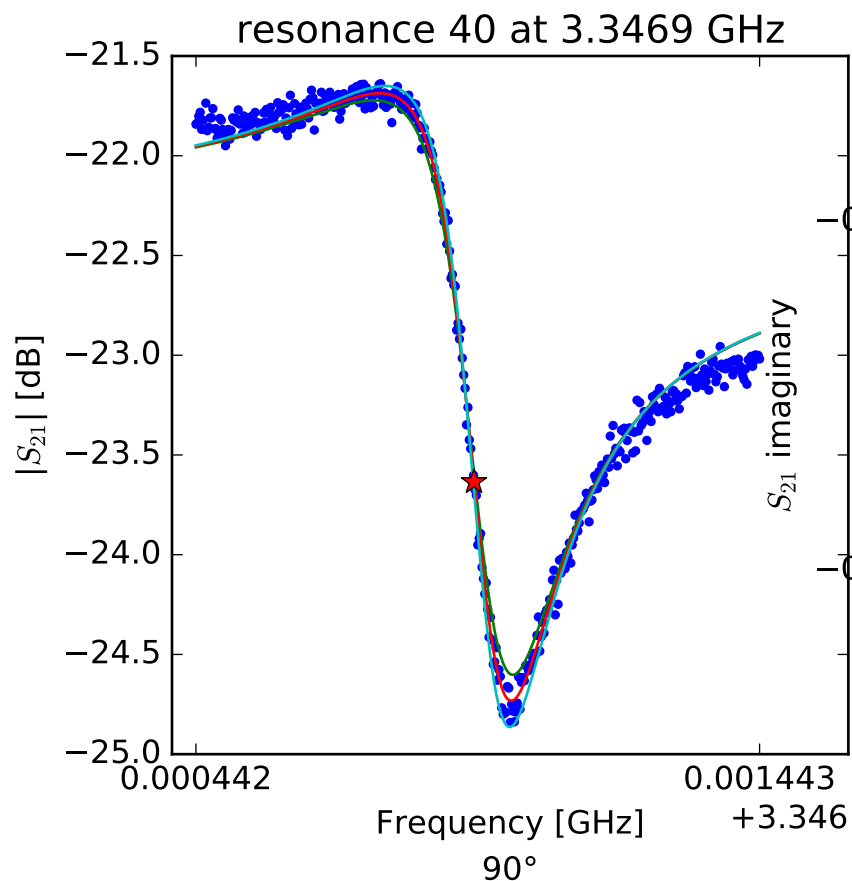
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.327723089 \\ Q_r &= 22700.391801 \\ Q_c &= 45367.3328499 \\ a &= (-0.0185092094557 - 0.03267880081j) \\ \phi_0 &= -1.80360067107 \\ \tau &= 68.6497980993 \end{aligned}$$



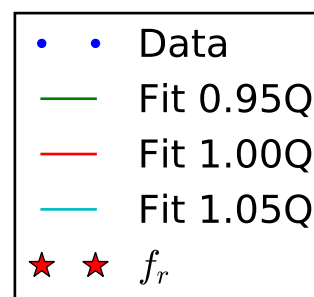
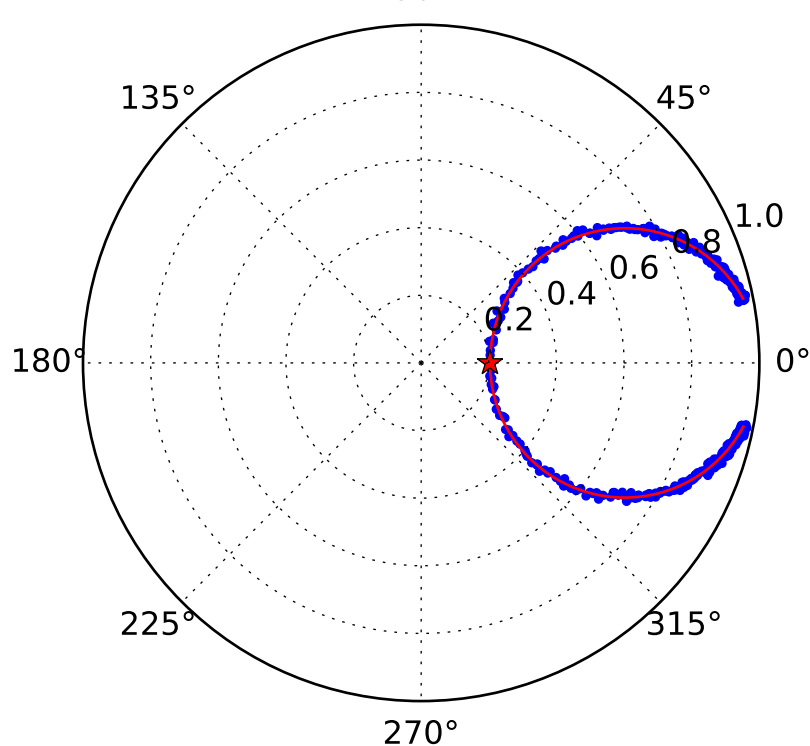
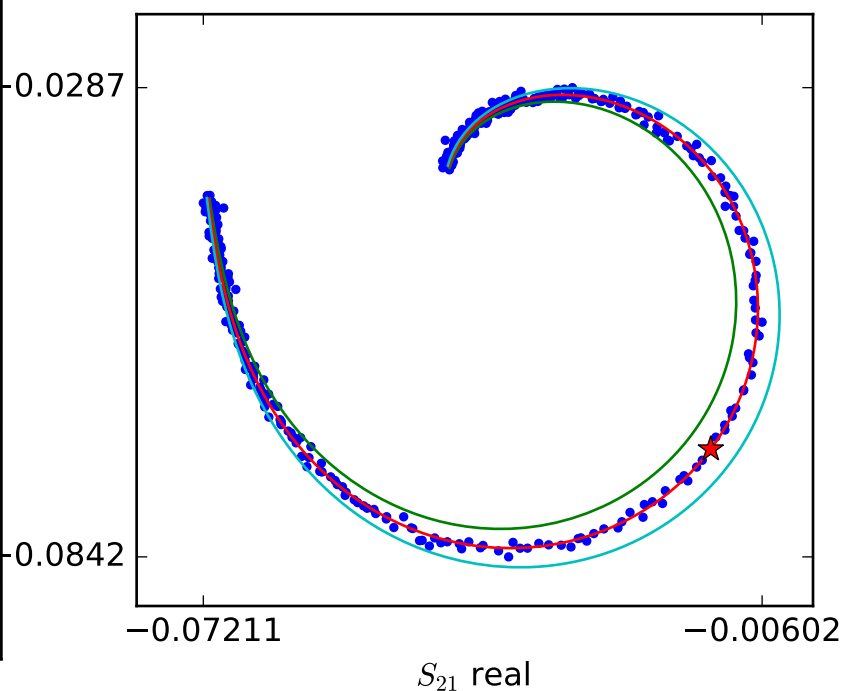
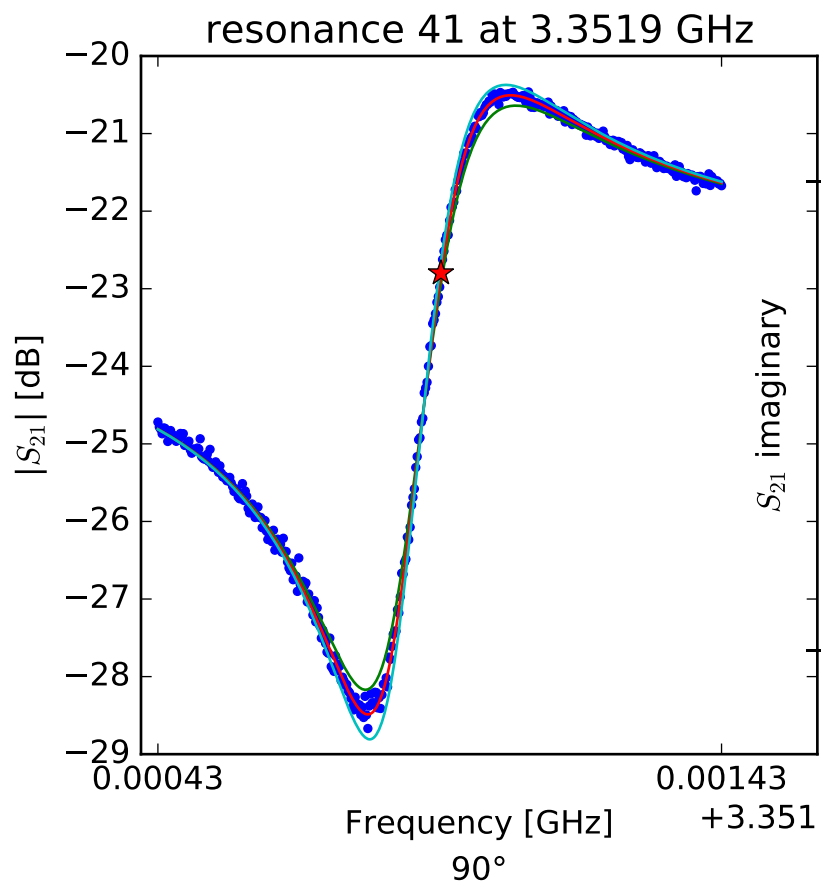
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.34047408205 \\ Q_r &= 6603.69694714 \\ Q_c &= 6146.4598802 \\ a &= (0.0819078115186 + 0.054745347007j) \\ \phi_0 &= -0.769951327792 \\ \tau &= 59.8408645698 \end{aligned}$$



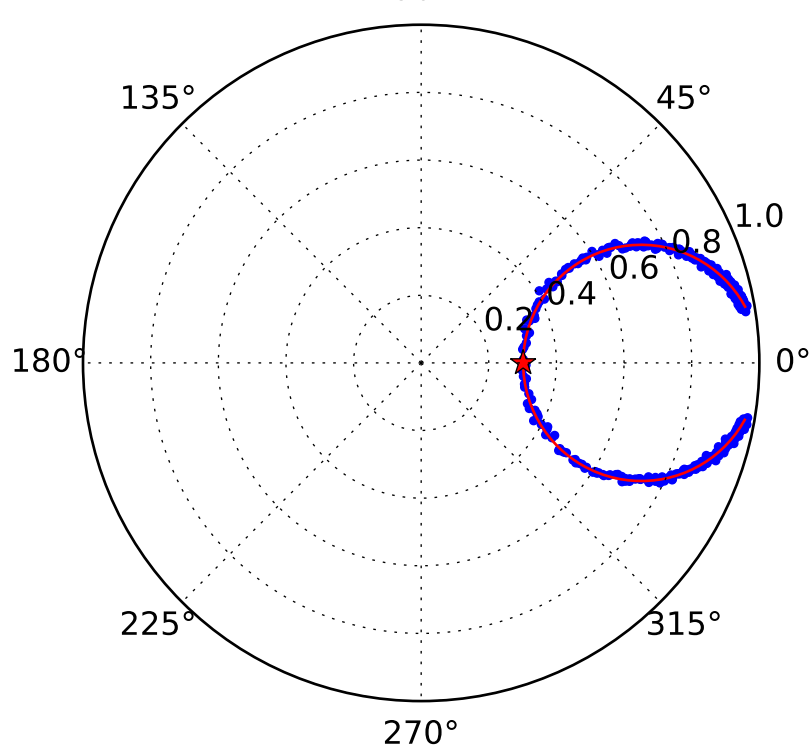
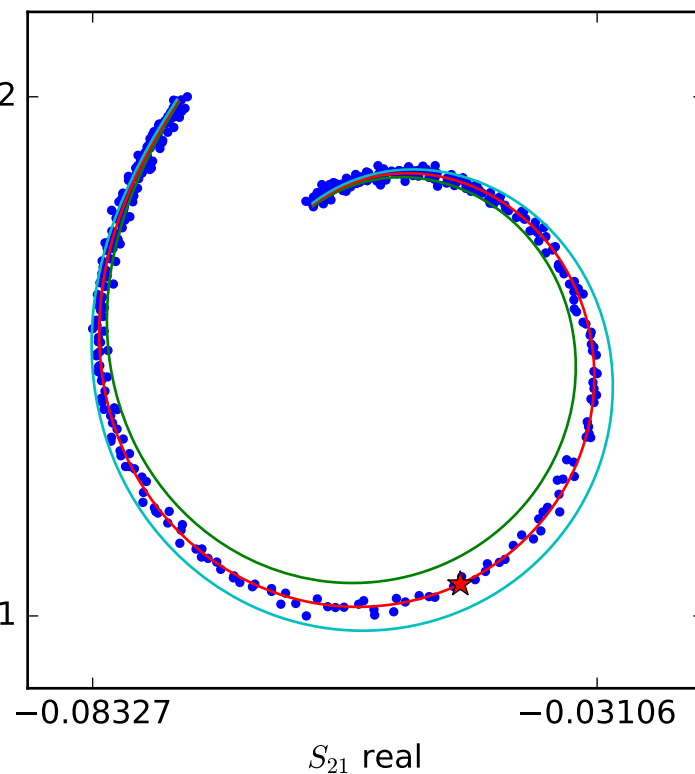
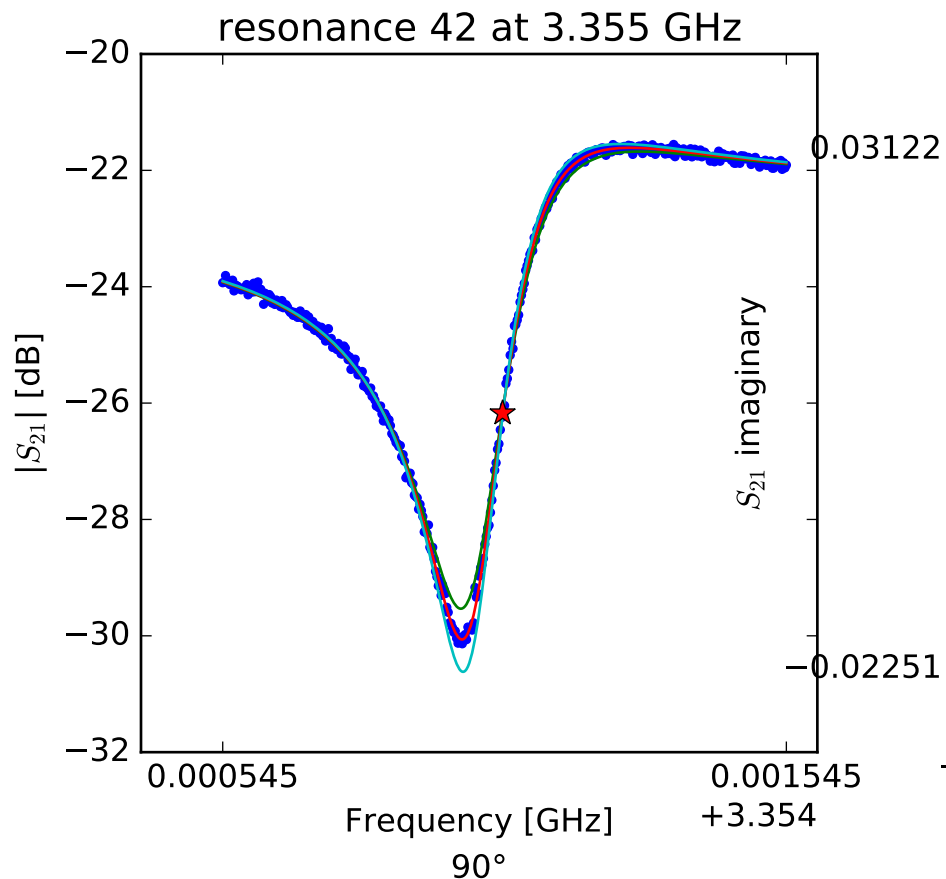
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.34693577654 \\ Q_r &= 15912.5309376 \\ Q_c &= 49814.3047801 \\ a &= (-0.0748841661218 + 0.0144028943921j) \\ \phi_0 &= 0.977119673432 \\ \tau &= 52.4716837635 \end{aligned}$$



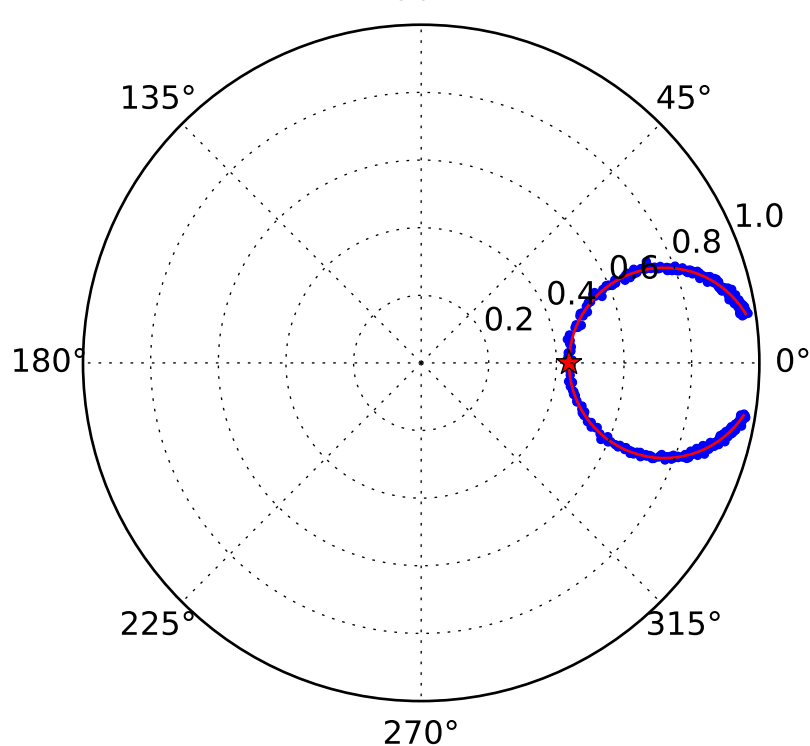
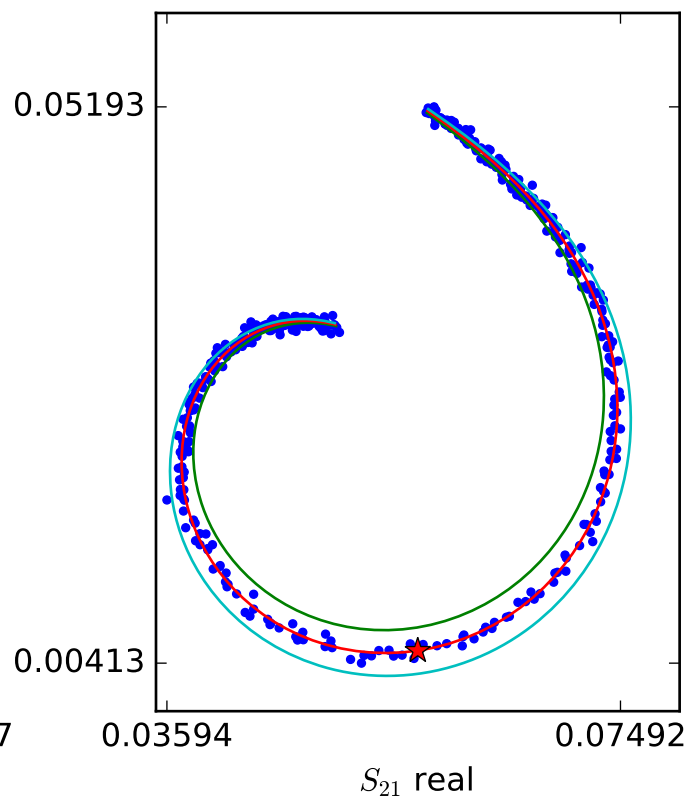
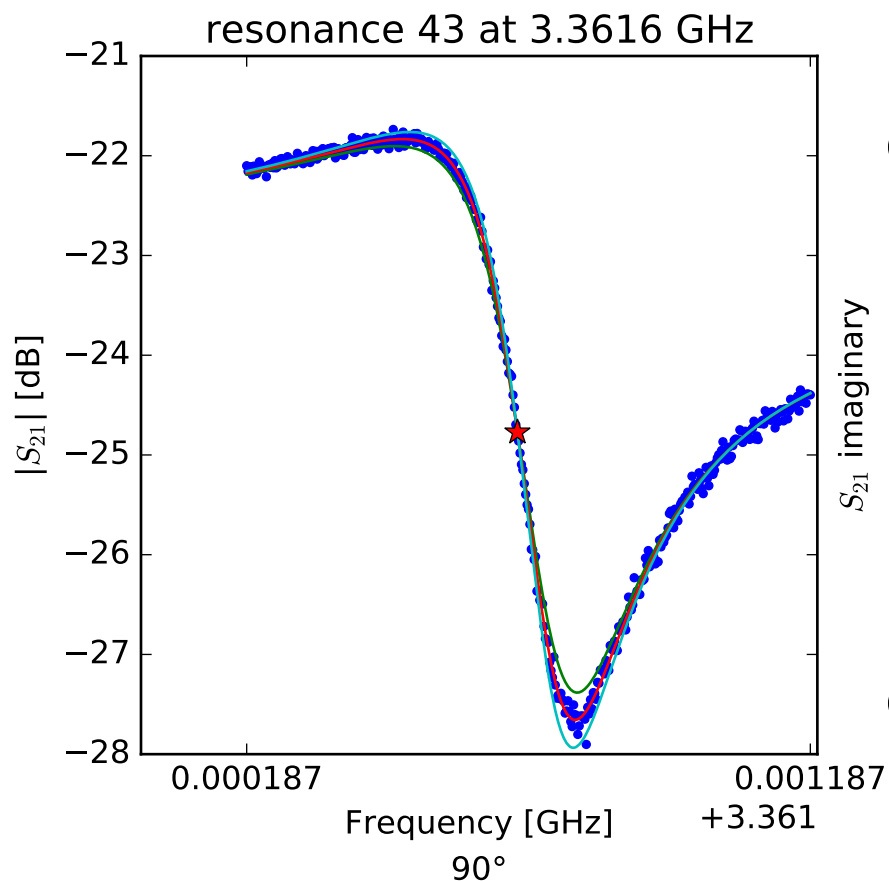
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.35193210671 \\ Q_r &= 13231.1898367 \\ Q_c &= 16609.4296714 \\ a &= (-0.0515675654384 + 0.0490605106058j) \\ \phi_0 &= -1.18586222123 \\ \tau &= 52.1444899097 \end{aligned}$$



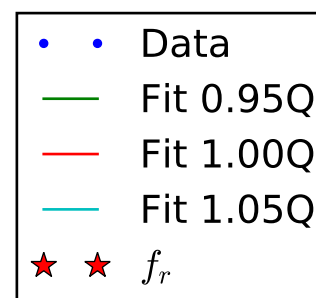
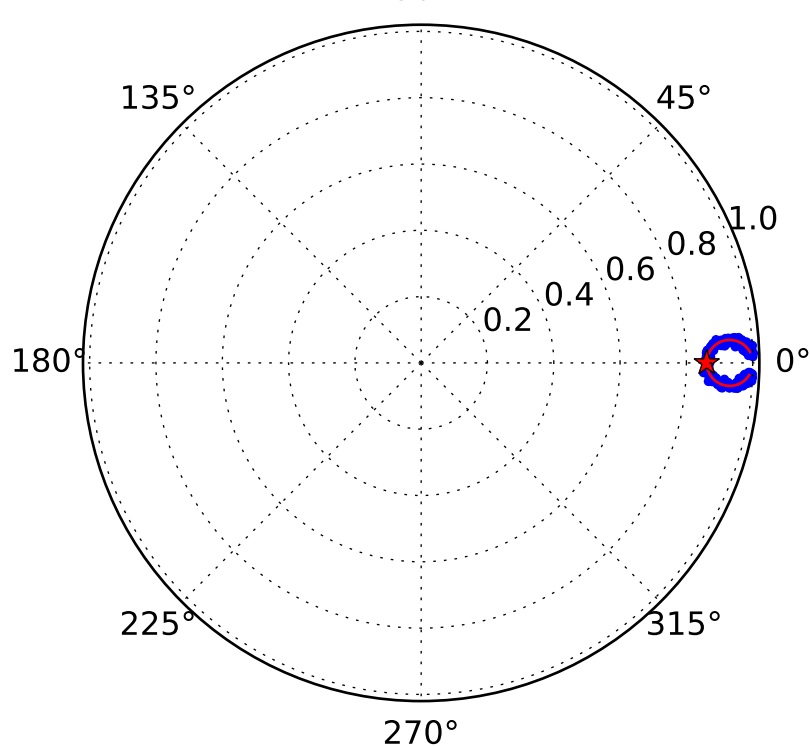
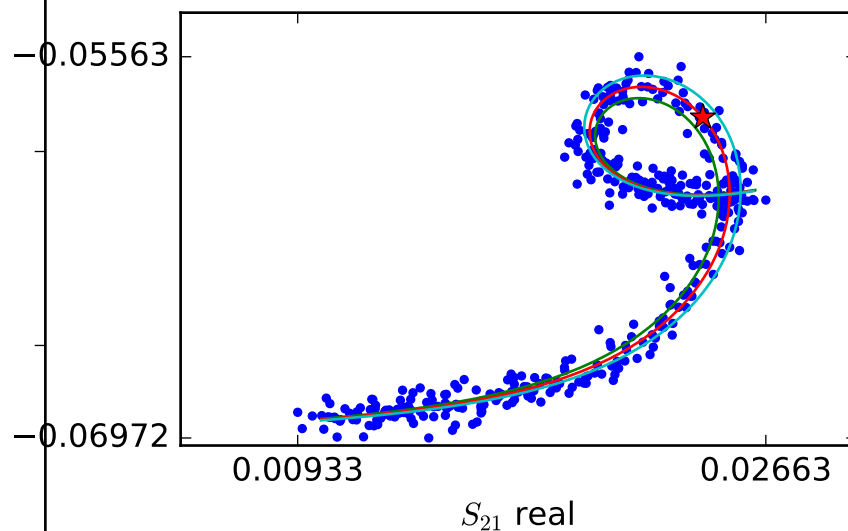
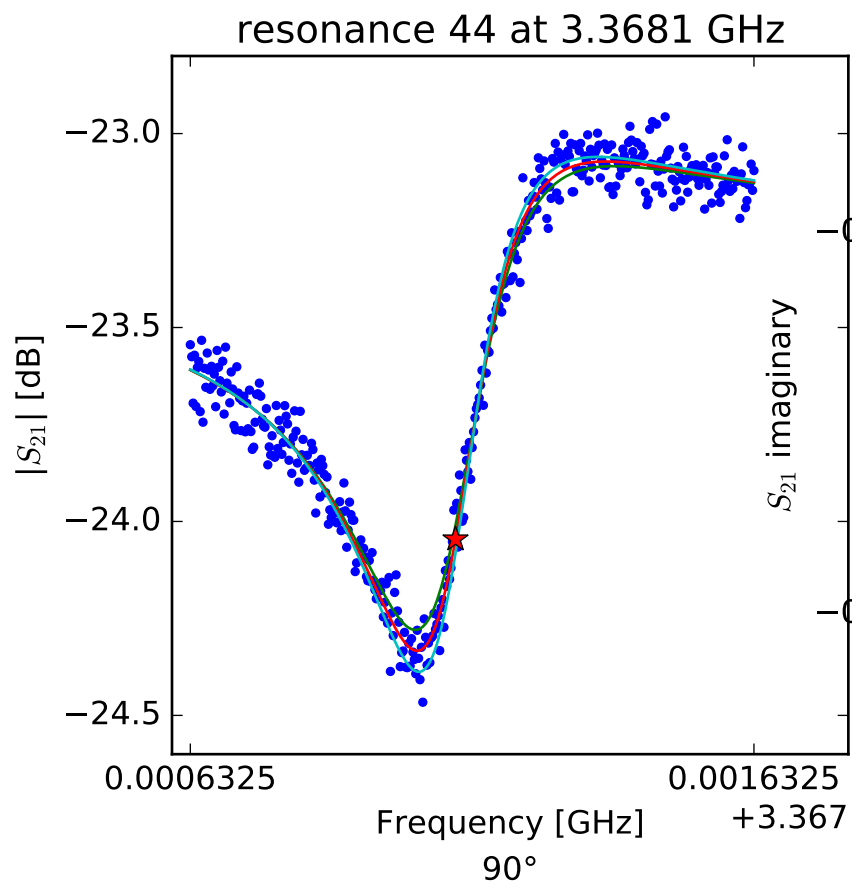
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.35504156824 \\ Q_r &= 13147.7881903 \\ Q_c &= 18821.1289531 \\ a &= (-0.073844395617 + 0.00425461378181j) \\ \phi_0 &= -0.723943132612 \\ \tau &= 51.8770093445 \end{aligned}$$



