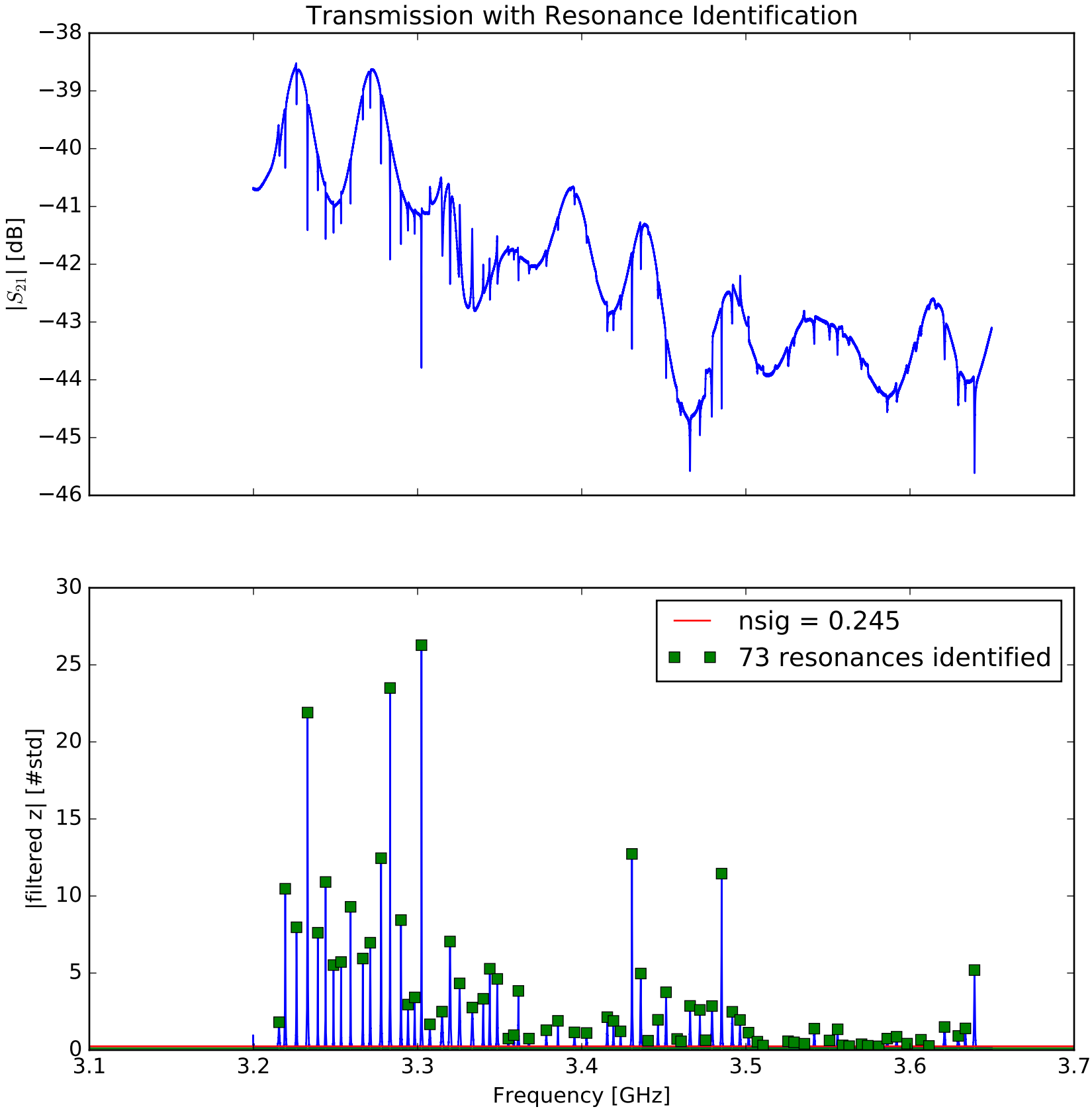
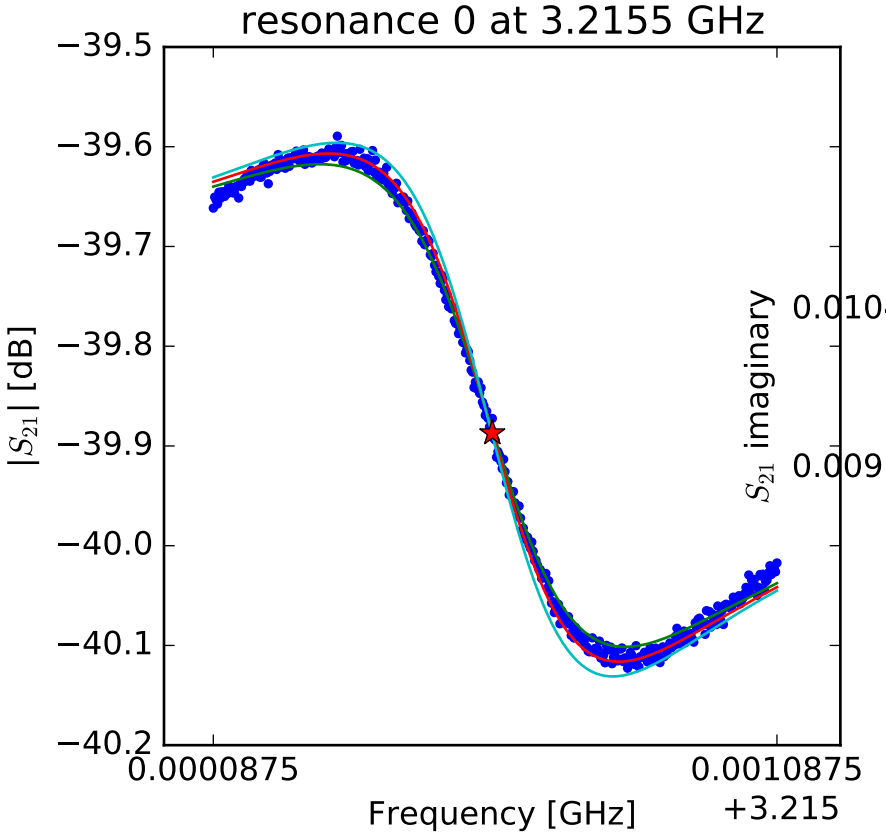
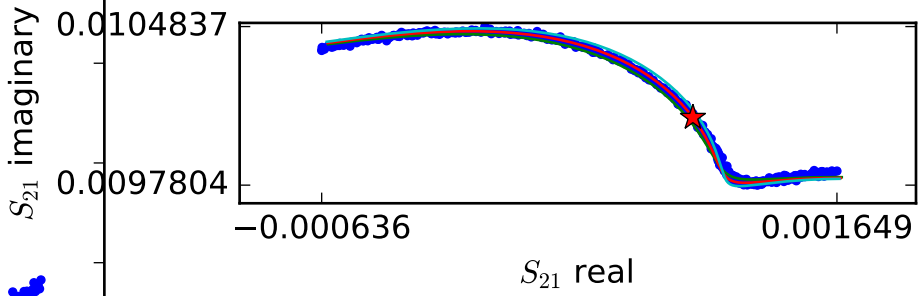
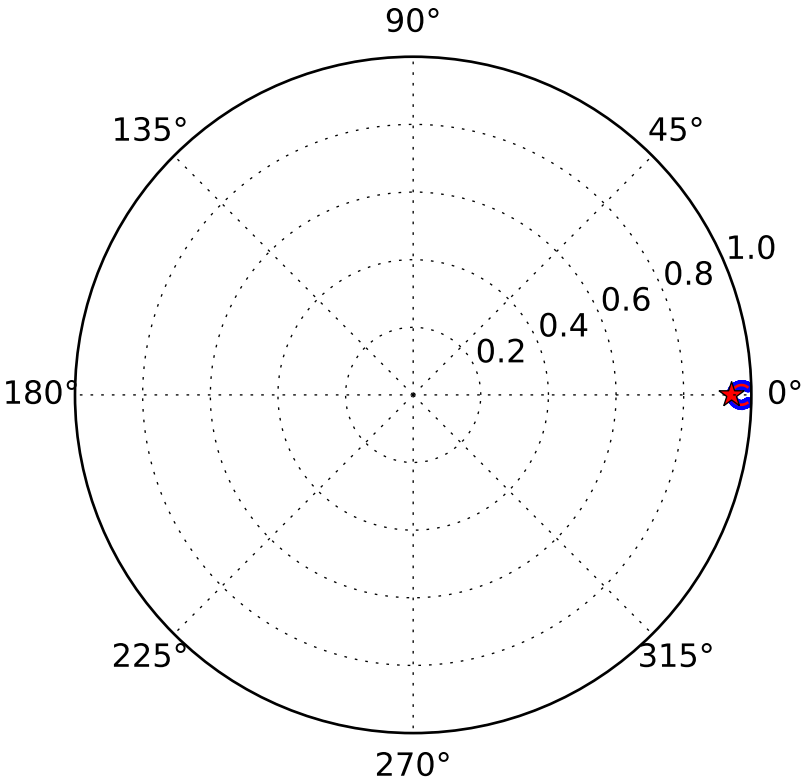