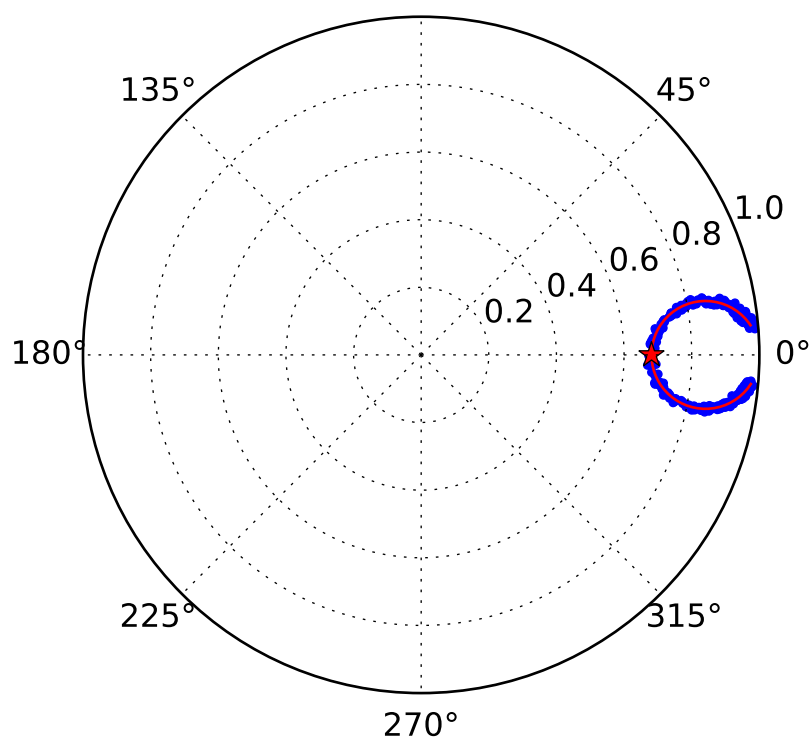
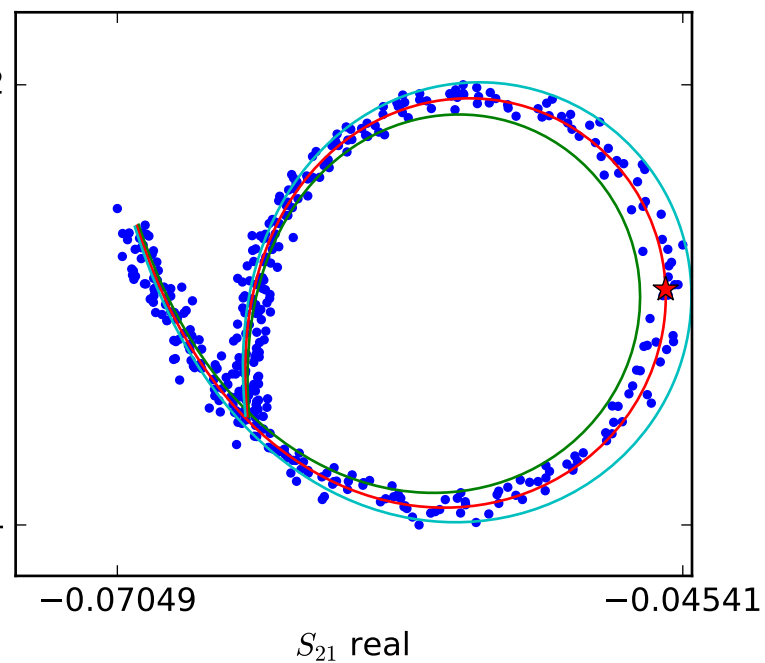
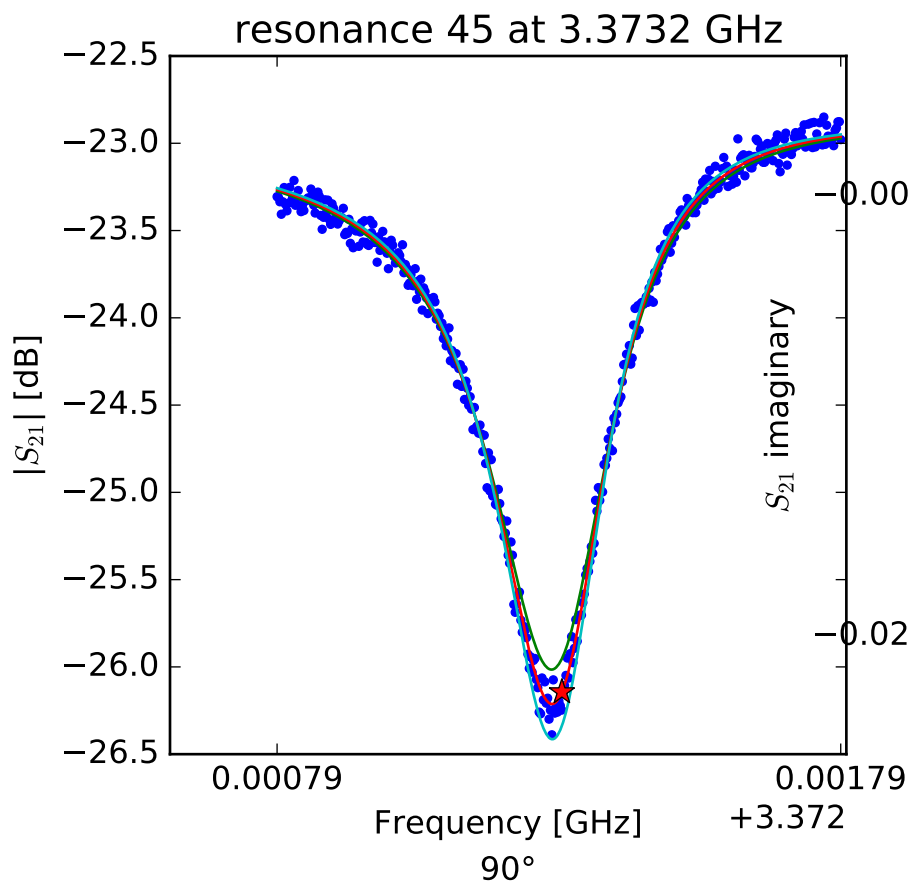
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.36166787255 \\ Q_r &= 11633.6860686 \\ Q_c &= 20669.7263292 \\ a &= (0.0473636941016 + 0.0519241512508j) \\ \phi_0 &= 0.963773995333 \\ \tau &= 49.9819772029 \end{aligned}$$



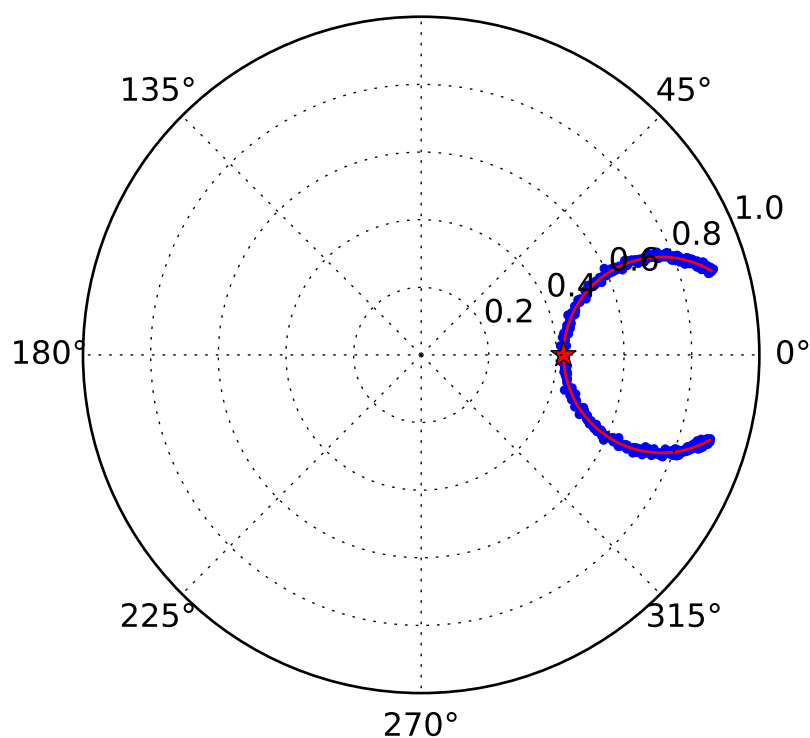
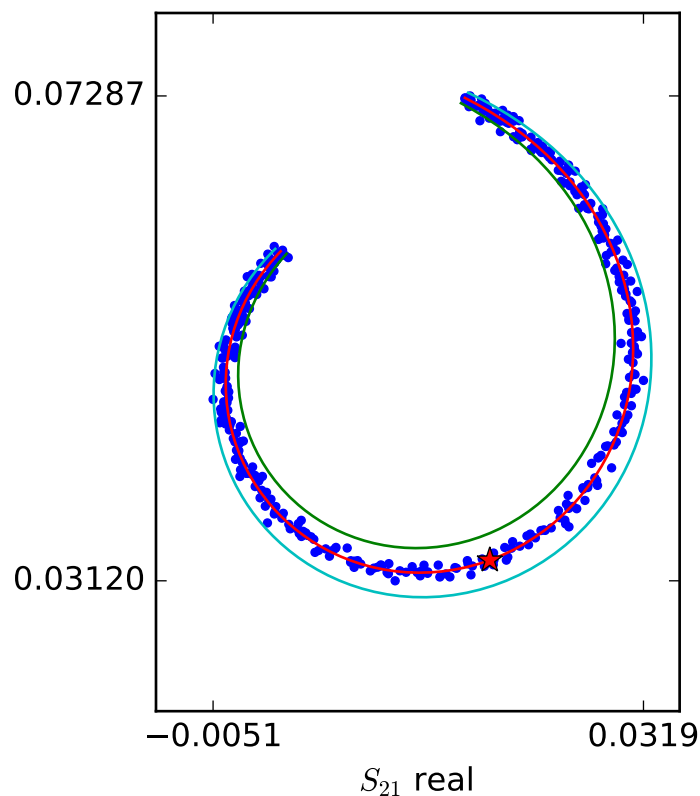
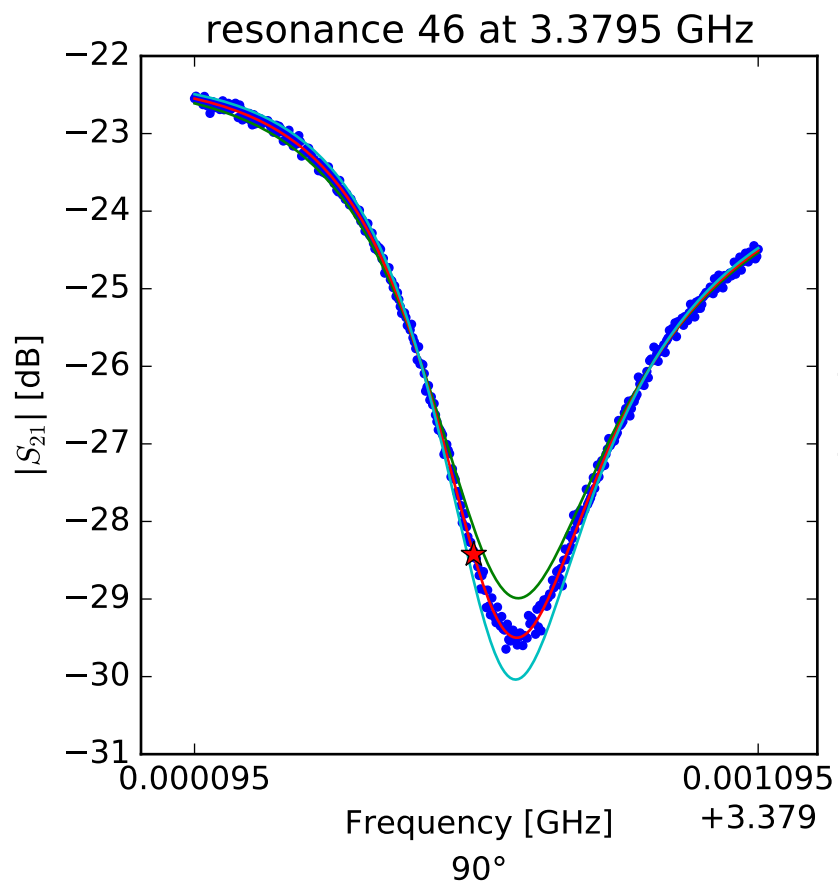
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.36810303542 \\ Q_r &= 12502.0020252 \\ Q_c &= 90067.0524059 \\ a &= (0.0577309348494 + 0.0366589889304j) \\ \phi_0 &= -0.879785787354 \\ \tau &= 48.4828847613 \end{aligned}$$



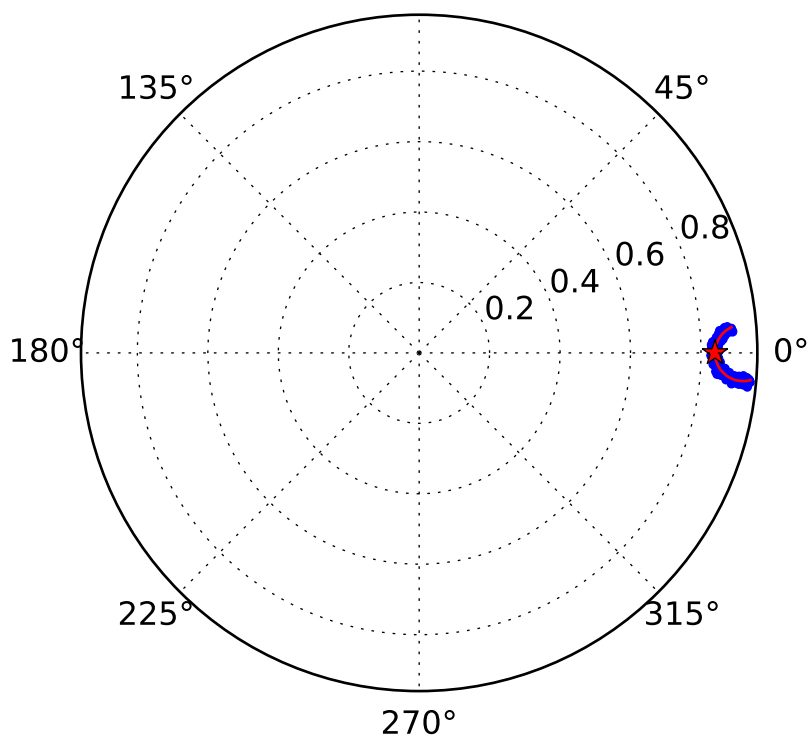
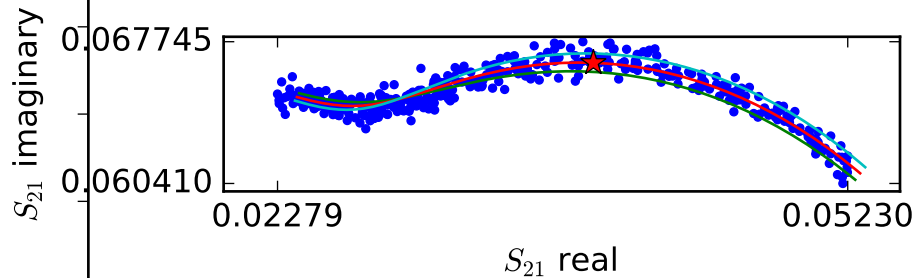
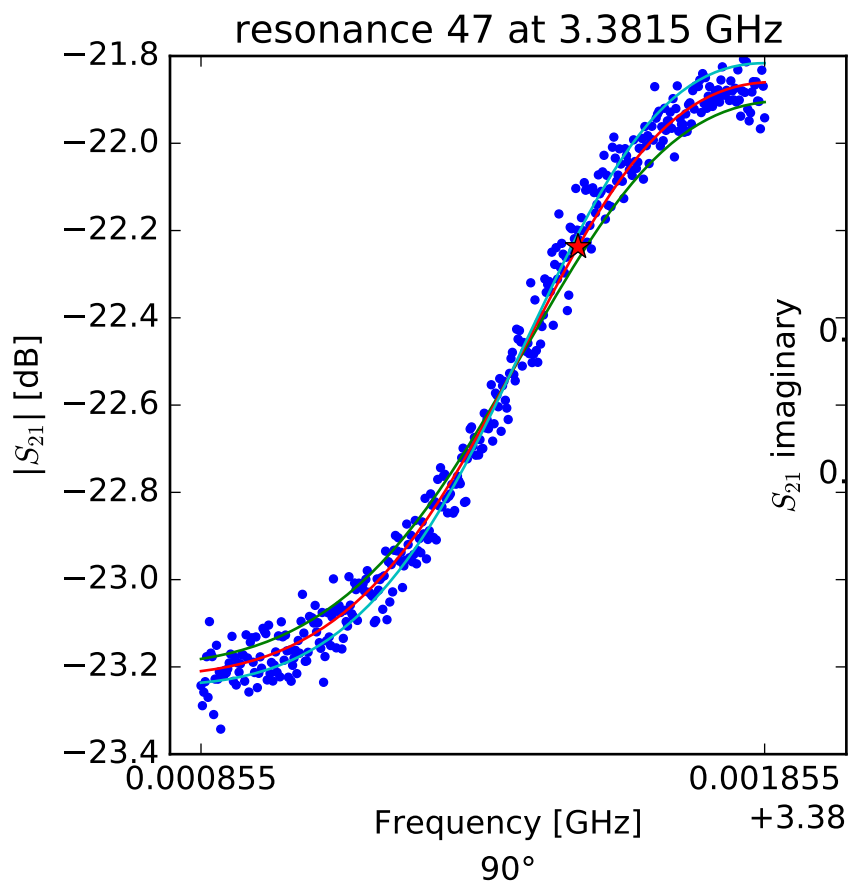
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.37329530793 \\ Q_r &= 11373.8024403 \\ Q_c &= 35656.6525173 \\ a &= (0.0395141500052 - 0.0594924808147j) \\ \phi_0 &= -0.199576062056 \\ \tau &= 49.2992406967 \end{aligned}$$



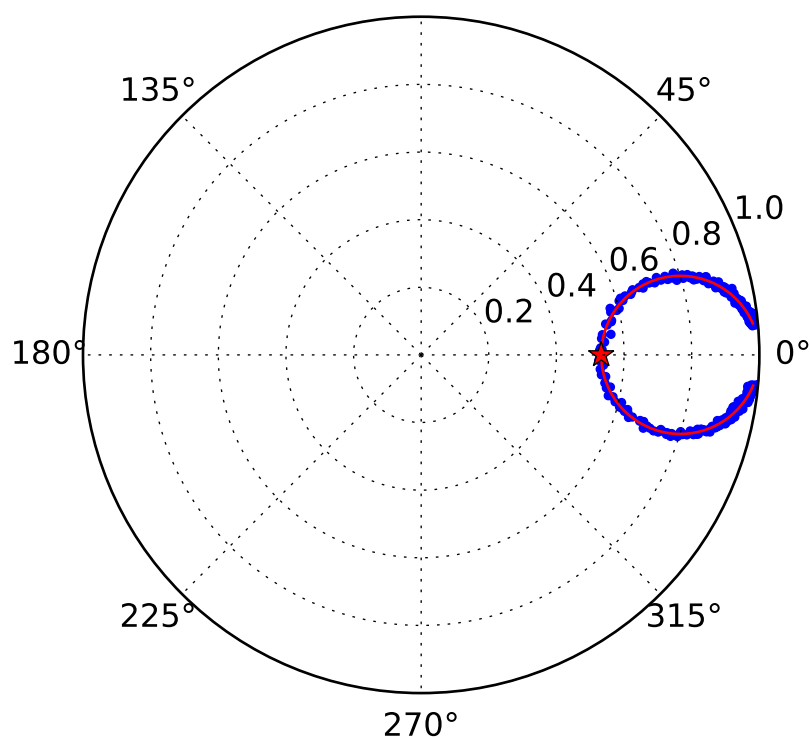
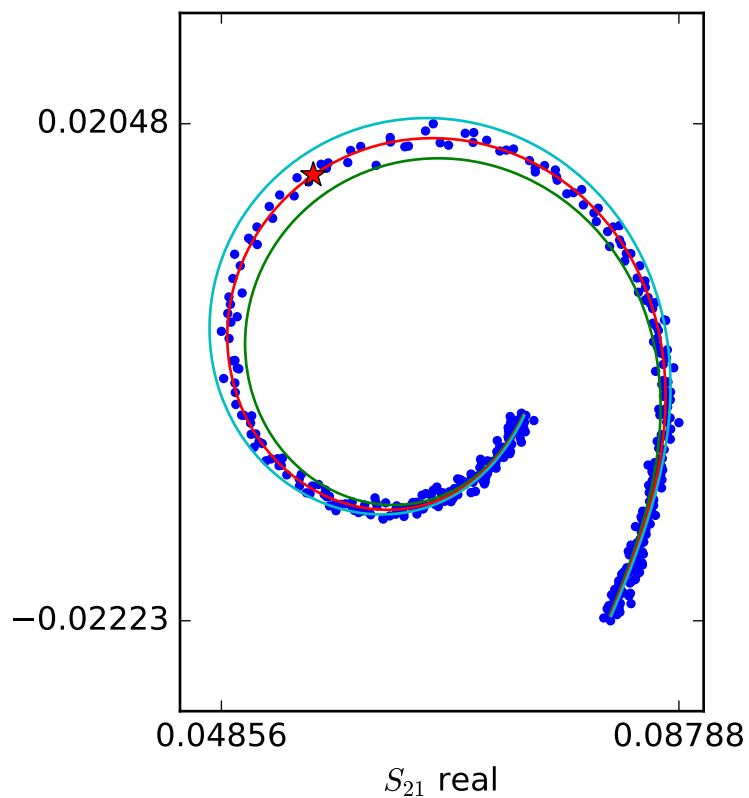
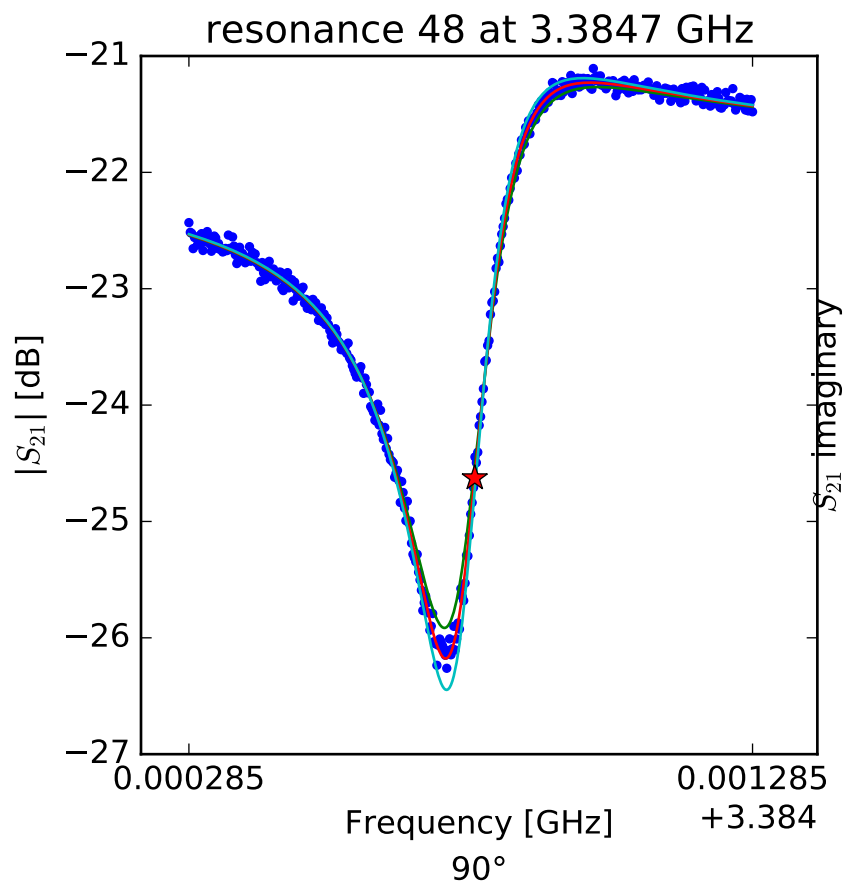
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.37959034186 \\ Q_r &= 5877.19902225 \\ Q_c &= 10147.5384727 \\ a &= (-0.00321613895168 - 0.0745989086507j) \\ \phi_0 &= 0.375211157934 \\ \tau &= 48.972365815 \end{aligned}$$



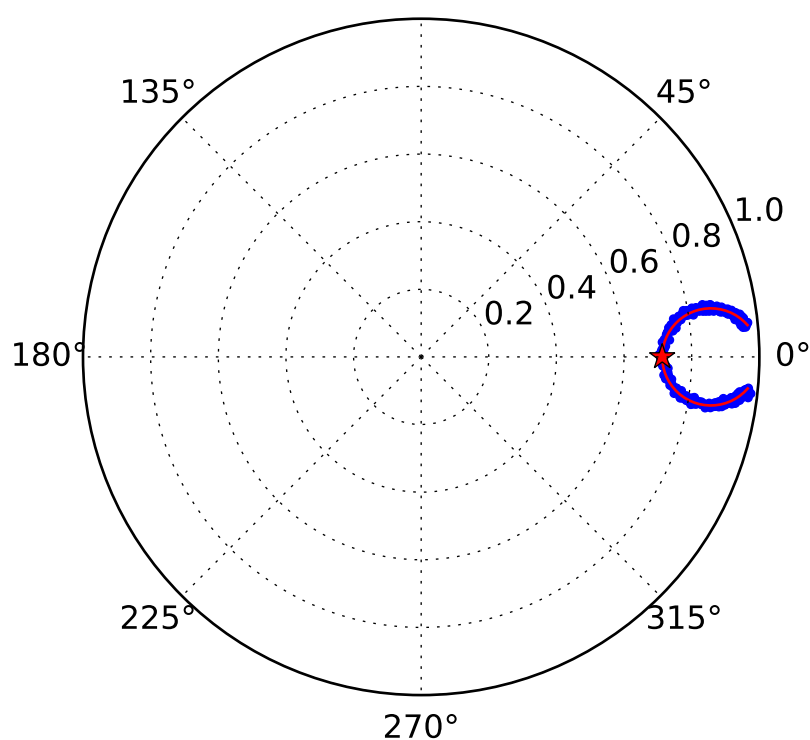
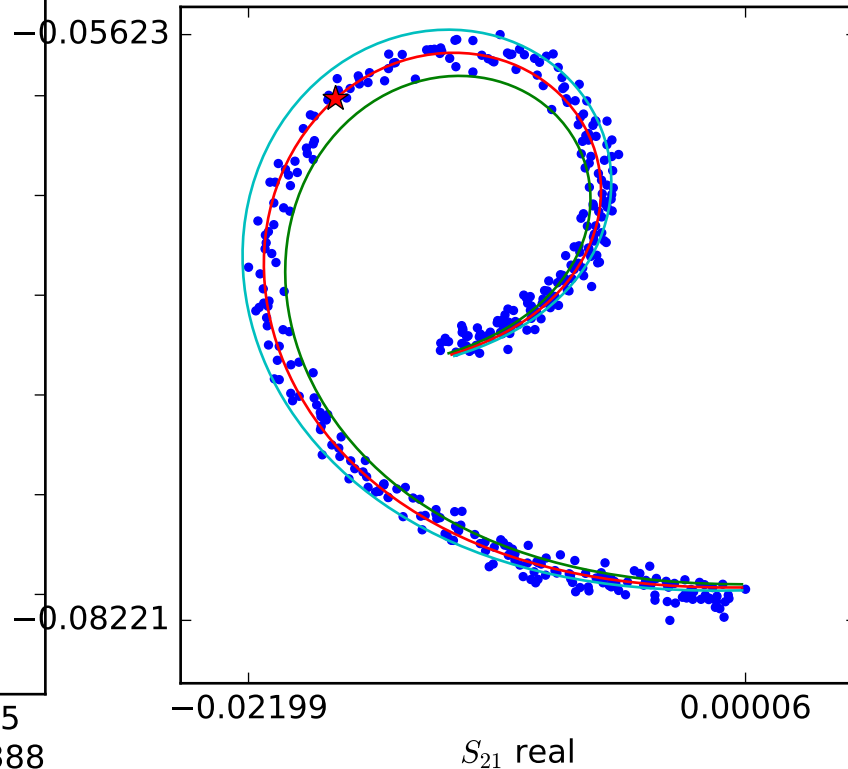
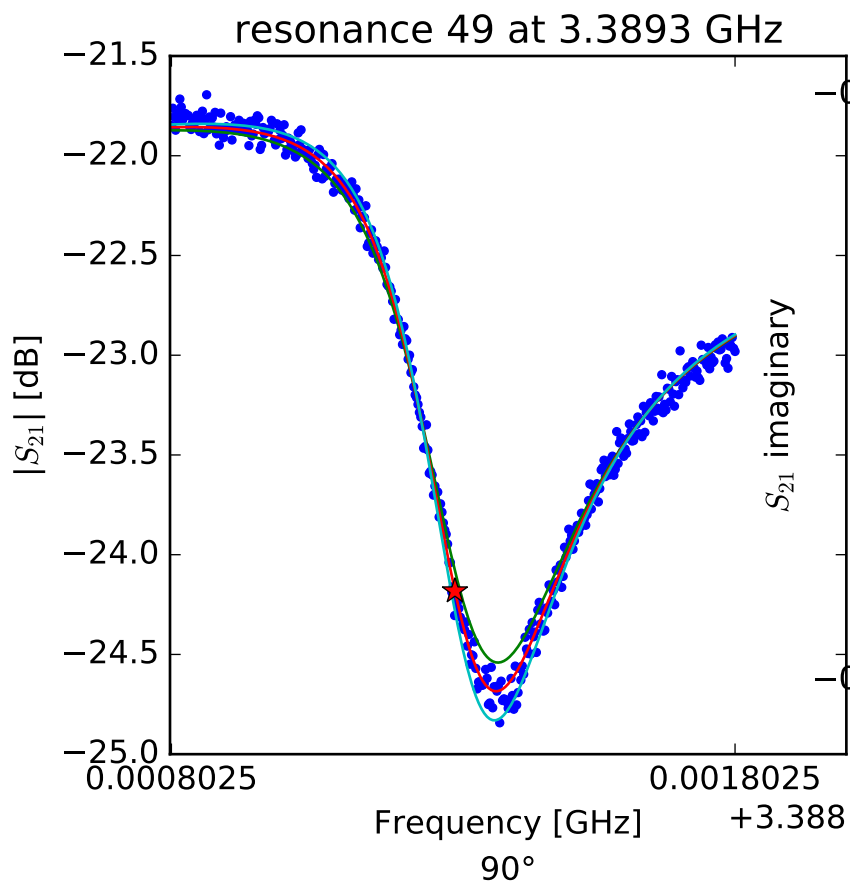
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.38152385943 \\ Q_r &= 3256.68755058 \\ Q_c &= 20315.7293658 \\ a &= (-0.0602390404042 + 0.0409999458657j) \\ \phi_0 &= -1.8861177511 \\ \tau &= 56.5609887592 \end{aligned}$$



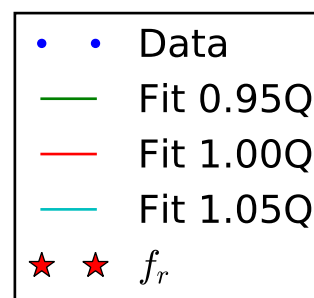
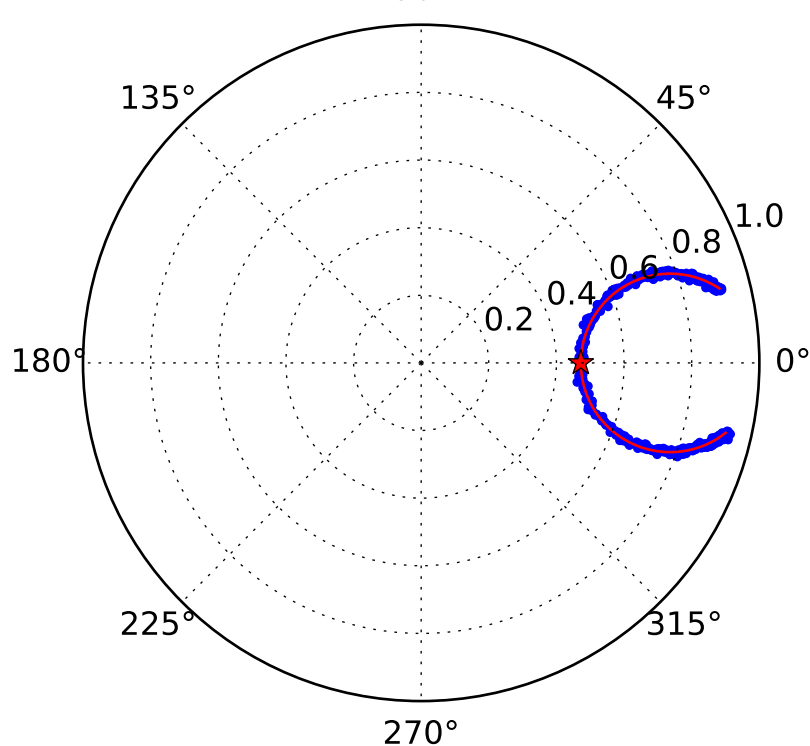
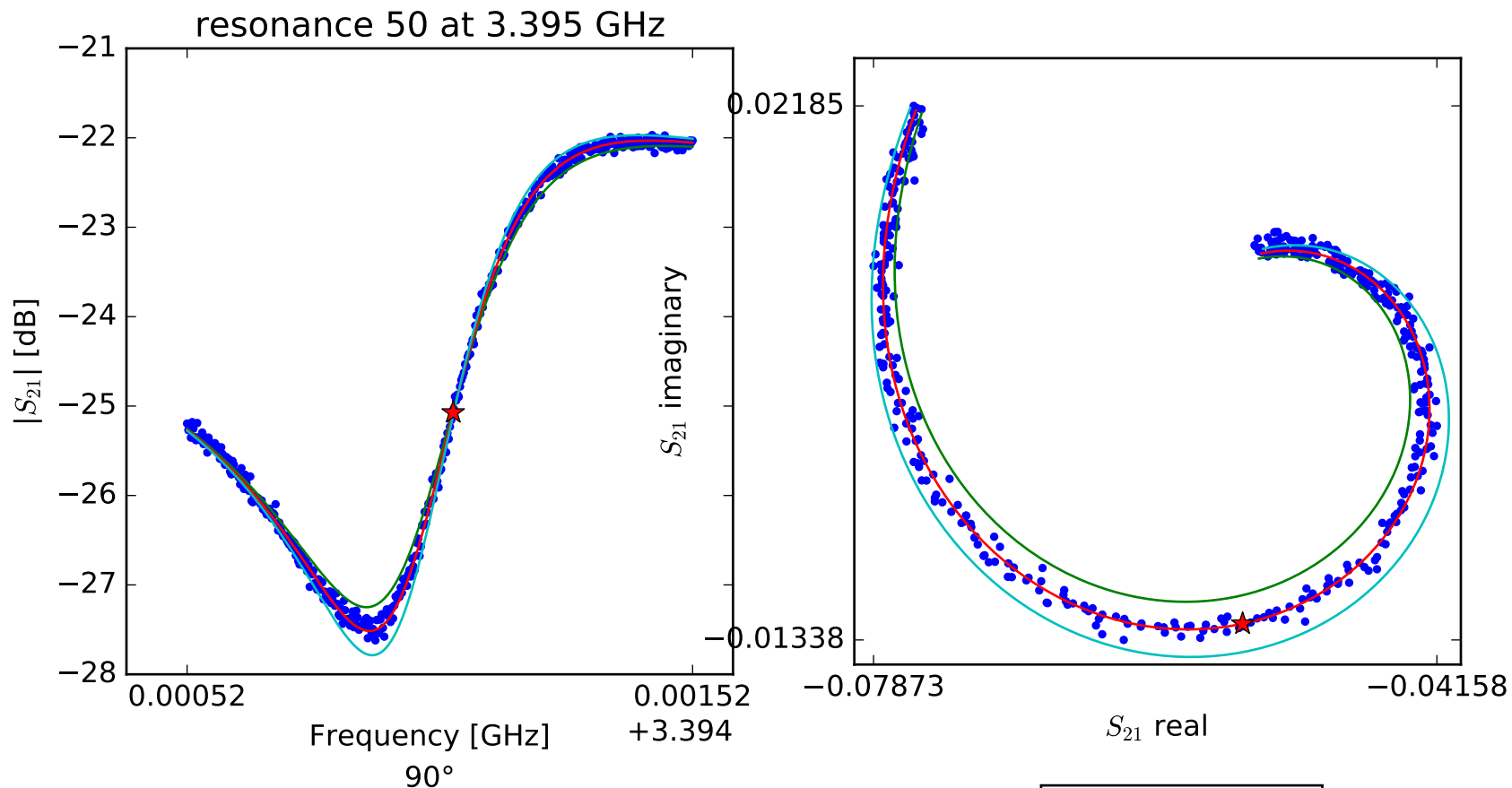
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.38479214234 \\ Q_r &= 16441.7238771 \\ Q_c &= 35154.2716027 \\ a &= (-0.00123641522322 - 0.0806172051263j) \\ \phi_0 &= -0.743372947258 \\ \tau &= 53.4079989414 \end{aligned}$$



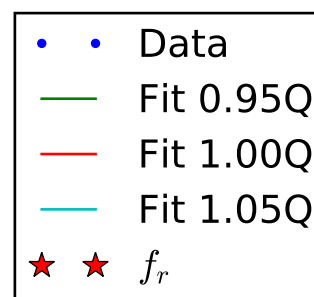
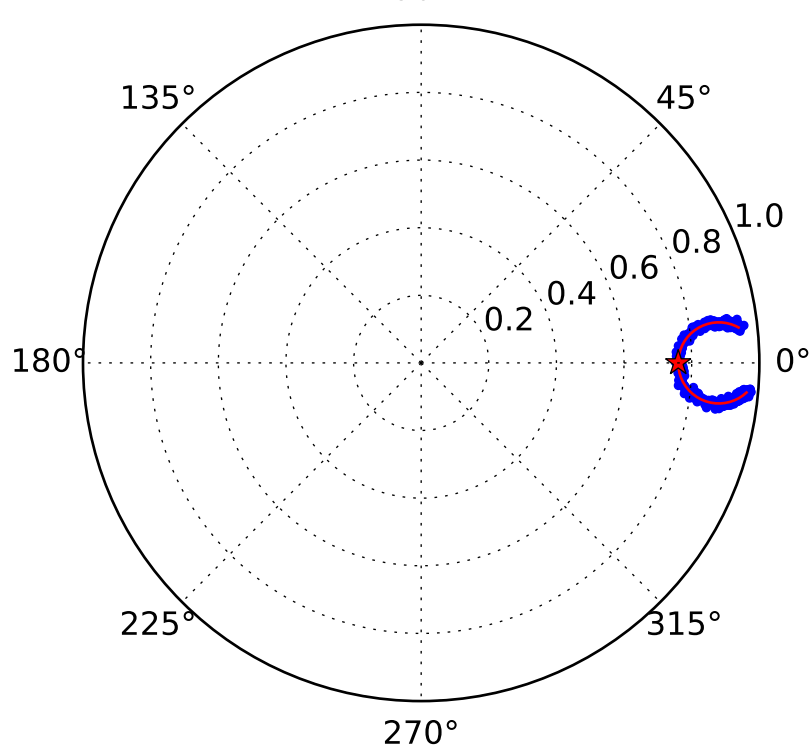
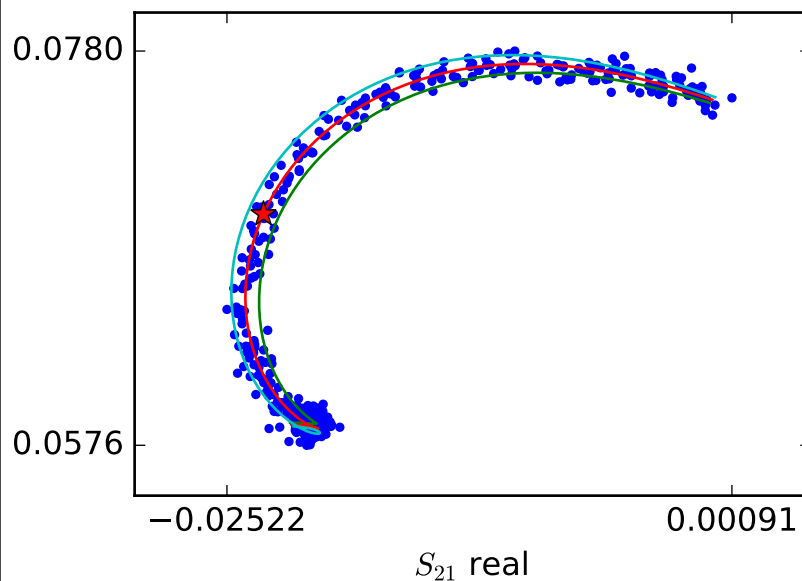
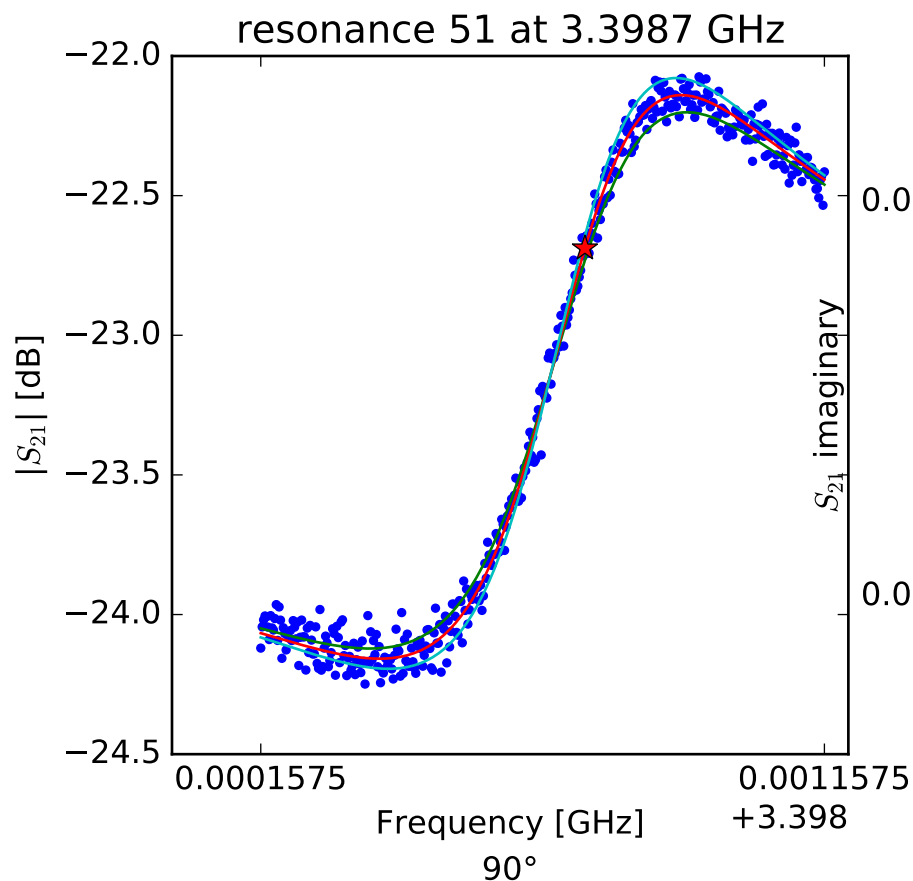
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.38930553877 \\ Q_r &= 9120.33925051 \\ Q_c &= 31747.52912 \\ a &= (-0.00446477515824 - 0.0780068224281j) \\ \phi_0 &= 0.650455289885 \\ \tau &= 52.8140605918 \end{aligned}$$



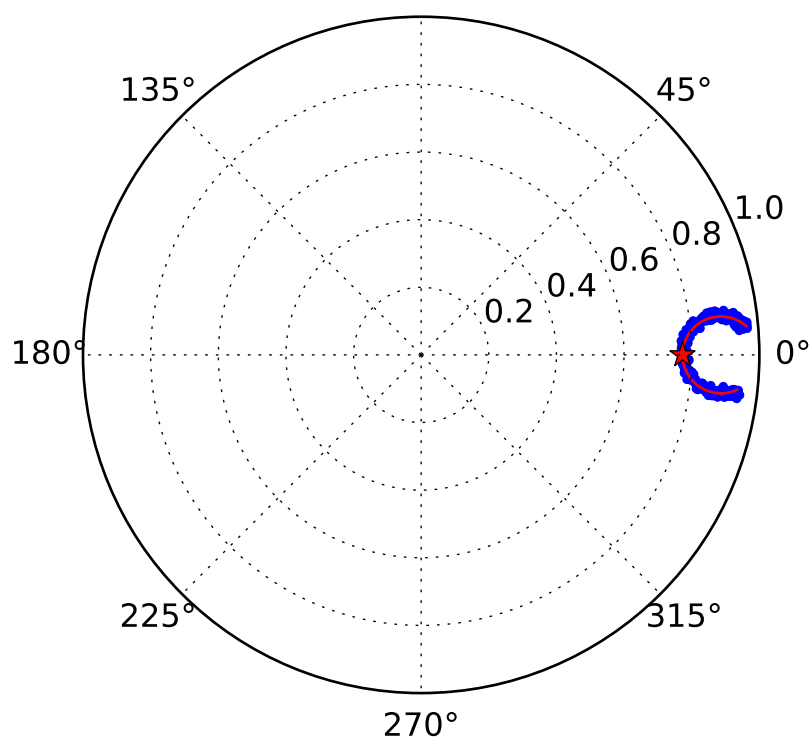
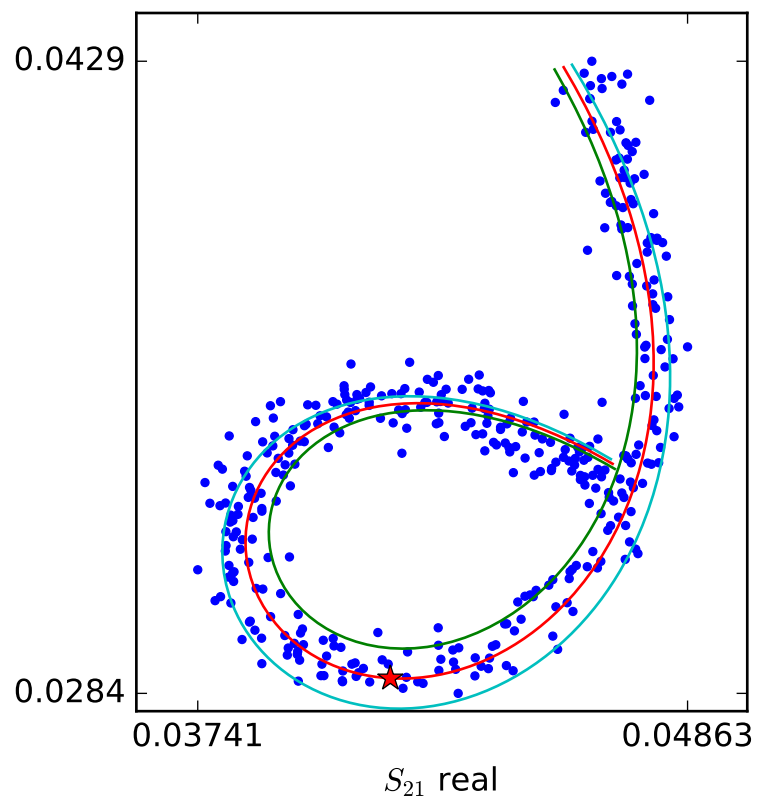
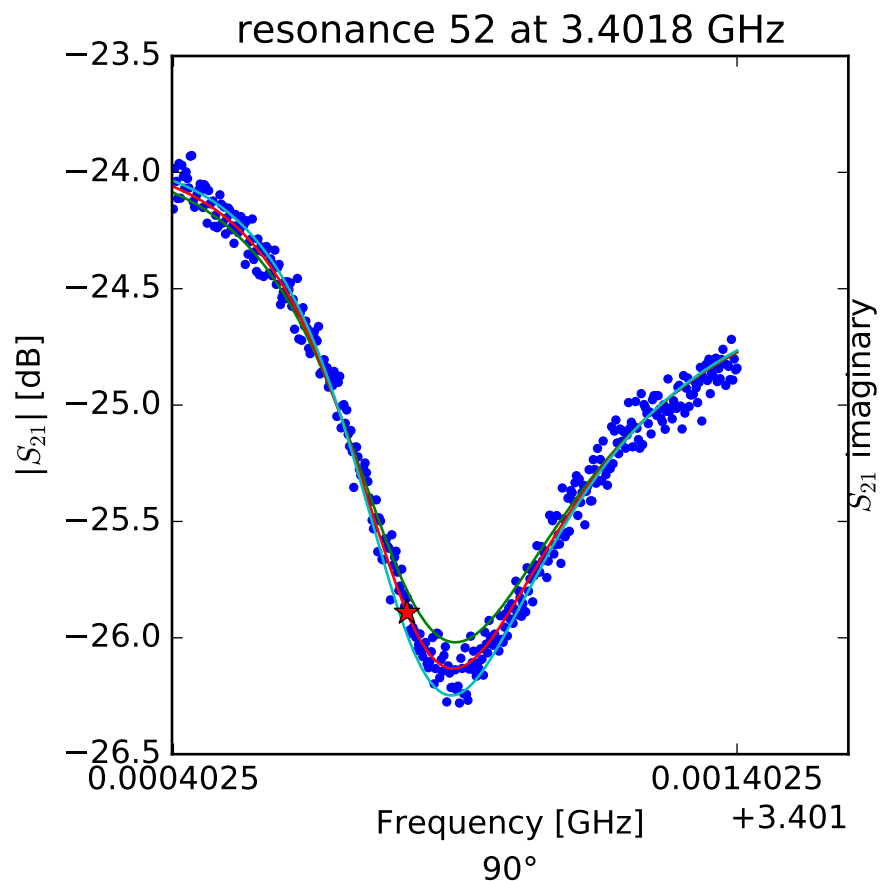
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.39504643244 \\ Q_r &= 6676.18733166 \\ Q_c &= 12646.2797109 \\ a &= (-0.0686898455895 - 0.0144261864852j) \\ \phi_0 &= -0.910739890281 \\ \tau &= 50.6872205097 \end{aligned}$$



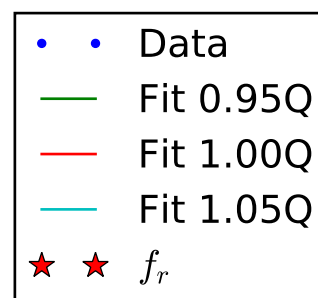
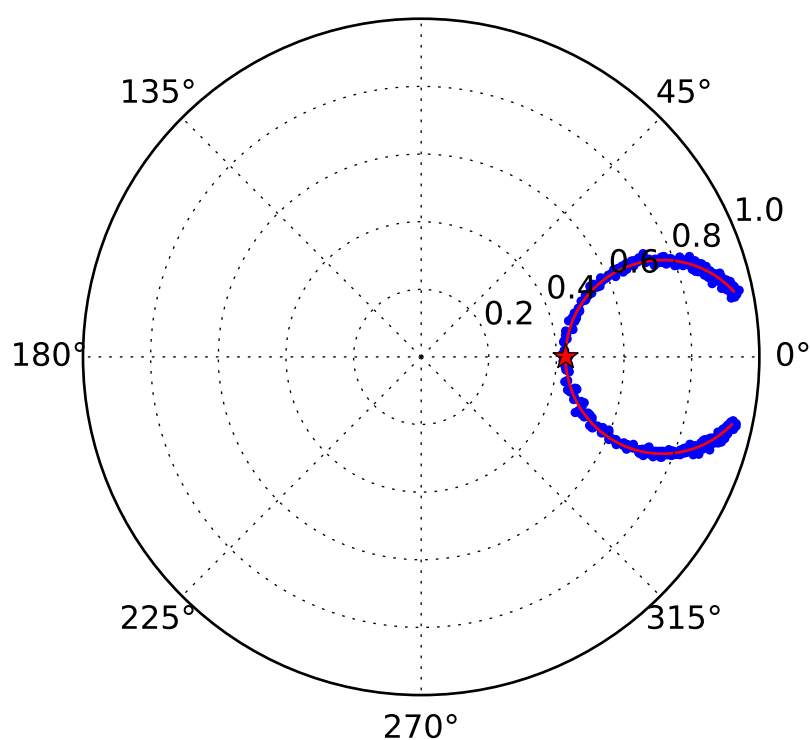
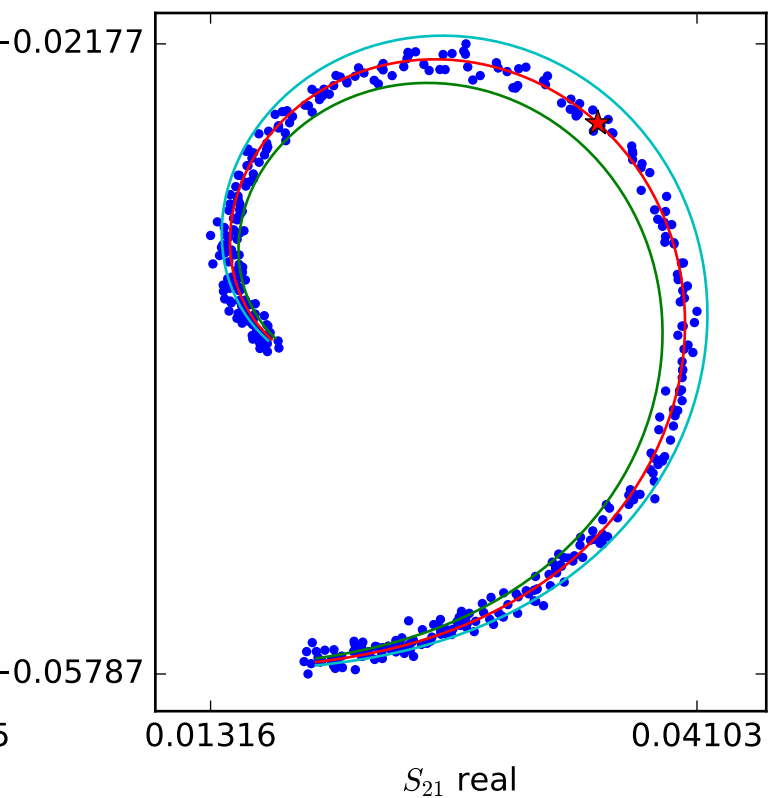
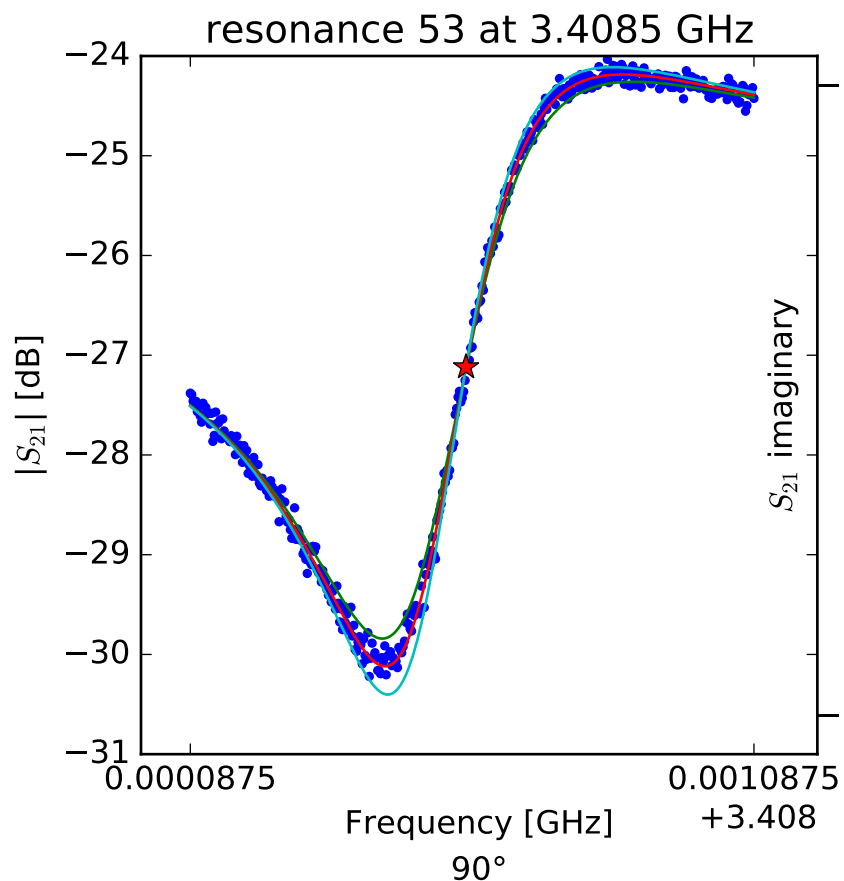
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.39873258056 \\ Q_r &= 6812.97938155 \\ Q_c &= 28398.93978 \\ a &= (0.00632347296608 - 0.0672537192942j) \\ \phi_0 &= -1.8291508691 \\ \tau &= 51.0477532559 \end{aligned}$$



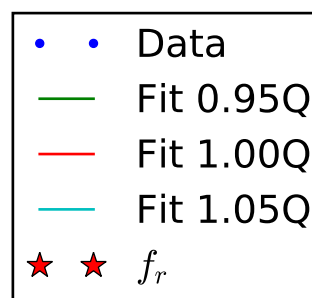
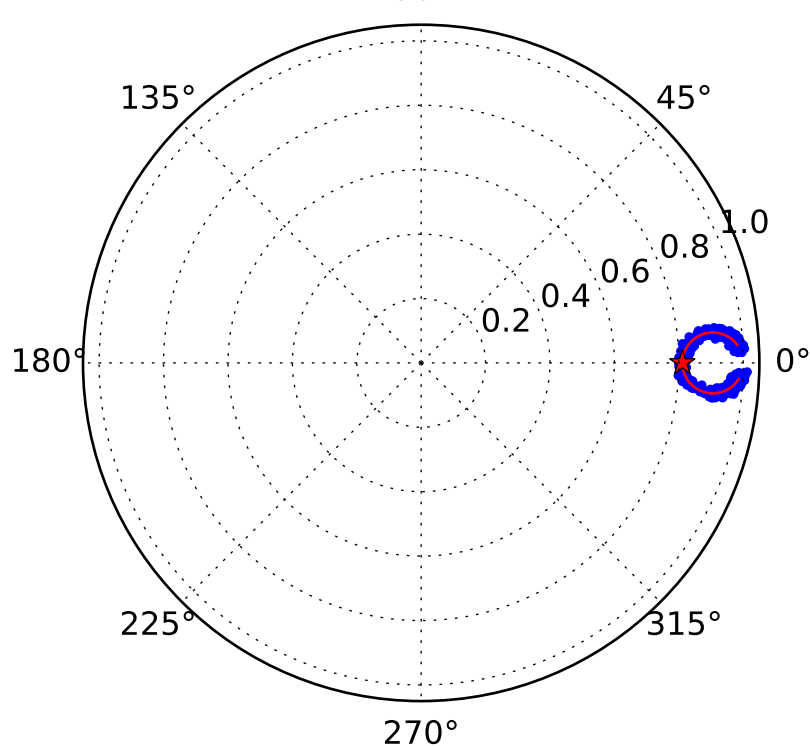
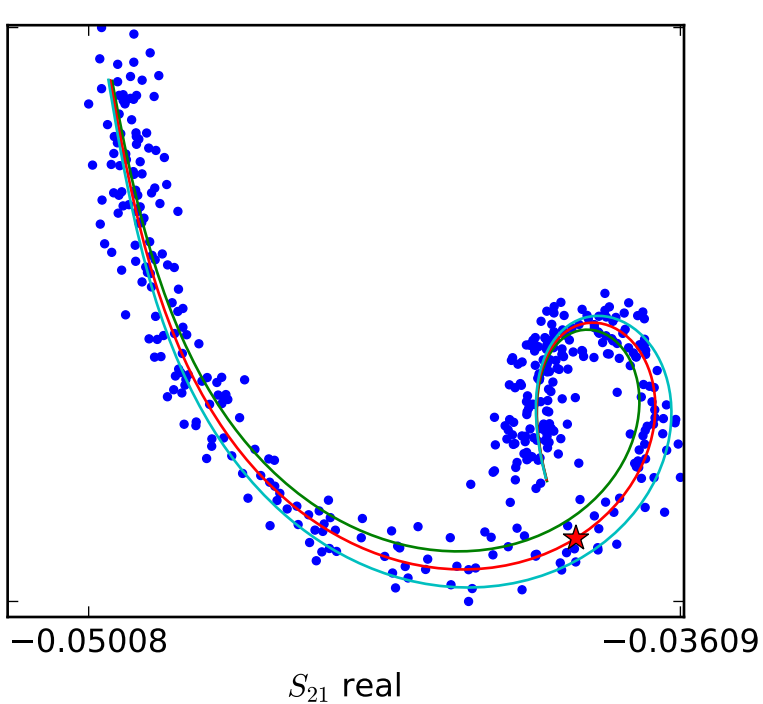
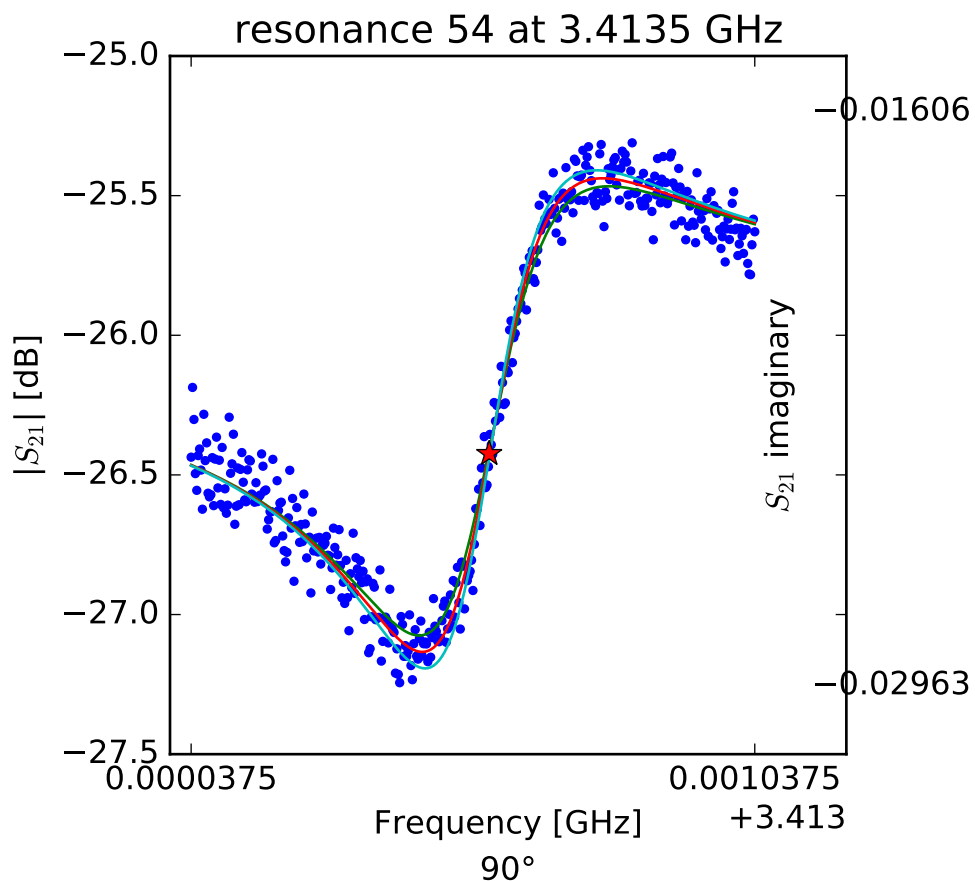
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.40181691067 \\ Q_r &= 6410.31351959 \\ Q_c &= 28196.5266501 \\ a &= (-0.0567384832625 - 0.0260864203536j) \\ \phi_0 &= 0.53475217542 \\ \tau &= 49.2236823822 \end{aligned}$$



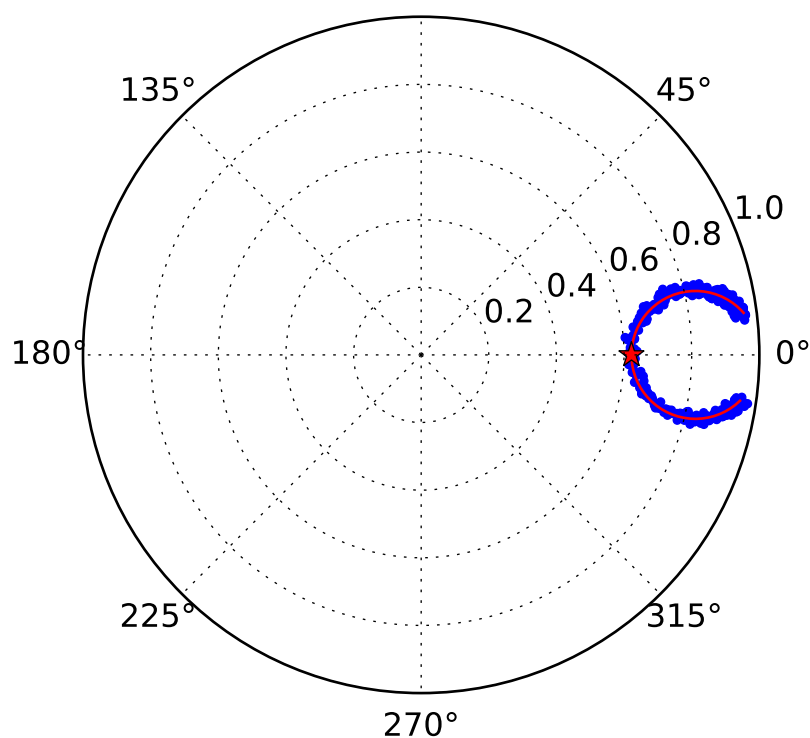
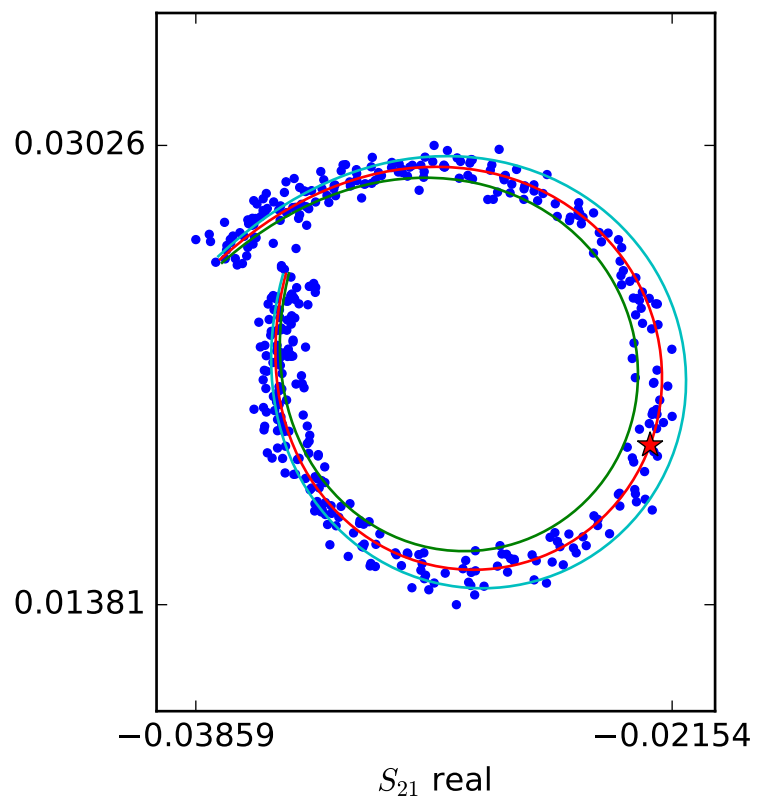
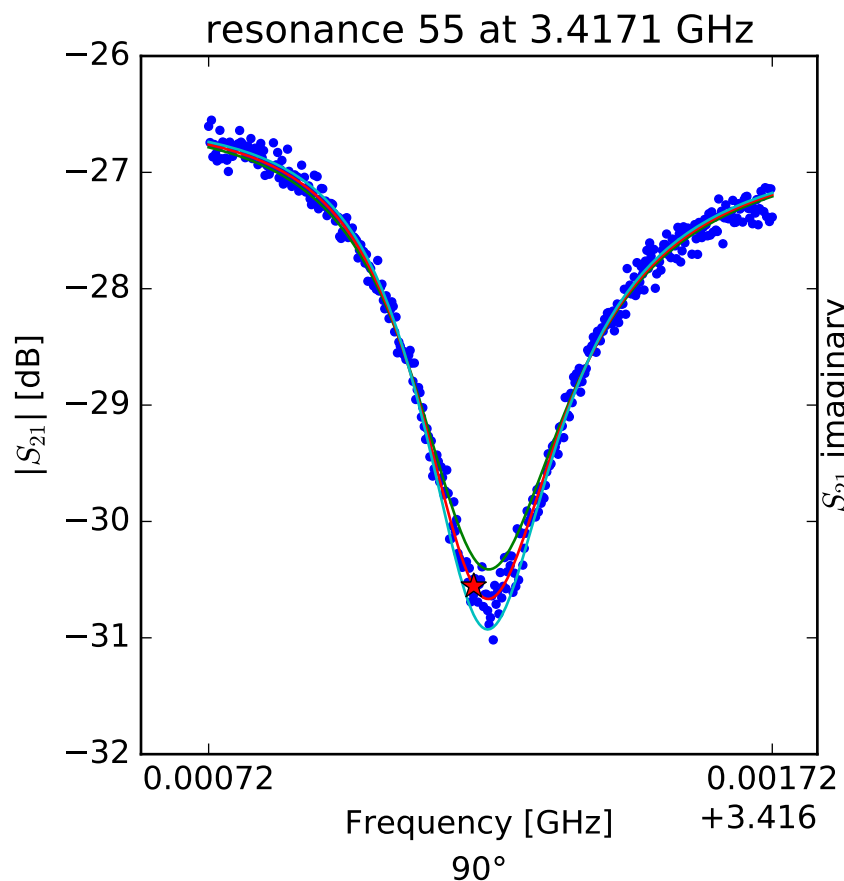
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.40857667751 \\ Q_r &= 8541.06709099 \\ Q_c &= 14904.8878516 \\ a &= (-0.0423272857249 - 0.0324761816385j) \\ \phi_0 &= -0.971691531472 \\ \tau &= 46.5892686799 \end{aligned}$$



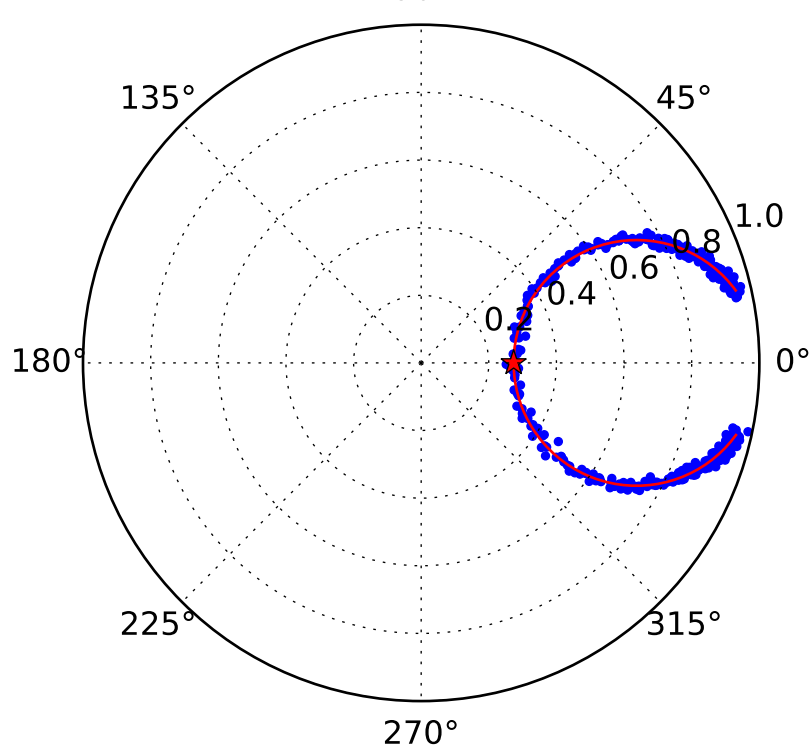
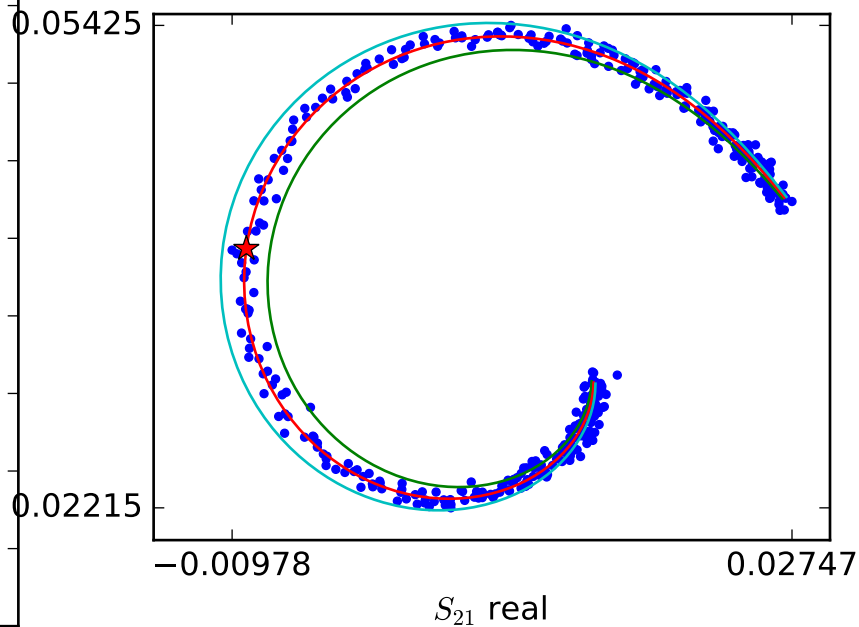
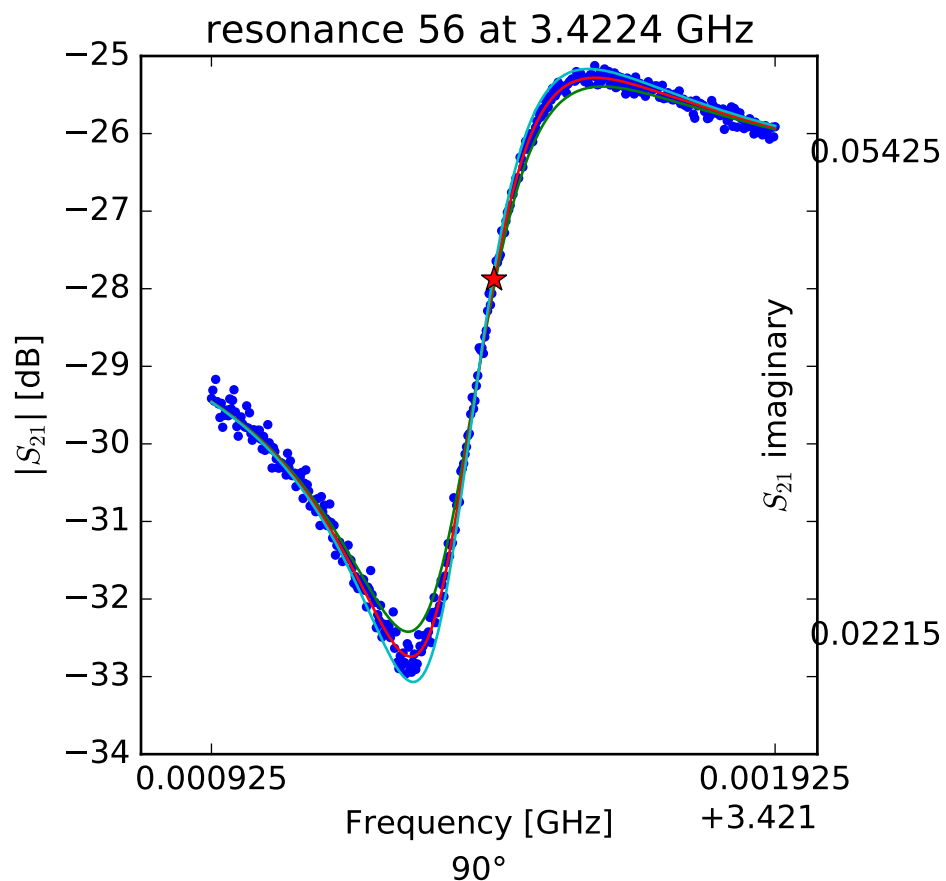
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$f_r = 3.41356640313$
 $Q_r = 11045.9365849$
 $Q_c = 58409.11249$
 $a = (0.0500593700705 + 0.00309572069534j)$
 $\phi_0 = -1.21962050004$
 $\tau = 47.8793581369$



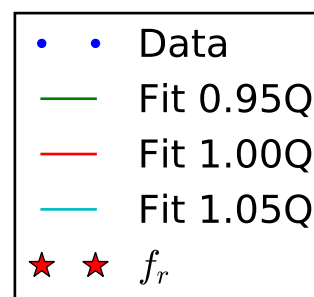
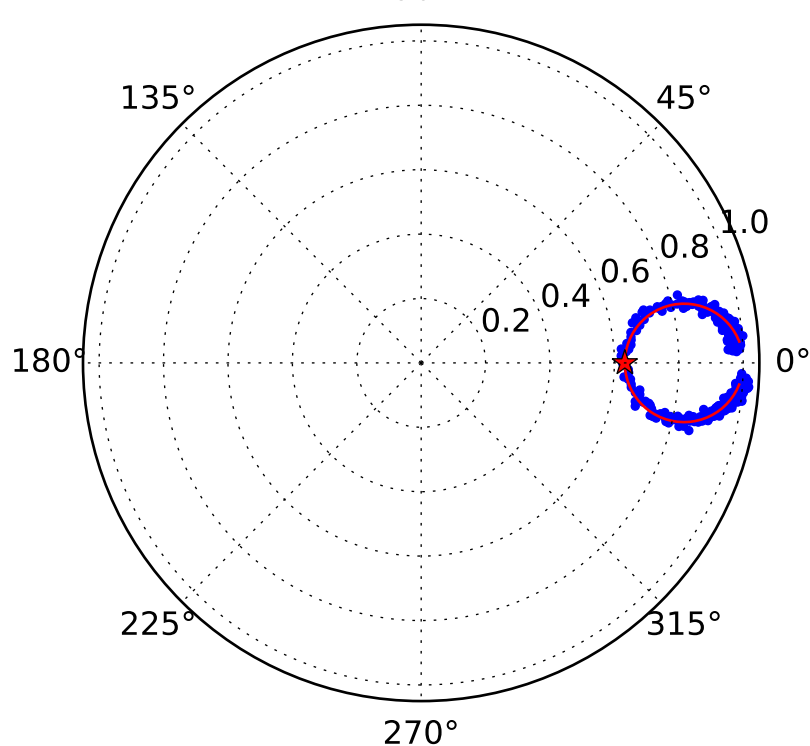
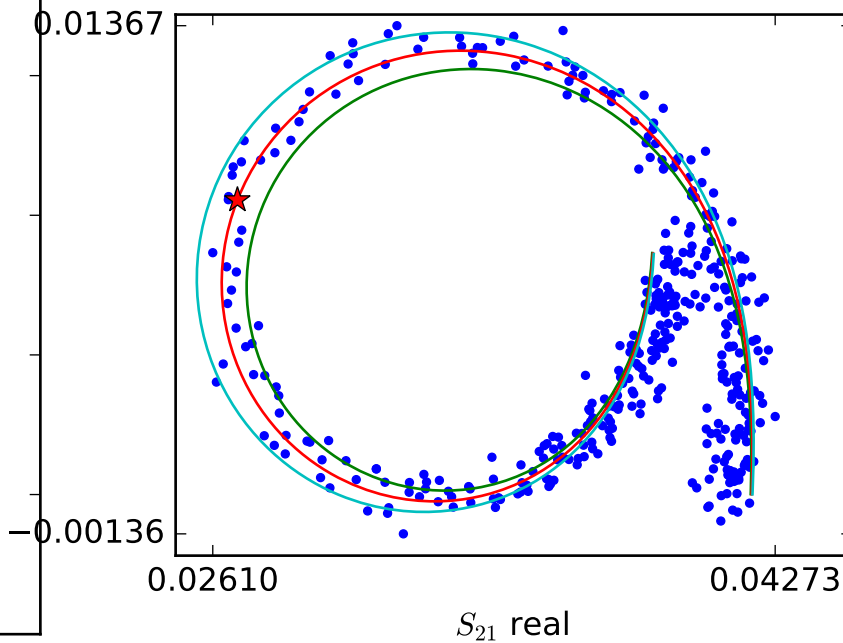
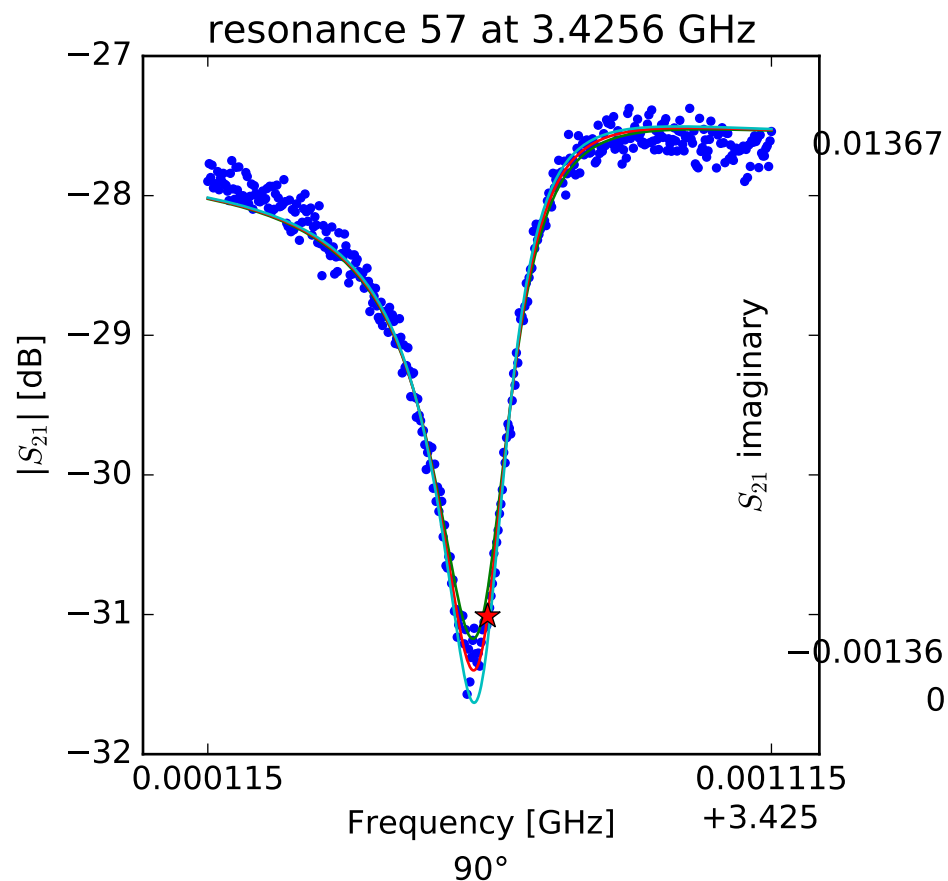
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.41719032296 \\ Q_r &= 8594.24892909 \\ Q_c &= 22722.2120893 \\ a &= (-0.0282462318161 + 0.0372169090511j) \\ \phi_0 &= 0.208912304538 \\ \tau &= 45.9289563449 \end{aligned}$$



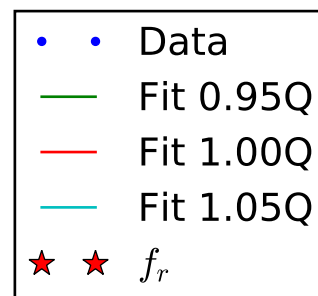
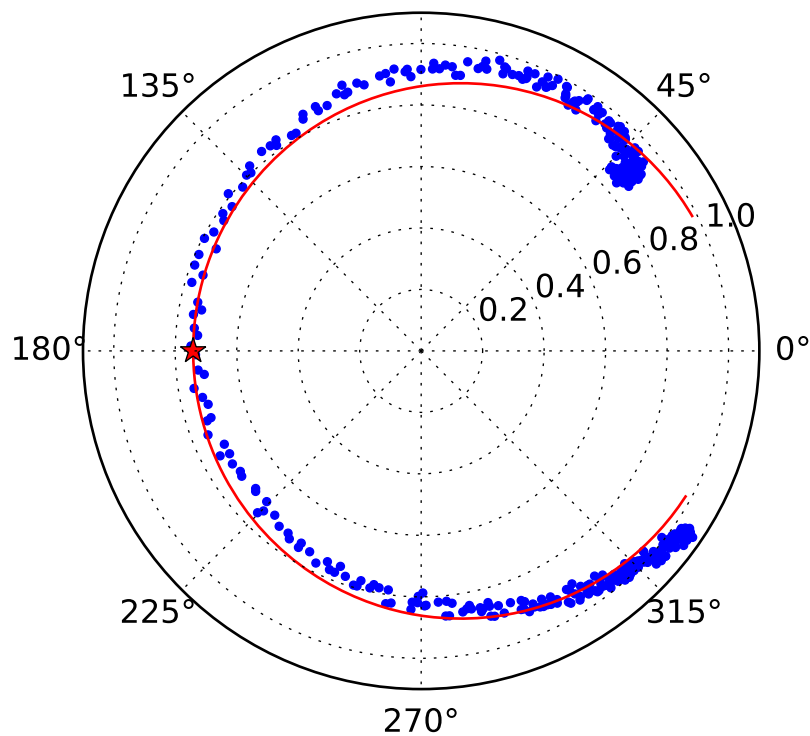
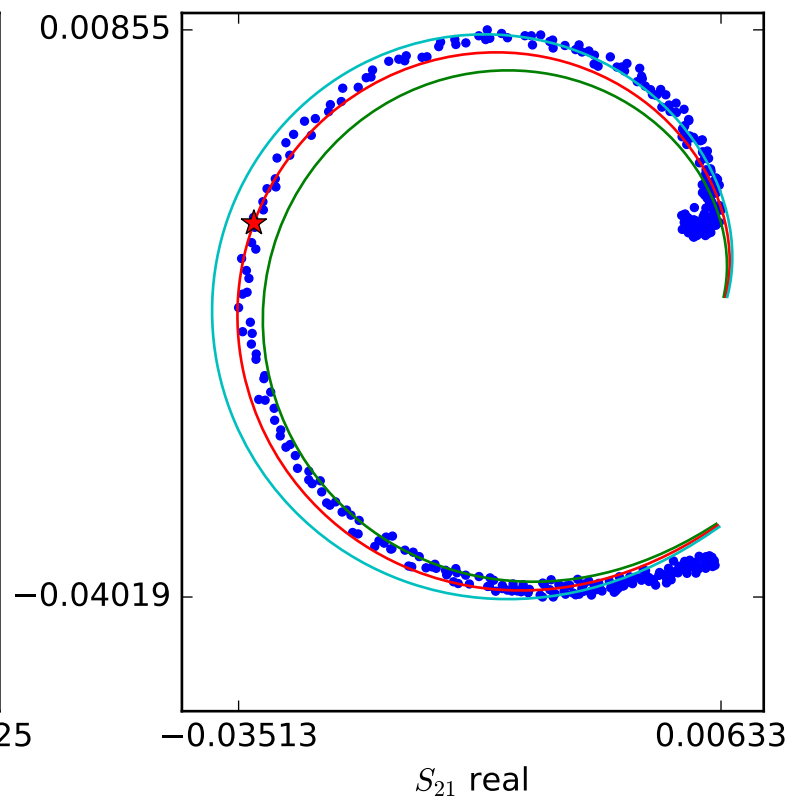
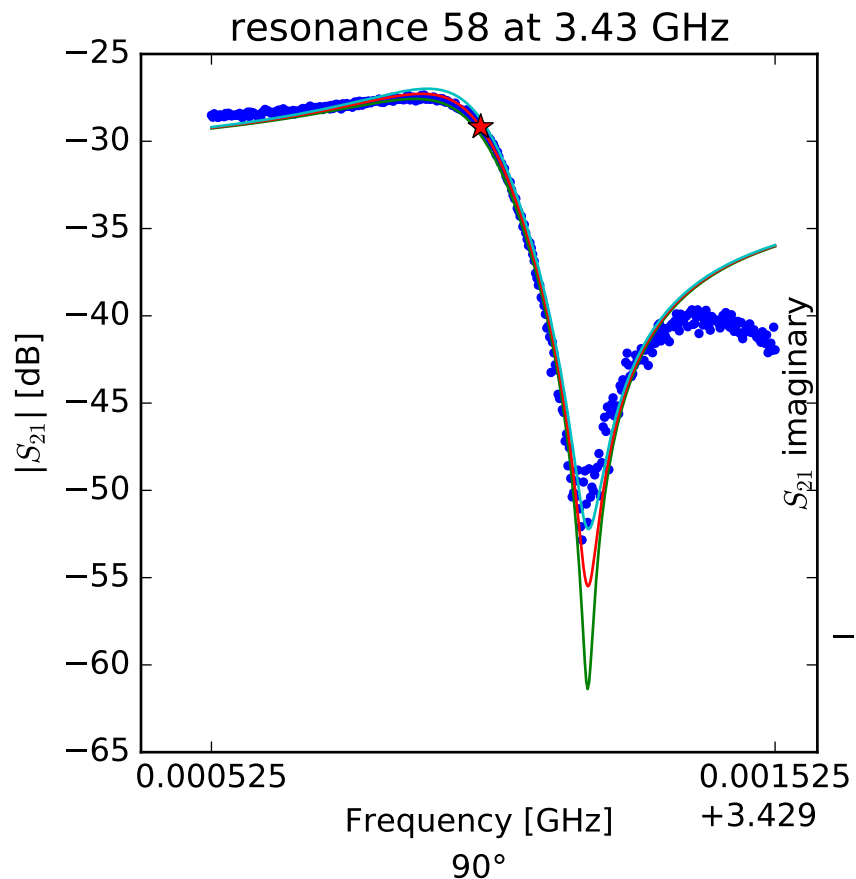
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.42242641012 \\ Q_r &= 10513.7077638 \\ Q_c &= 14469.851265 \\ a &= (0.0370223825756 + 0.0222625039577j) \\ \phi_0 &= -1.10360383245 \\ \tau &= 48.48115321 \end{aligned}$$



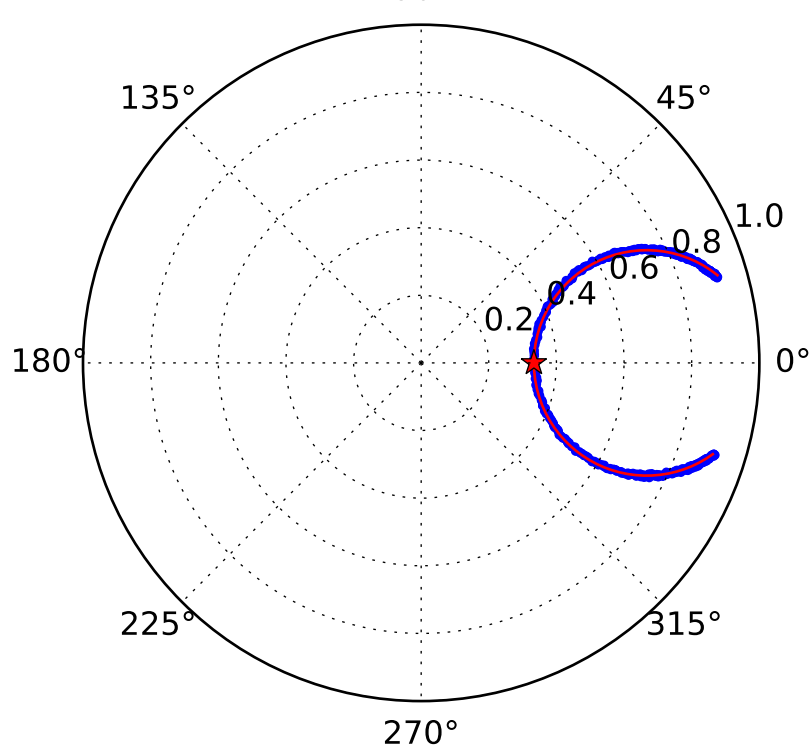
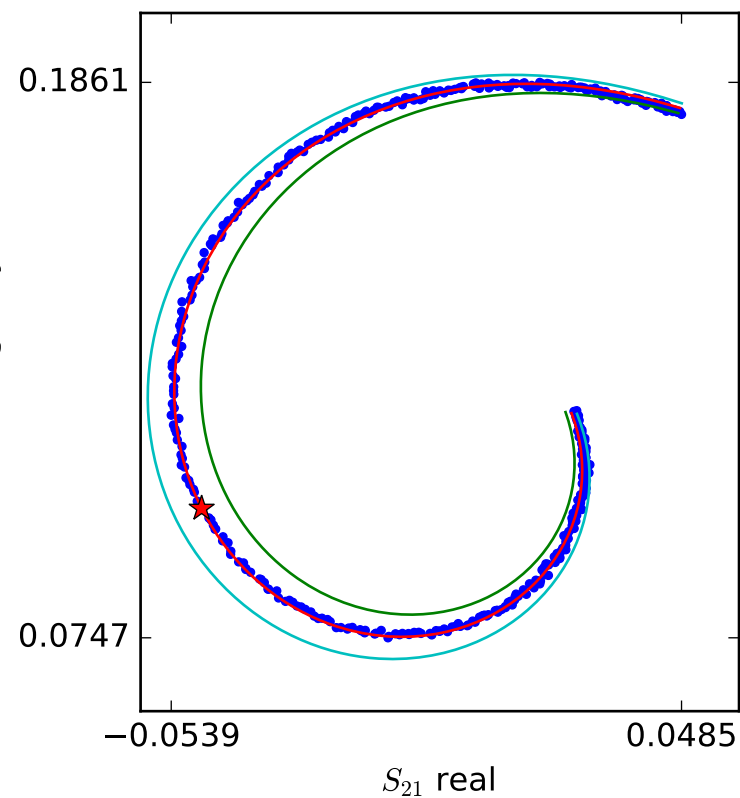
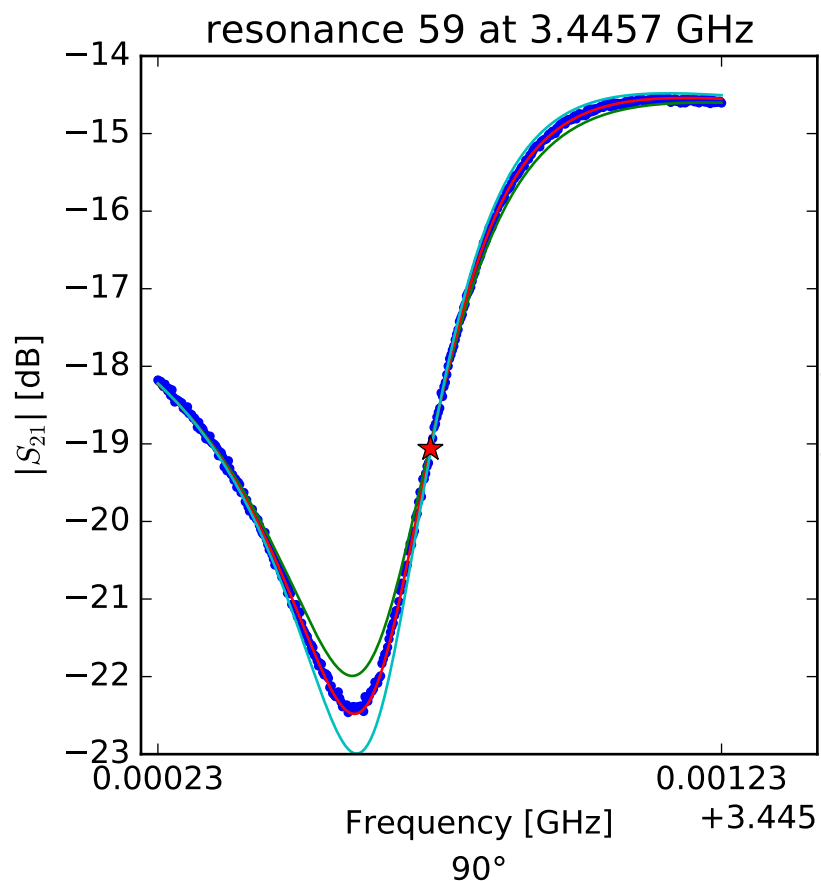
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.42561135522 \\ Q_r &= 18181.89588 \\ Q_c &= 49433.3196274 \\ a &= (0.0397479556504 + 0.0111558486887j) \\ \phi_0 &= -0.424096587184 \\ \tau &= 48.1754165141 \end{aligned}$$



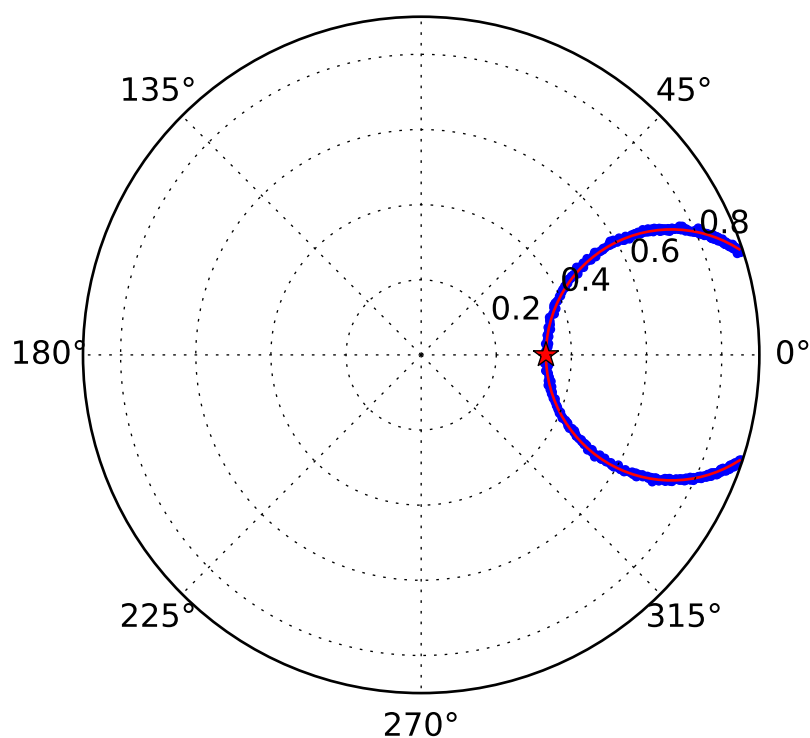
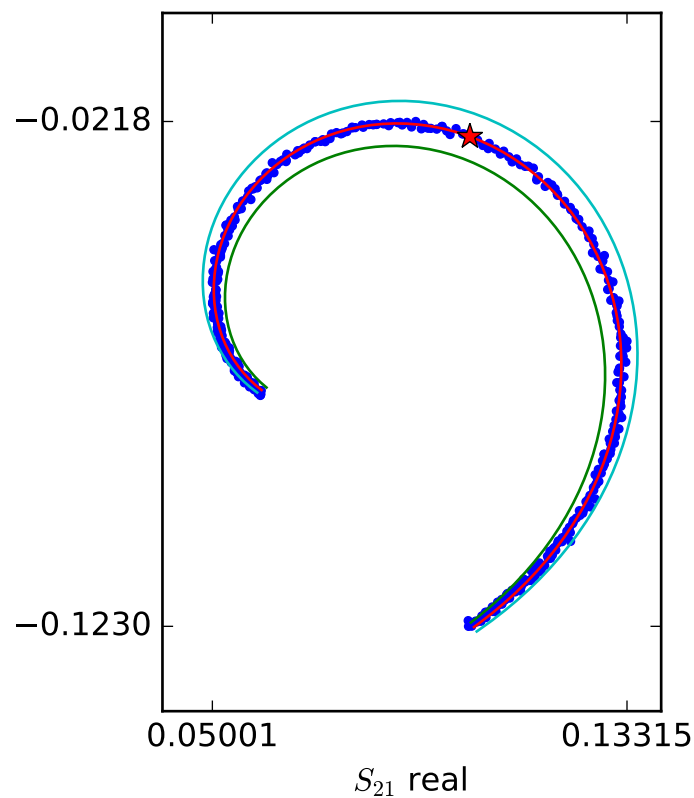
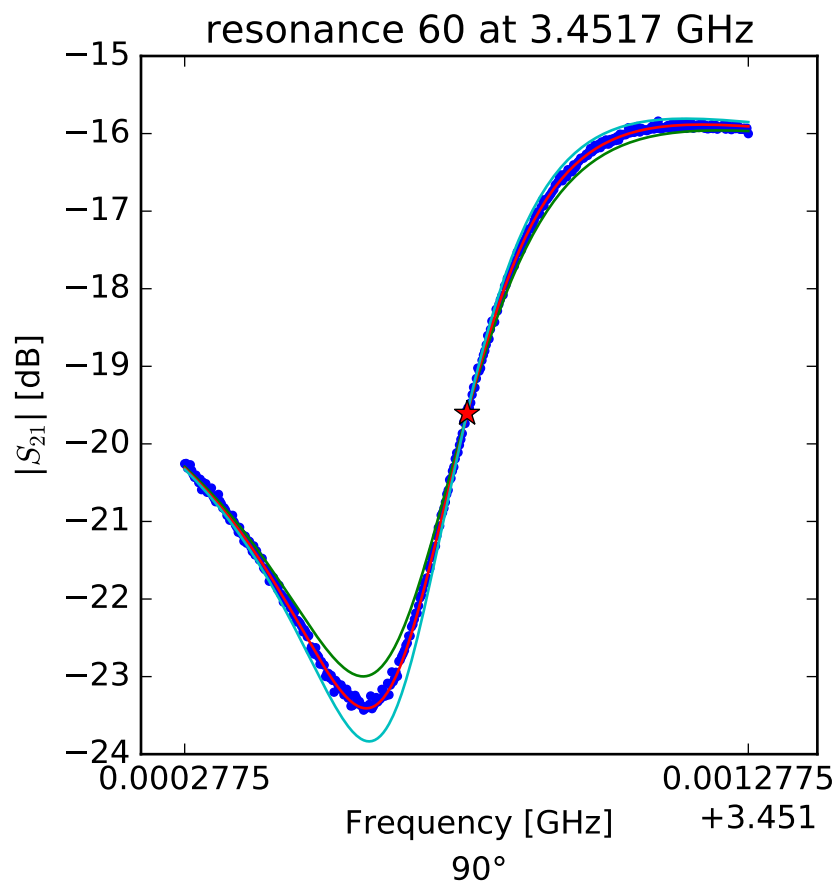
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.43000266641 \\ Q_r &= 12139.8415972 \\ Q_c &= 6970.26925122 \\ a &= (-0.00766136949084 + 0.0246343977795j) \\ \phi_0 &= 0.880487910328 \\ \tau &= 57.2879701671 \end{aligned}$$



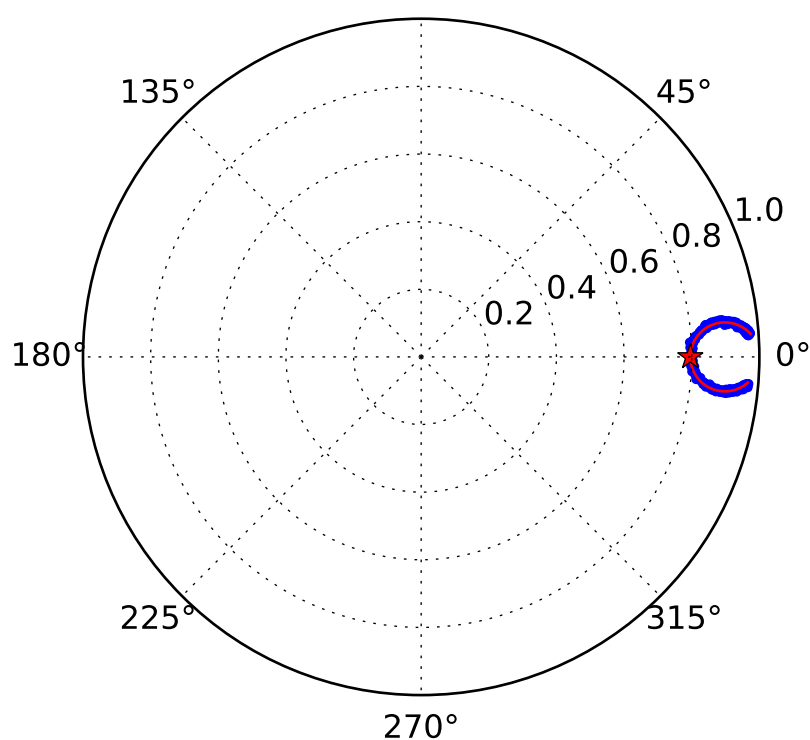
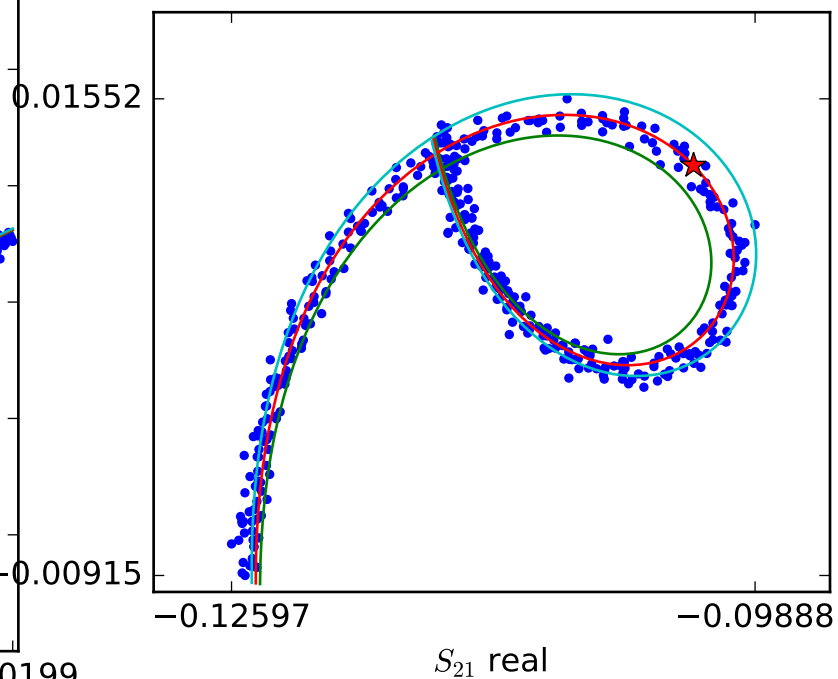
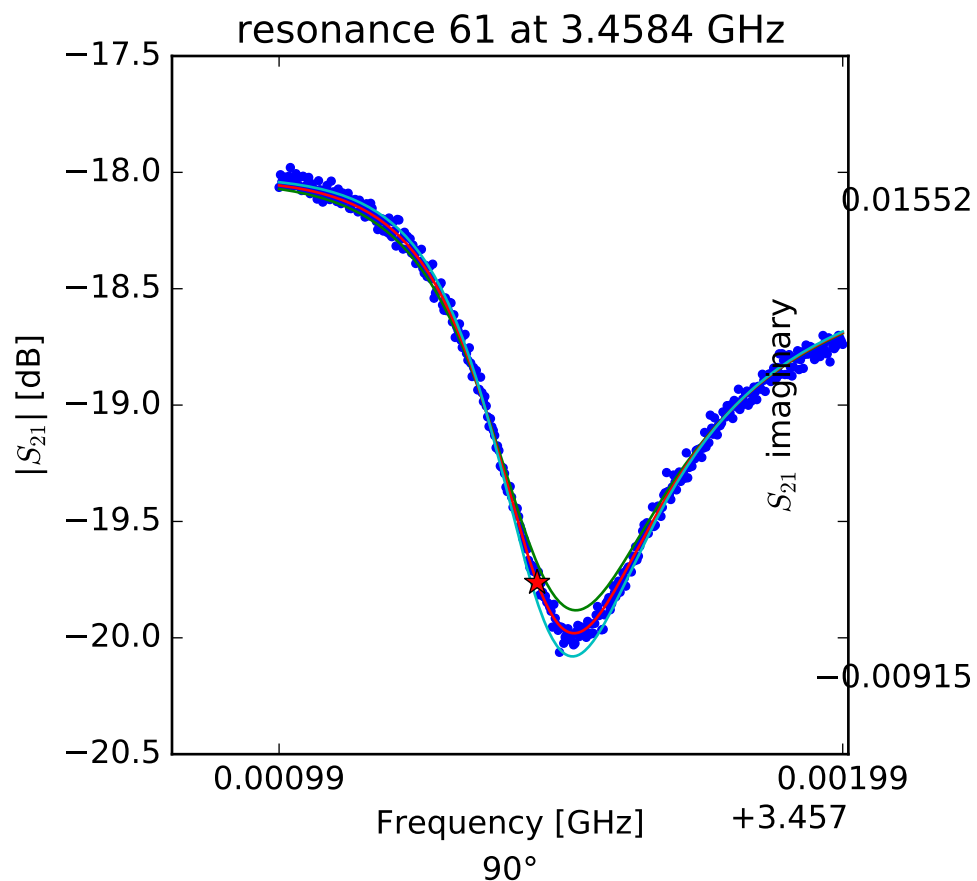
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.4457135157 \\ Q_r &= 6981.34912272 \\ Q_c &= 10471.1348152 \\ a &= (0.168463344094 + 0.00194357585616j) \\ \phi_0 &= -0.714669870963 \\ \tau &= 71.9143356297 \end{aligned}$$



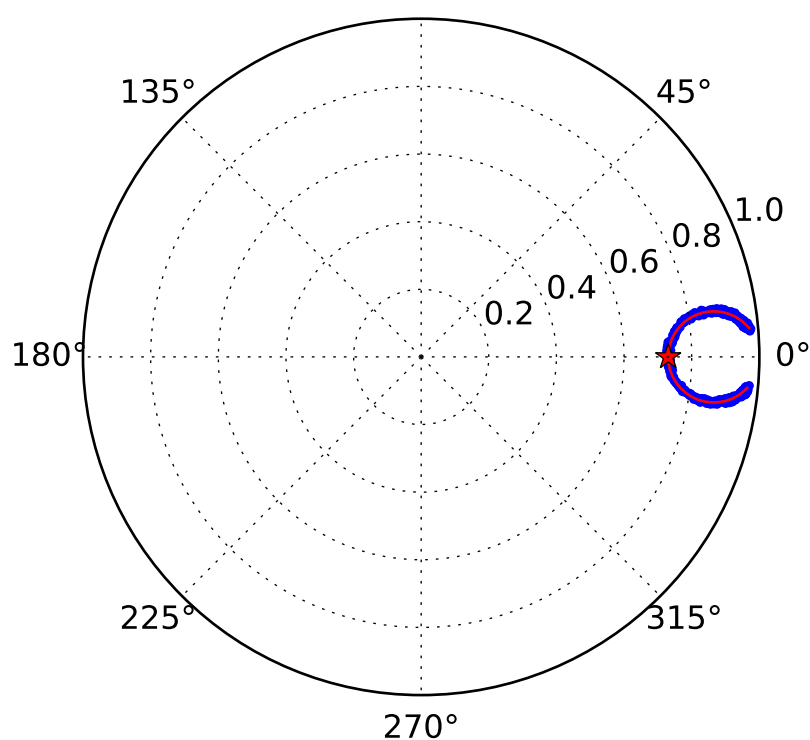
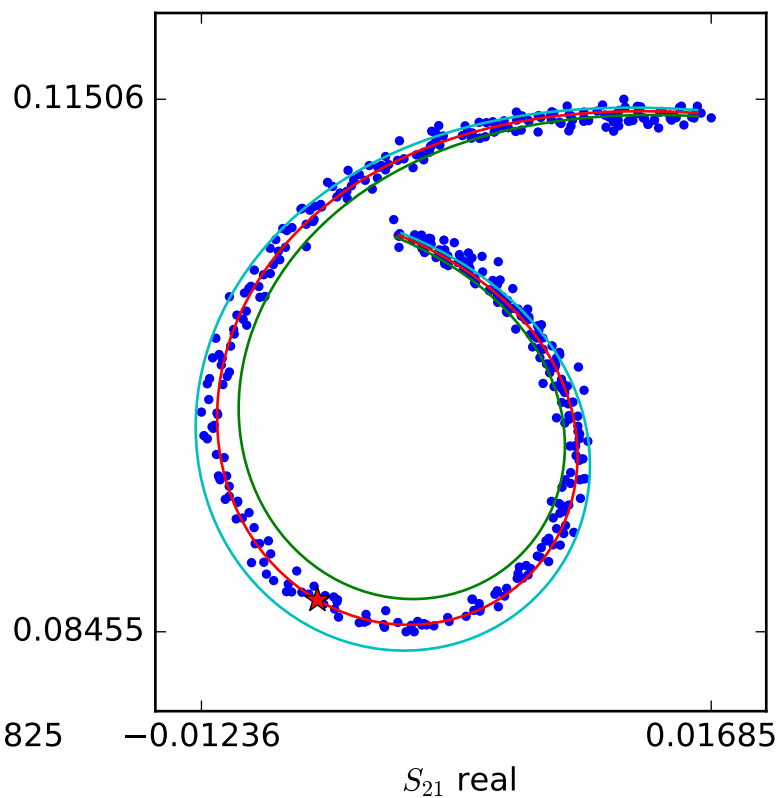
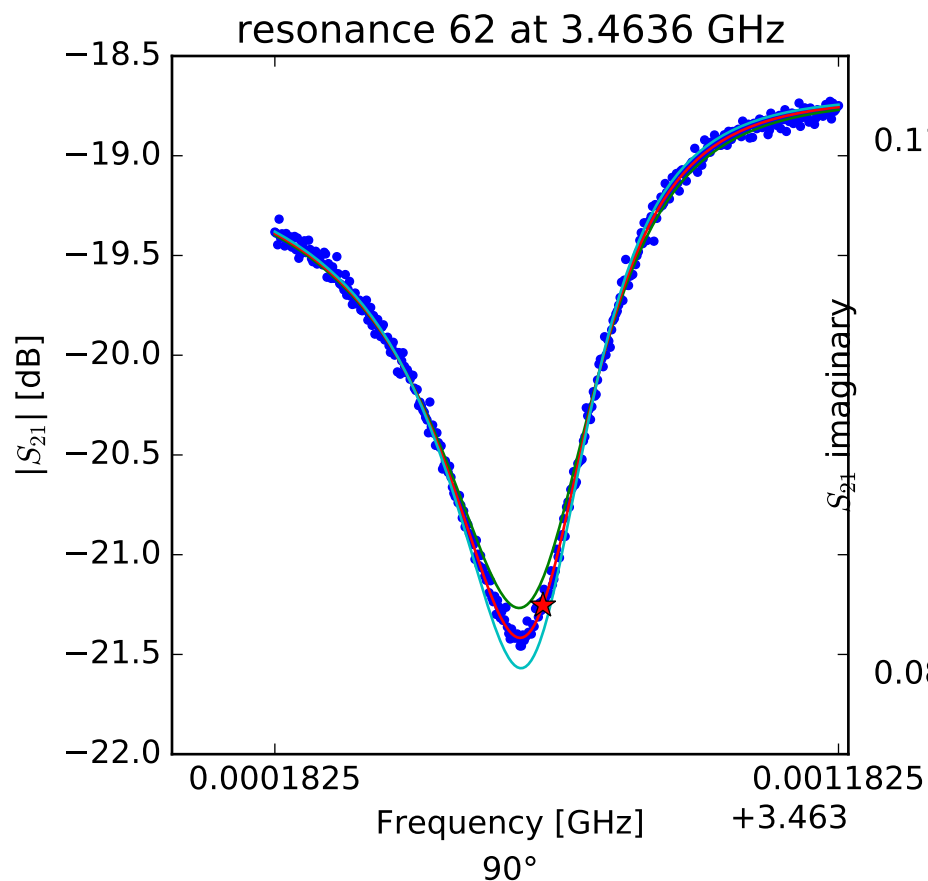
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.45177858062 \\ Q_r &= 6327.17843608 \\ Q_c &= 9471.50788121 \\ a &= (-0.0452003046655 + 0.131802640455j) \\ \phi_0 &= -0.849236313403 \\ \tau &= 54.5970871249 \end{aligned}$$



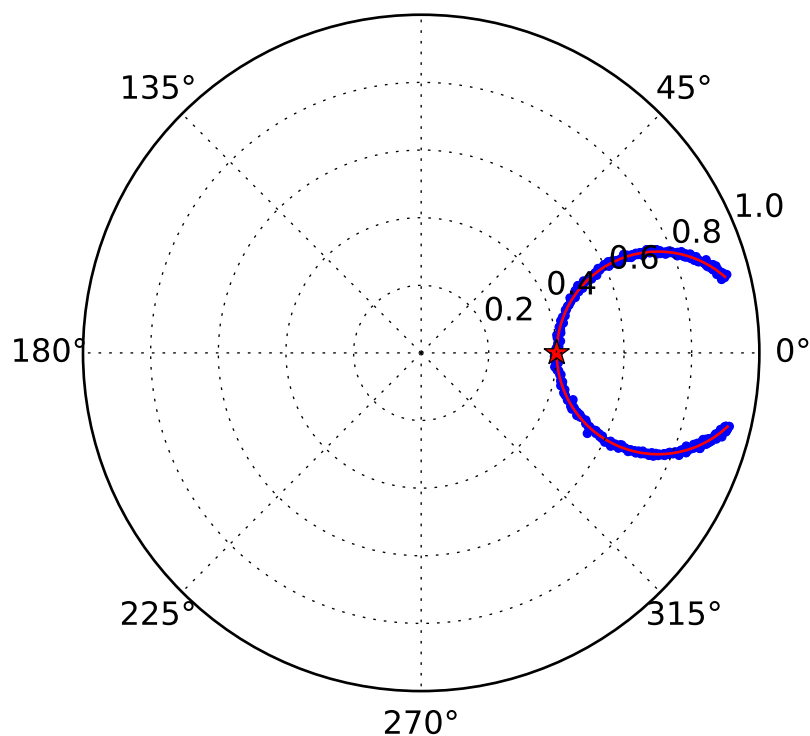
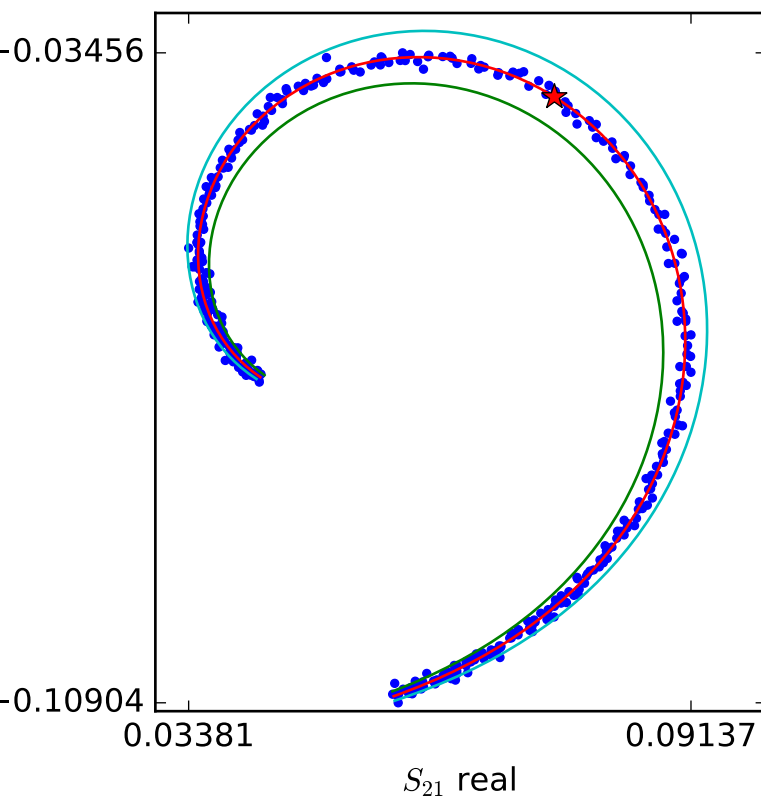
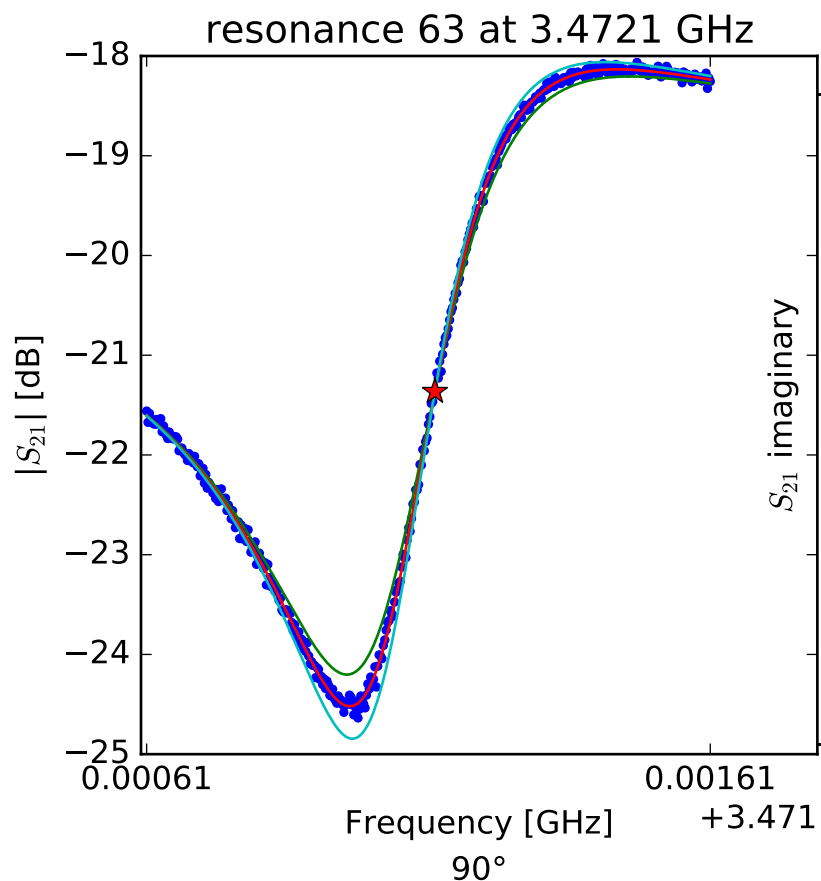
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.45844787059 \\ Q_r &= 8350.26266902 \\ Q_c &= 40910.1541077 \\ a &= (-0.122849743928 - 0.0107449753319j) \\ \phi_0 &= 0.554136116575 \\ \tau &= 51.1825122581 \end{aligned}$$



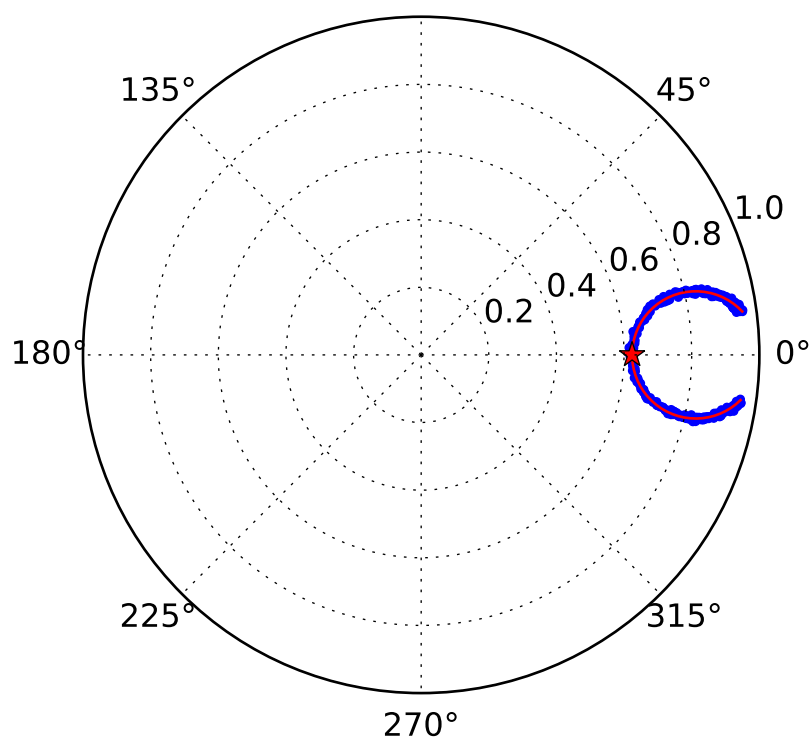
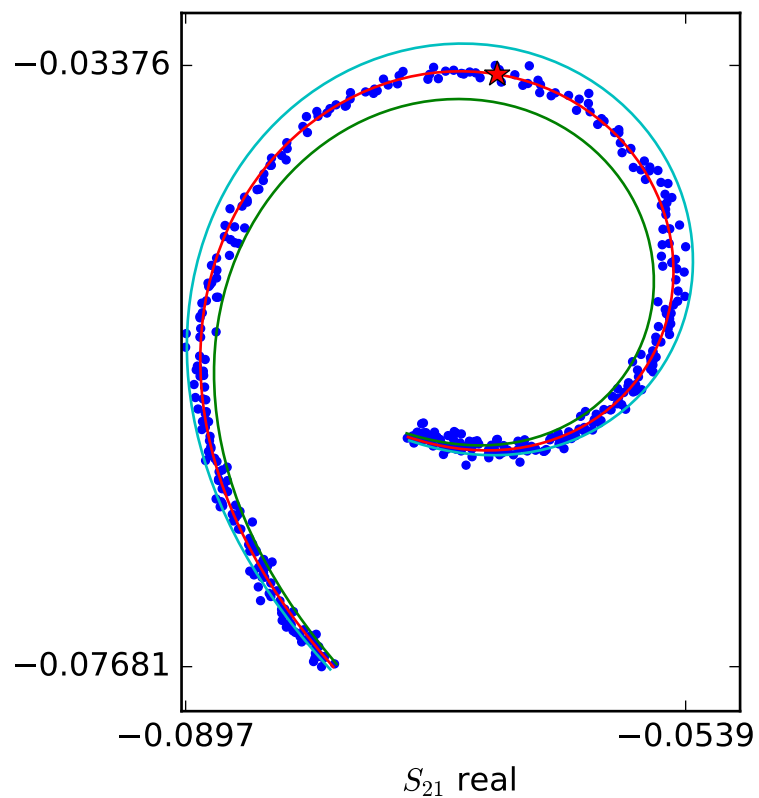
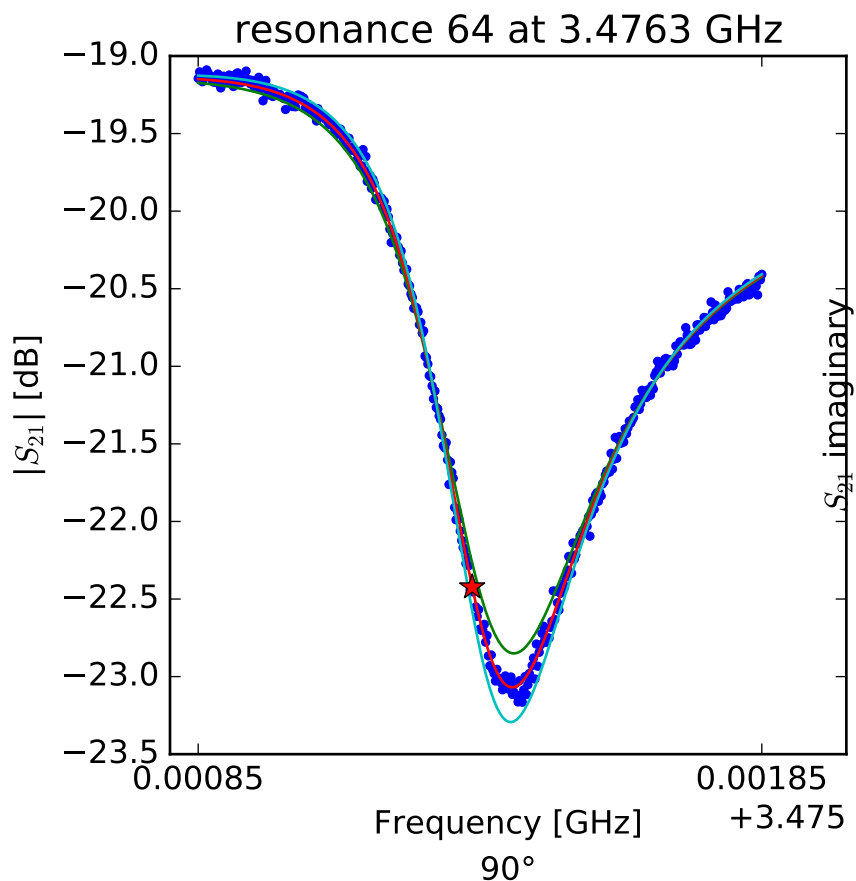
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.46365815597 \\ Q_r &= 9245.53182275 \\ Q_c &= 34304.250573 \\ a &= (0.0773195789478 + 0.0846430571j) \\ \phi_0 &= -0.37018072047 \\ \tau &= 50.4935170608 \end{aligned}$$



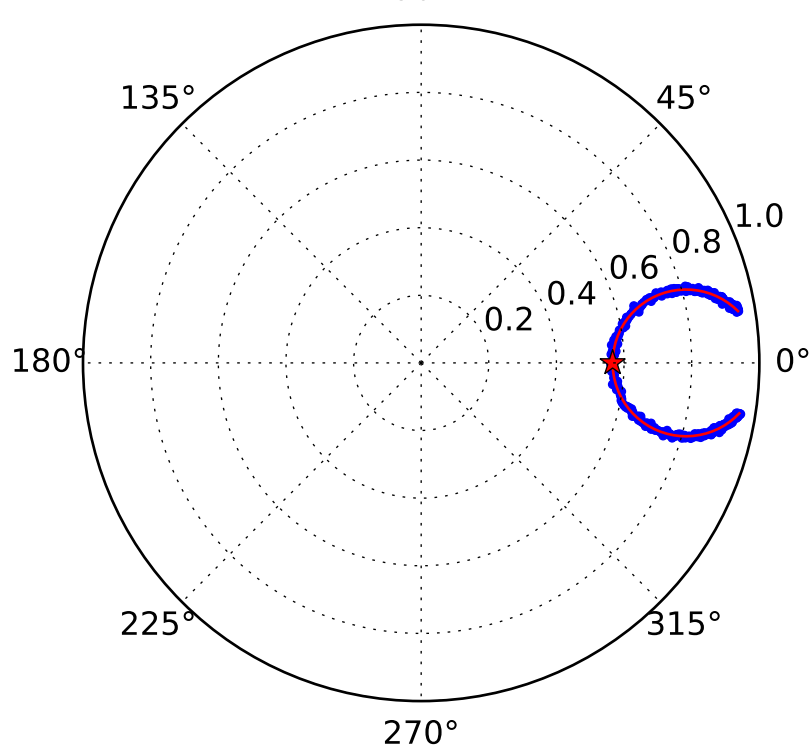
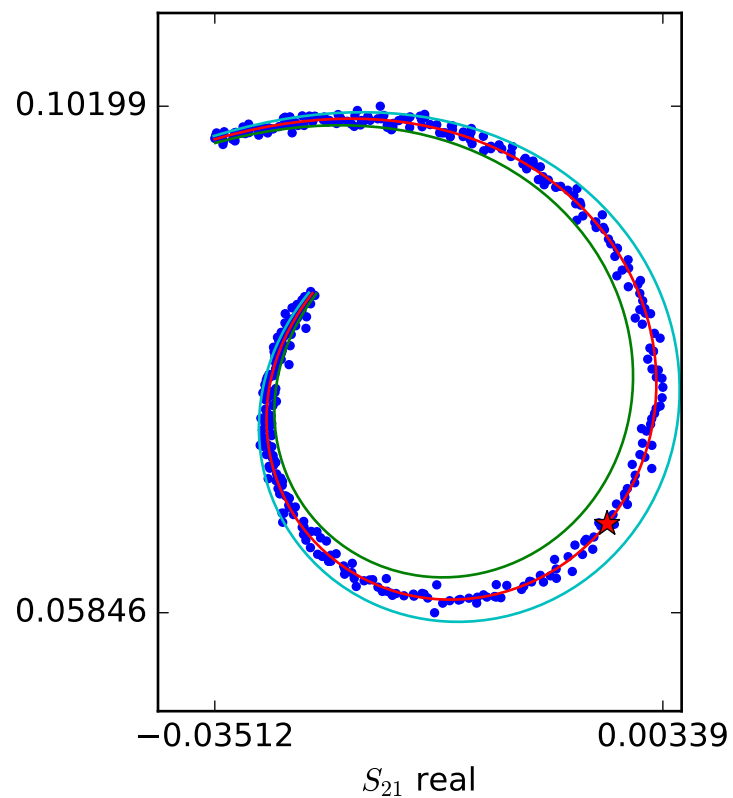
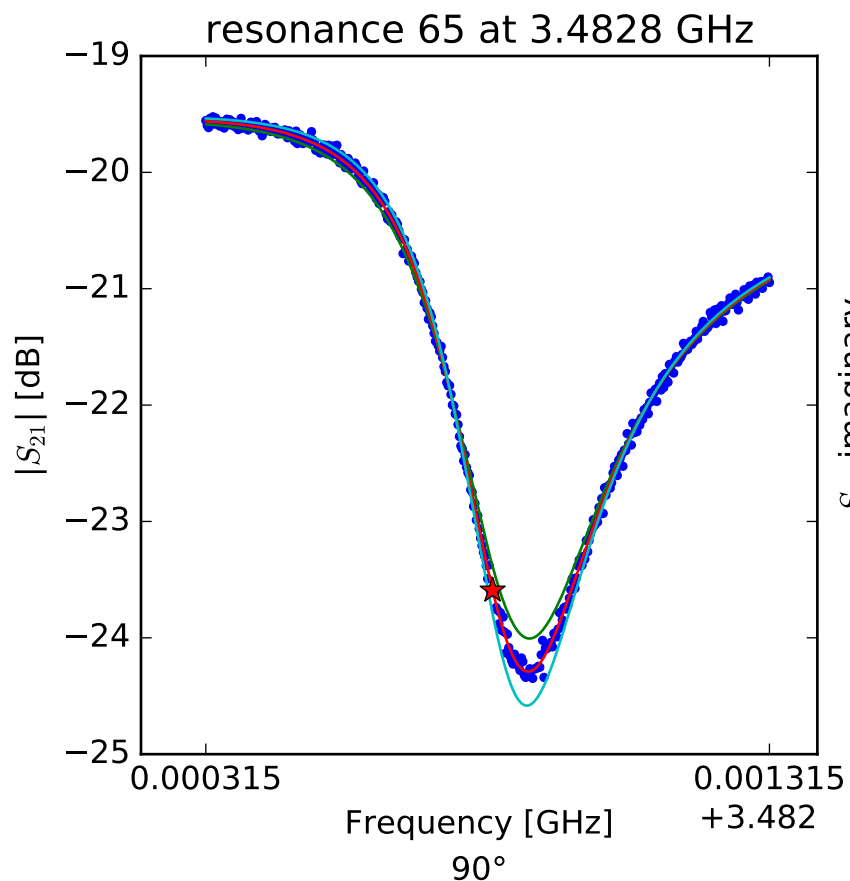
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.4721214327 \\ Q_r &= 7862.63687669 \\ Q_c &= 13119.3132731 \\ a &= (-0.0942261312406 - 0.0521503200365j) \\ \phi_0 &= -0.916507206808 \\ \tau &= 49.4681521638 \end{aligned}$$



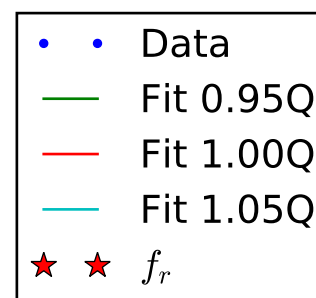
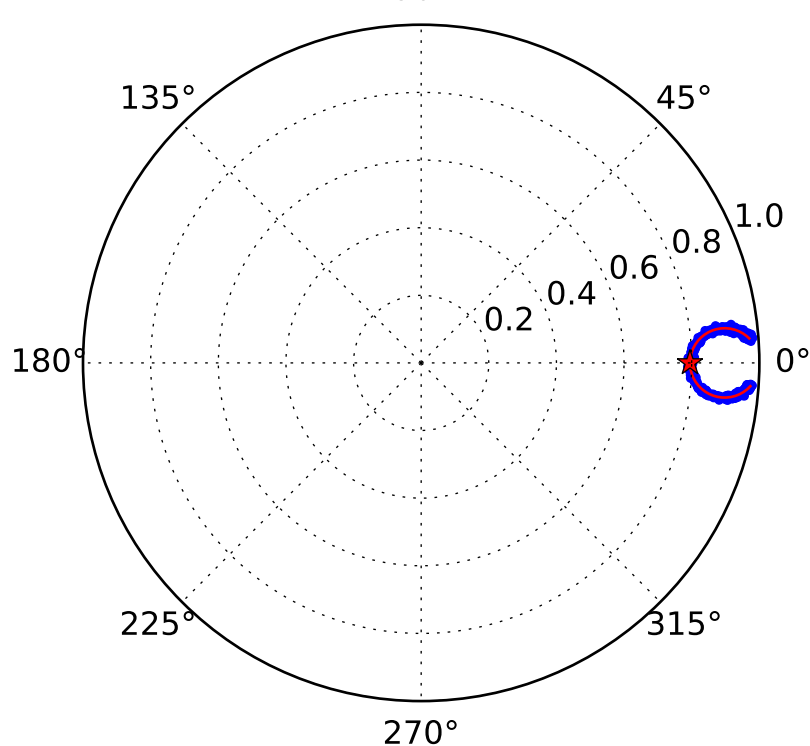
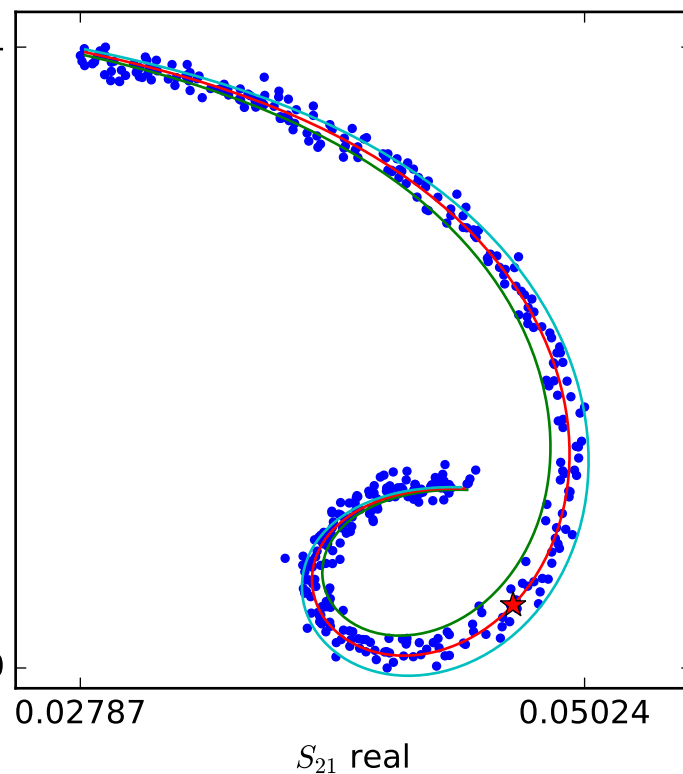
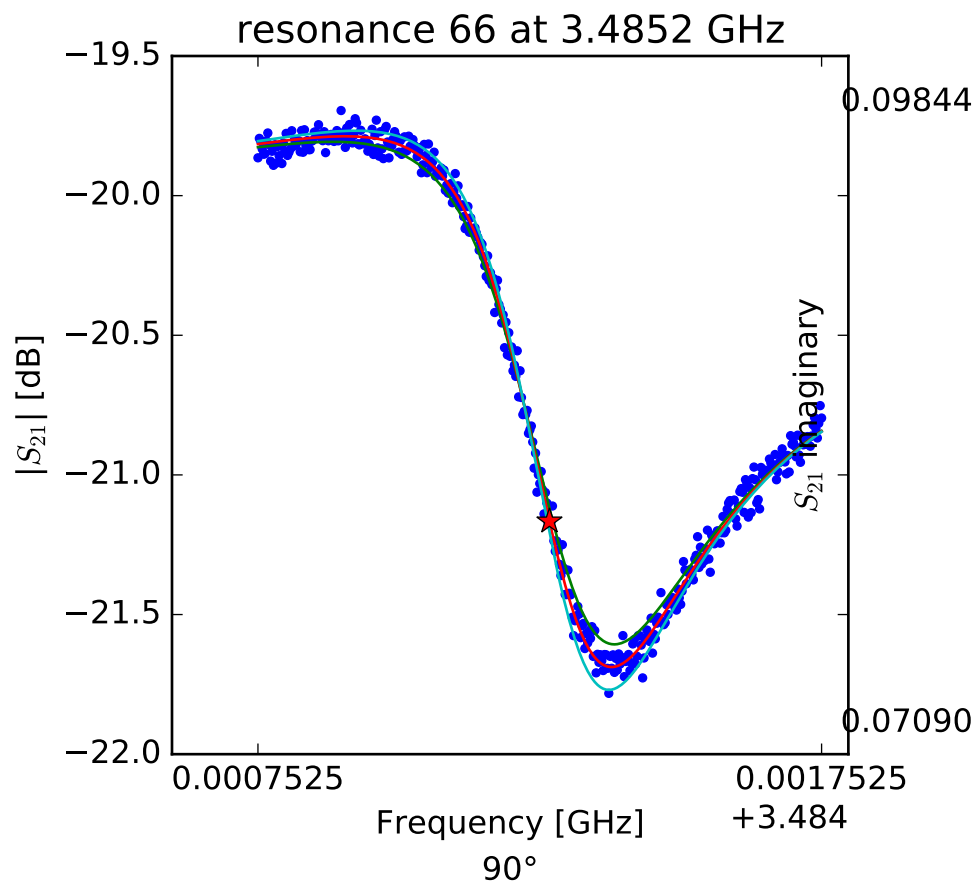
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.47633614815 \\ Q_r &= 8573.11991515 \\ Q_c &= 22781.3869452 \\ a &= (-0.106596357744 - 0.00589400323414j) \\ \phi_0 &= 0.555676242832 \\ \tau &= 50.3082844159 \end{aligned}$$



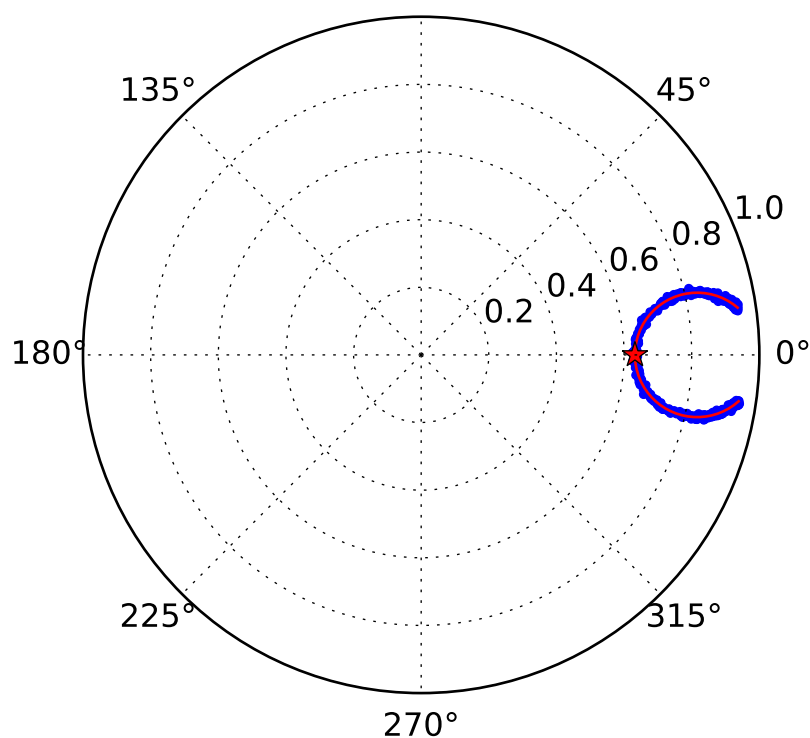
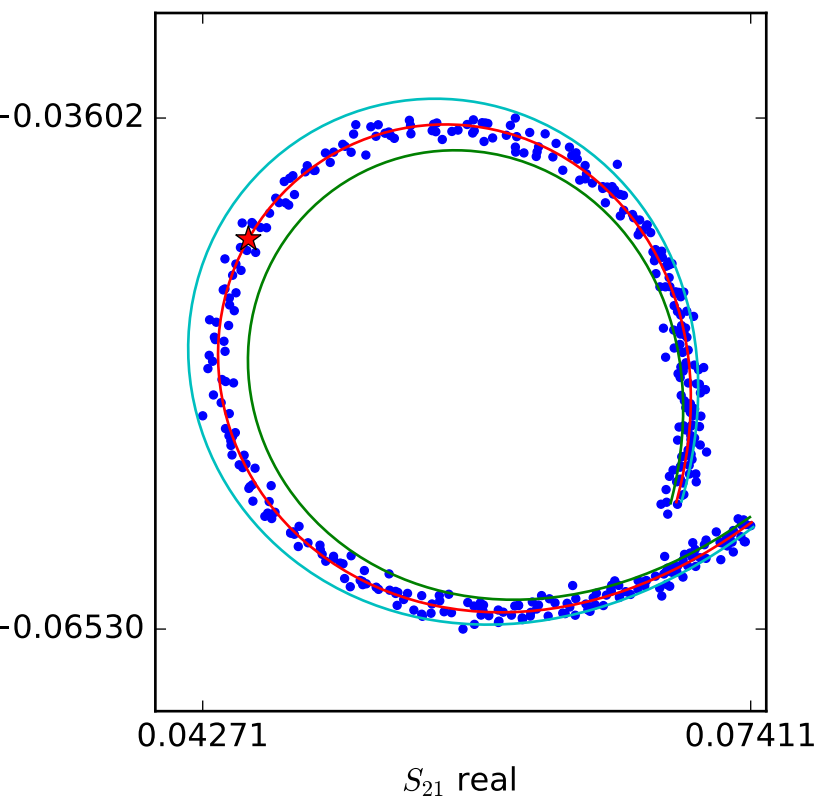
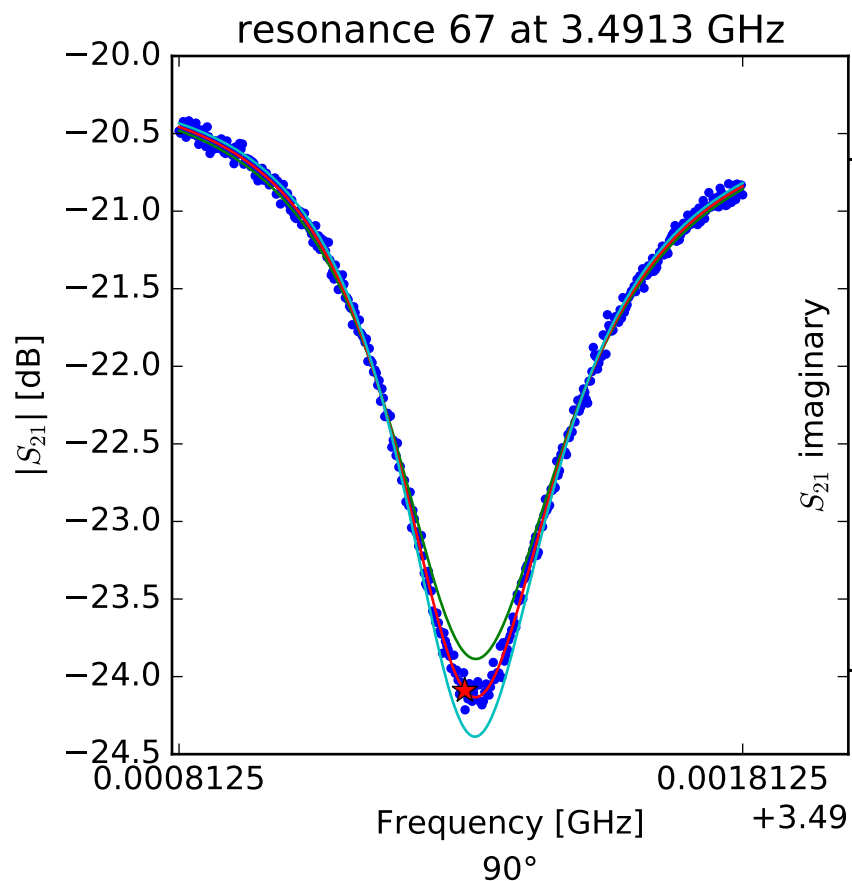
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.48282382342 \\ Q_r &= 8582.82873445 \\ Q_c &= 19778.709865 \\ a &= (0.0945151602798 - 0.0390830261851j) \\ \phi_0 &= 0.478909943529 \\ \tau &= 50.4286740459 \end{aligned}$$



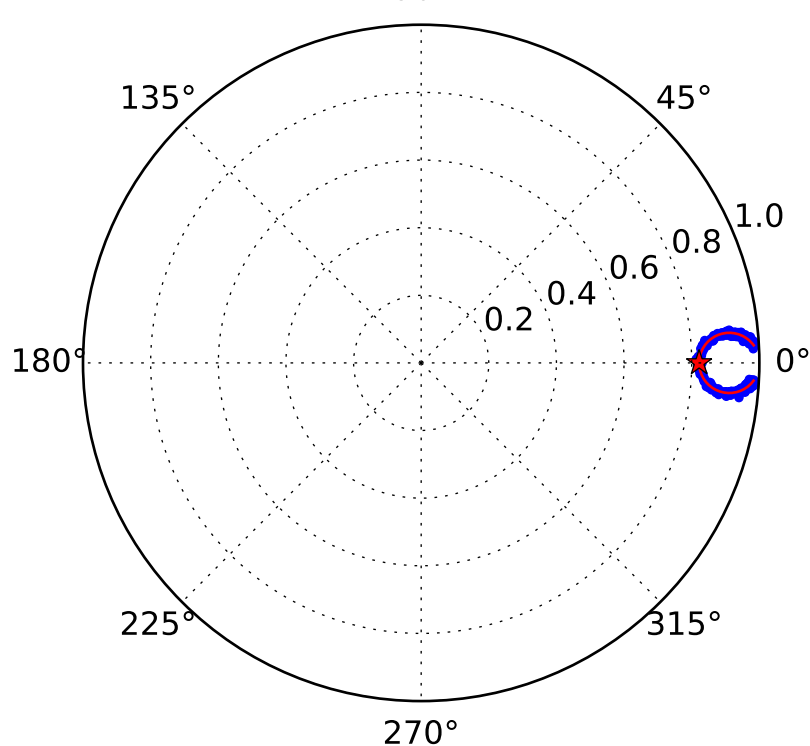
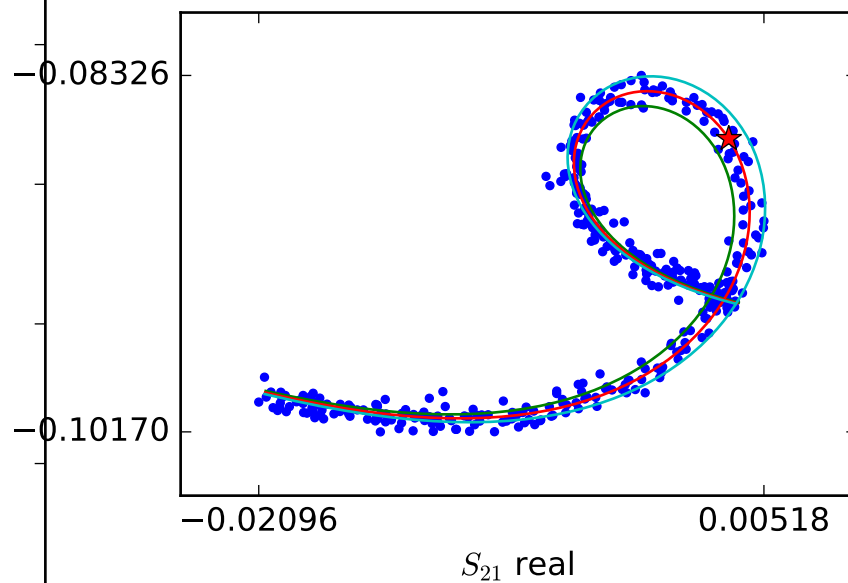
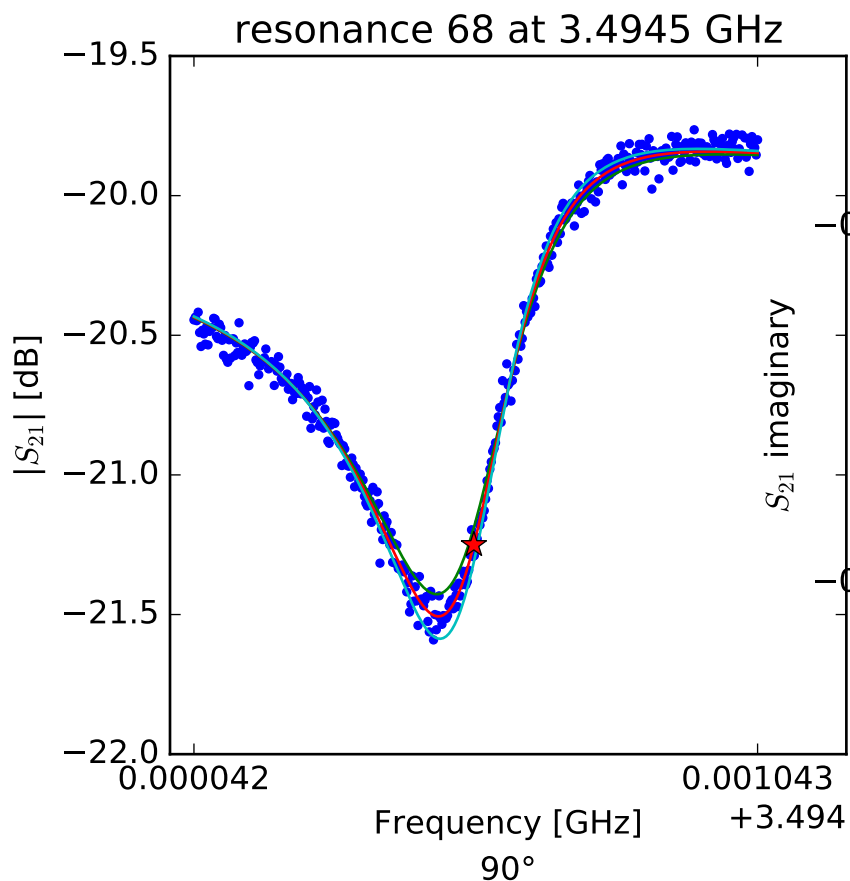
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.48526969536 \\ Q_r &= 8721.27110708 \\ Q_c &= 42505.279613 \\ a &= (-0.0502177500086 + 0.0843431477445j) \\ \phi_0 &= 0.919950180061 \\ \tau &= 51.1141498667 \end{aligned}$$



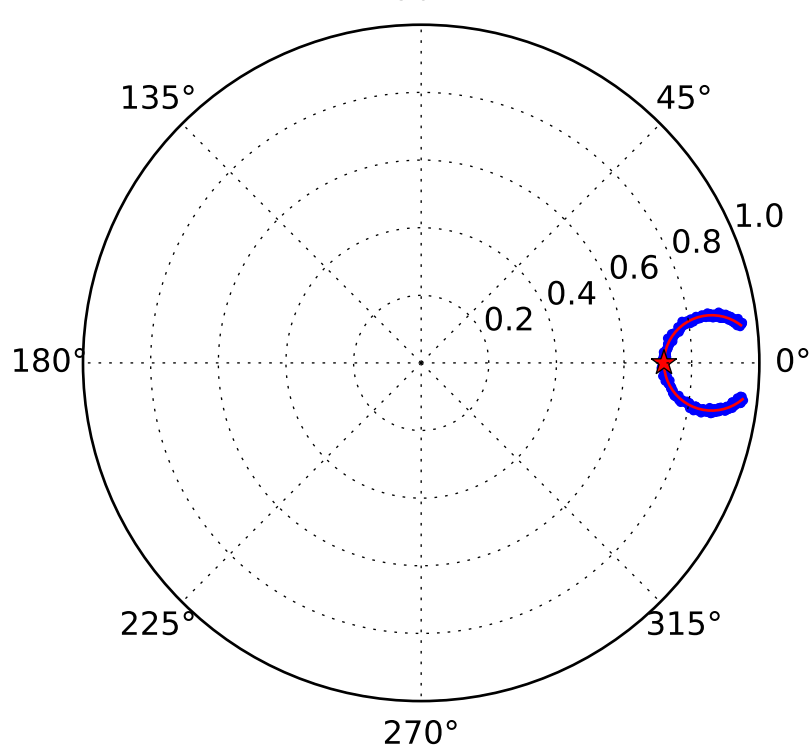
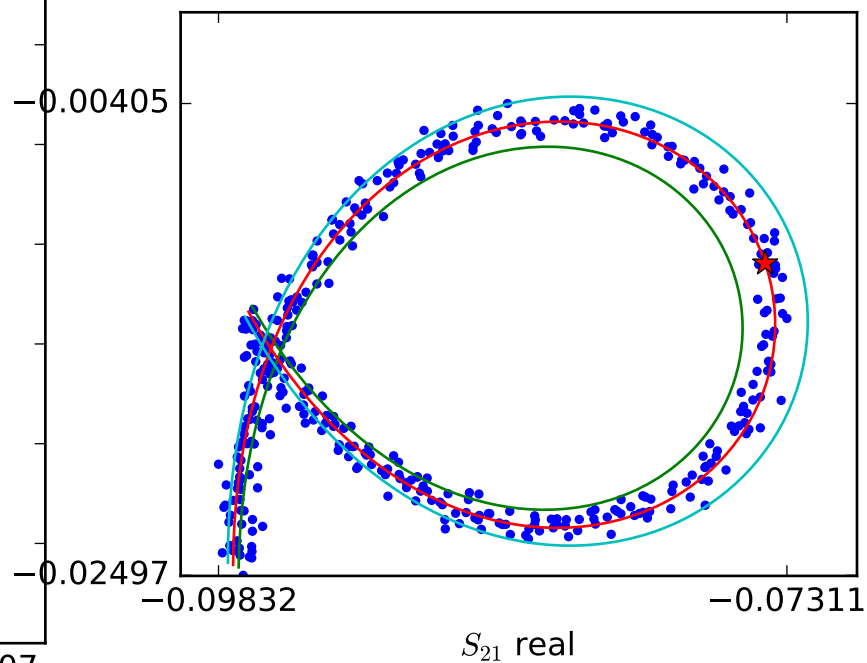
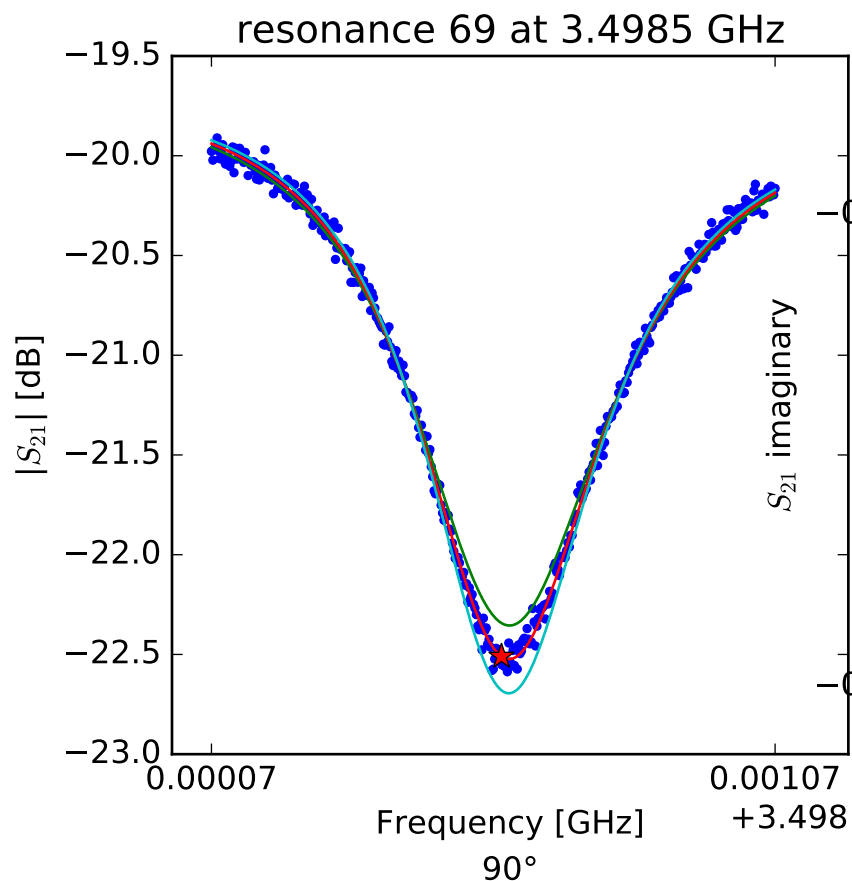
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.49131952141 \\ Q_r &= 7688.83457962 \\ Q_c &= 20896.1600067 \\ a &= (0.0925756294993 + 0.0321241886939j) \\ \phi_0 &= 0.134156626295 \\ \tau &= 49.3113160873 \end{aligned}$$



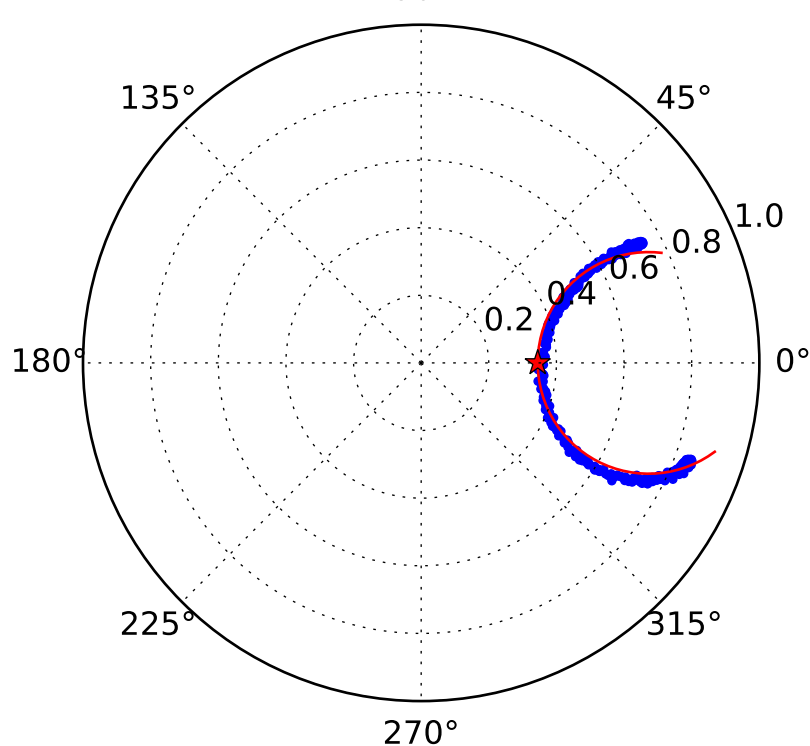
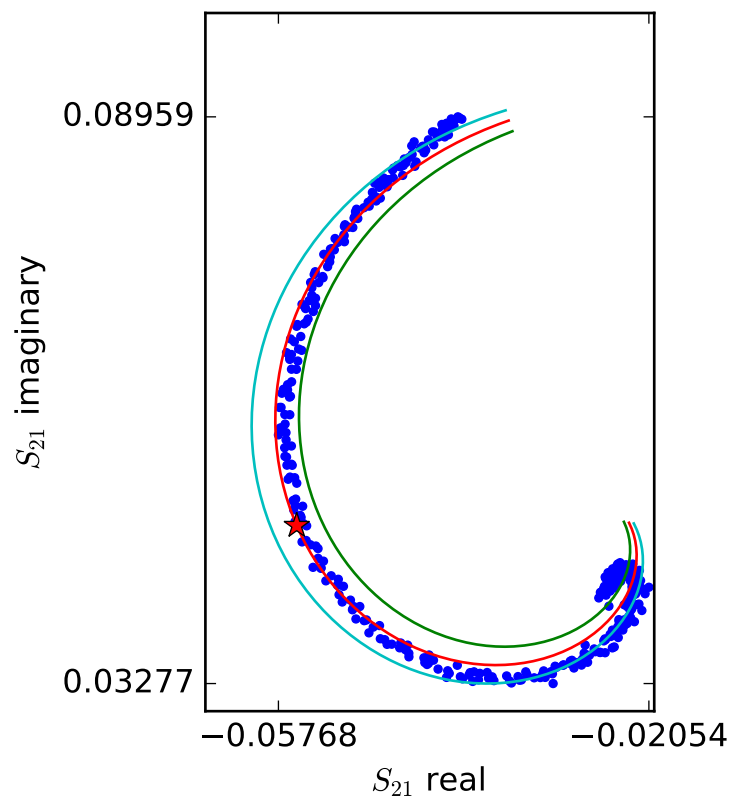
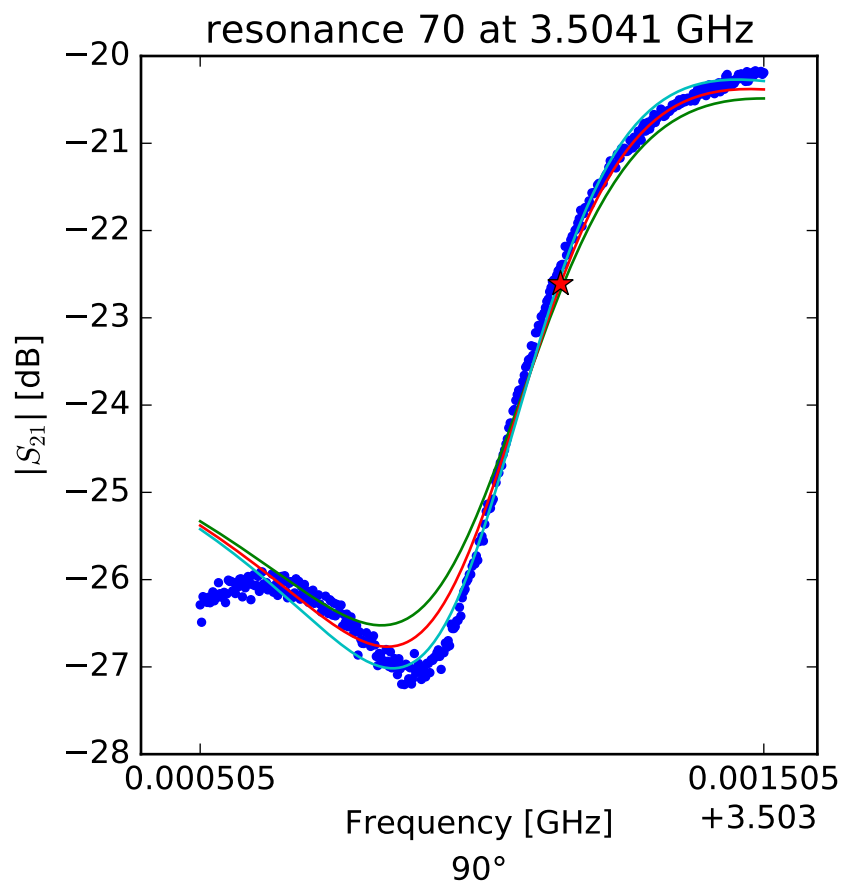
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.49453912198 \\ Q_r &= 10756.0071882 \\ Q_c &= 60390.7989311 \\ a &= (0.0496178317667 - 0.086474235836j) \\ \phi_0 &= -0.678433612312 \\ \tau &= 51.8229321251 \end{aligned}$$



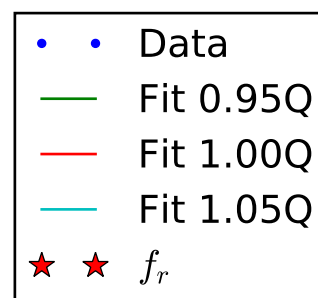
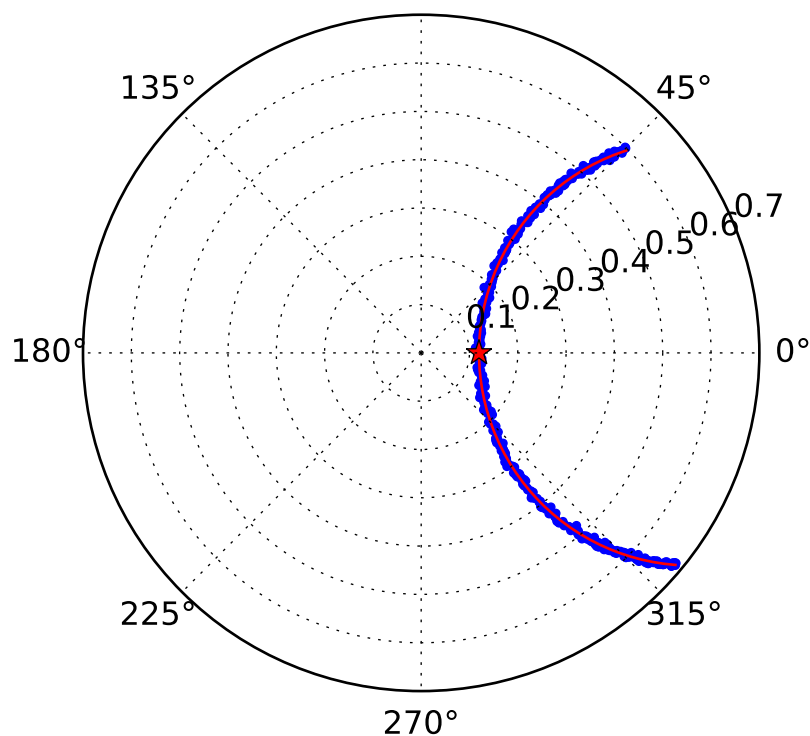
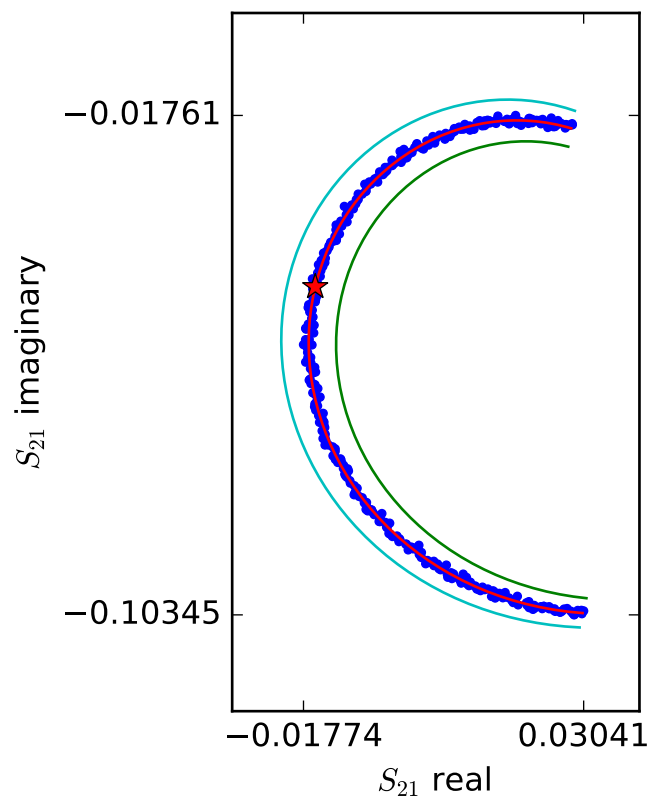
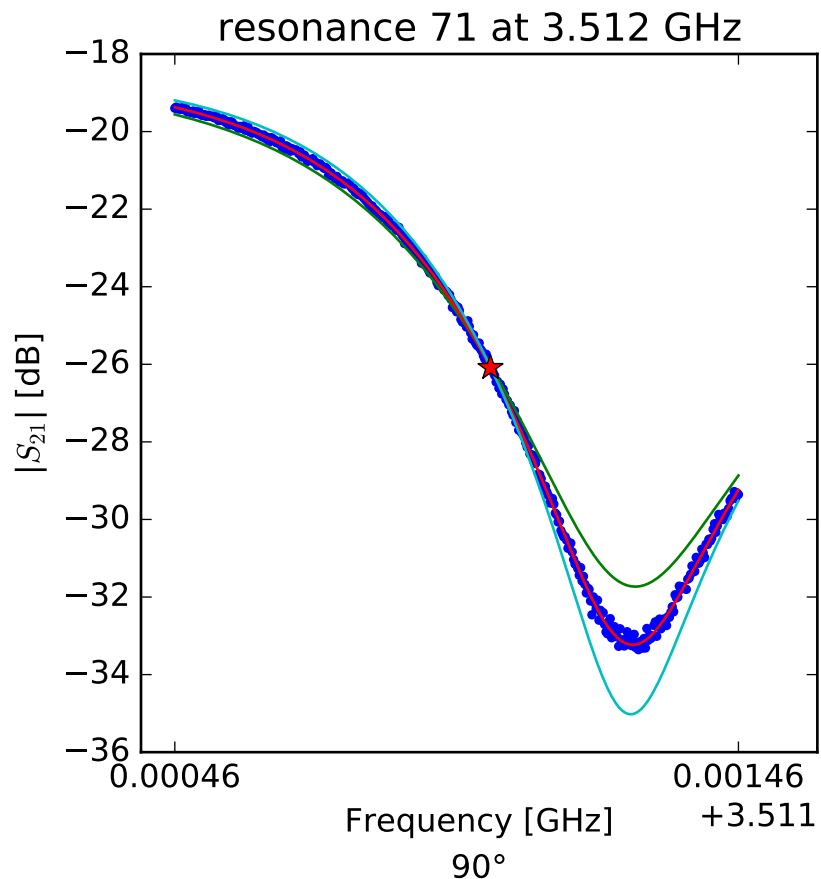
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.49858458508 \\ Q_r &= 7367.33628049 \\ Q_c &= 26119.1998175 \\ a &= (-0.100582922026 - 0.0266578914123j) \\ \phi_0 &= 0.0986186900539 \\ \tau &= 53.7392617936 \end{aligned}$$



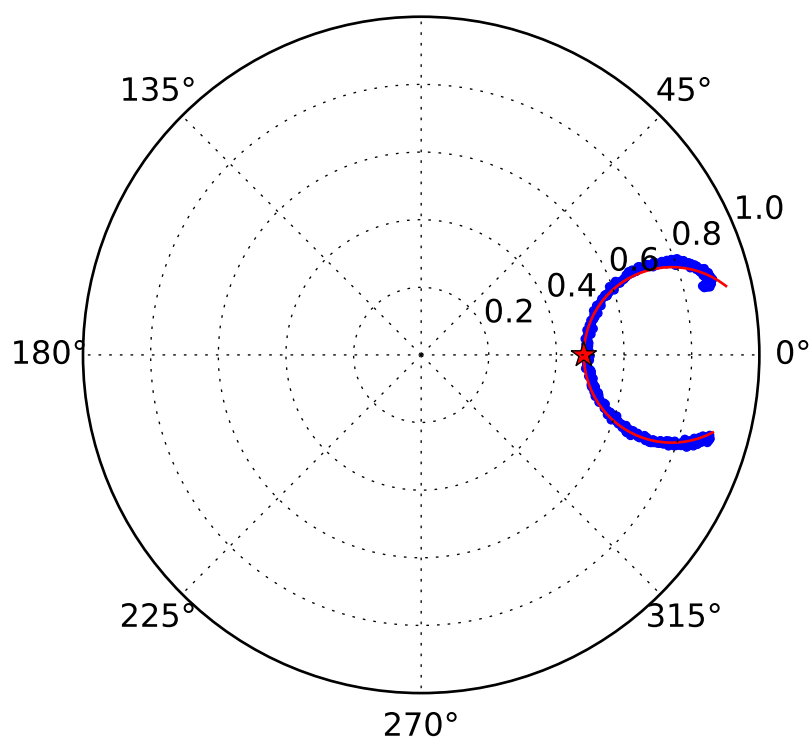
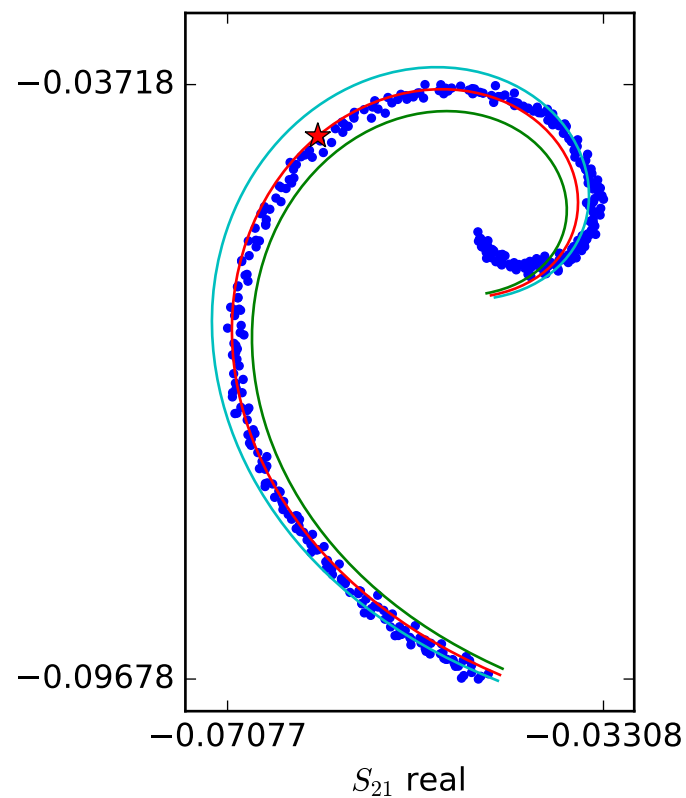
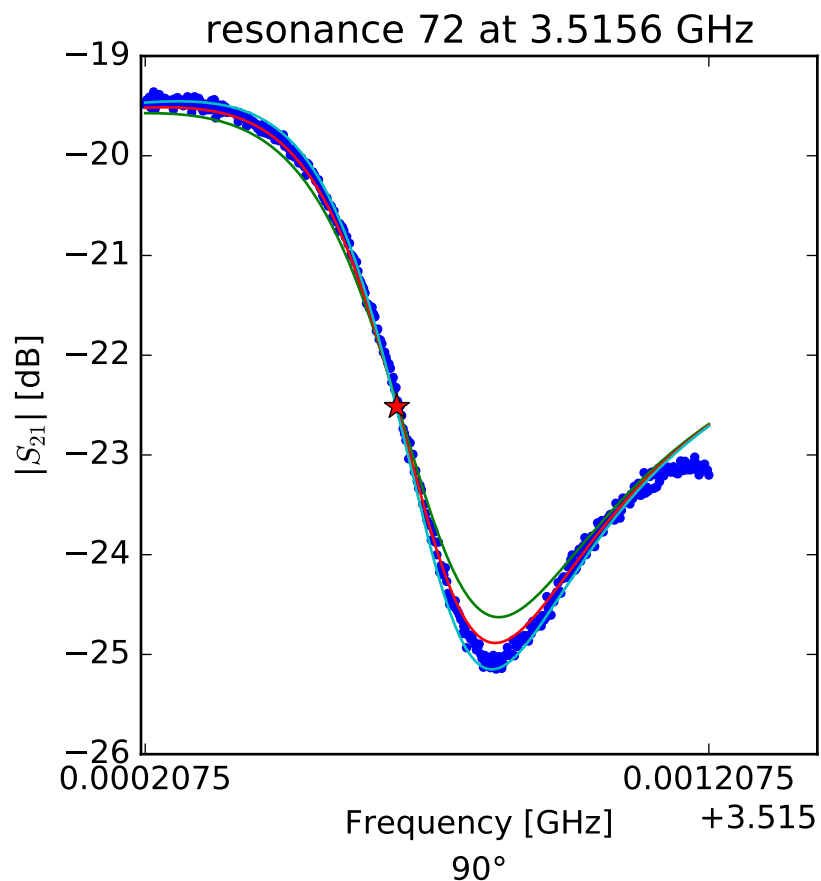
$$S_{21}(f) = ae^{-2\pi jf\tau} \left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r \left(\frac{f-f_r}{f_r} \right)} \right]$$

$$\begin{aligned} f_r &= 3.50414433558 \\ Q_r &= 5458.38398861 \\ Q_c &= 8328.21060217 \\ a &= (-0.0193066000478 - 0.0735869905179j) \\ \phi_0 &= -1.19388939948 \\ \tau &= 54.0590888466 \end{aligned}$$



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

$$\begin{aligned} f_r &= 3.51202002924 \\ Q_r &= 2904.27802362 \\ Q_c &= 3298.96772612 \\ a &= (0.104095360197 - 0.0321723061826j) \\ \phi_0 &= 0.472695511878 \\ \tau &= 54.9775704363 \end{aligned}$$



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

$$\begin{aligned} f_r &= 3.51565395132 \\ Q_r &= 6549.94478201 \\ Q_c &= 12617.6486928 \\ a &= (0.0374042577962 - 0.0861934308361j) \\ \phi_0 &= 0.91281211679 \\ \tau &= 81.1039052401 \end{aligned}$$