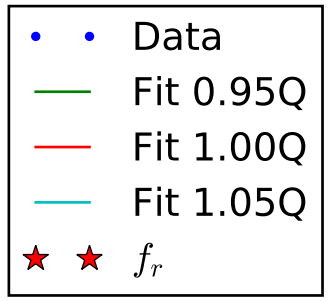

Transmission with Resonance Identification
$|S_{21}|$ [dB]
−38
−39
−40
−41
−42
−43
−44
−45
−46
|filtered z| [#std]
30
25
20
15
10
5
0
nsig = 0.245
73 resonances identified
3.1
3.2
3.3
3.4
3.5
3.6
3.7
Frequency [GHz]



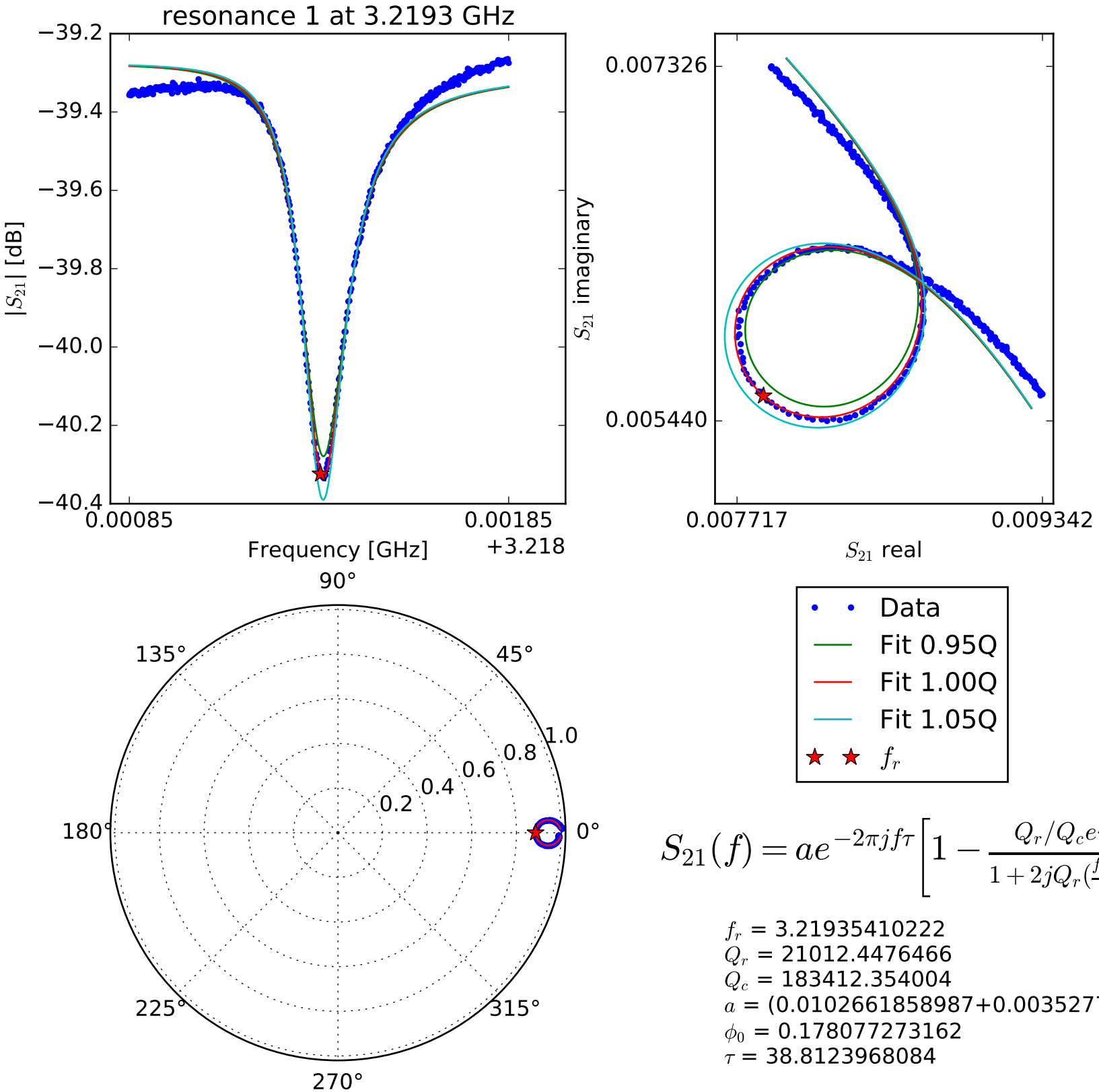






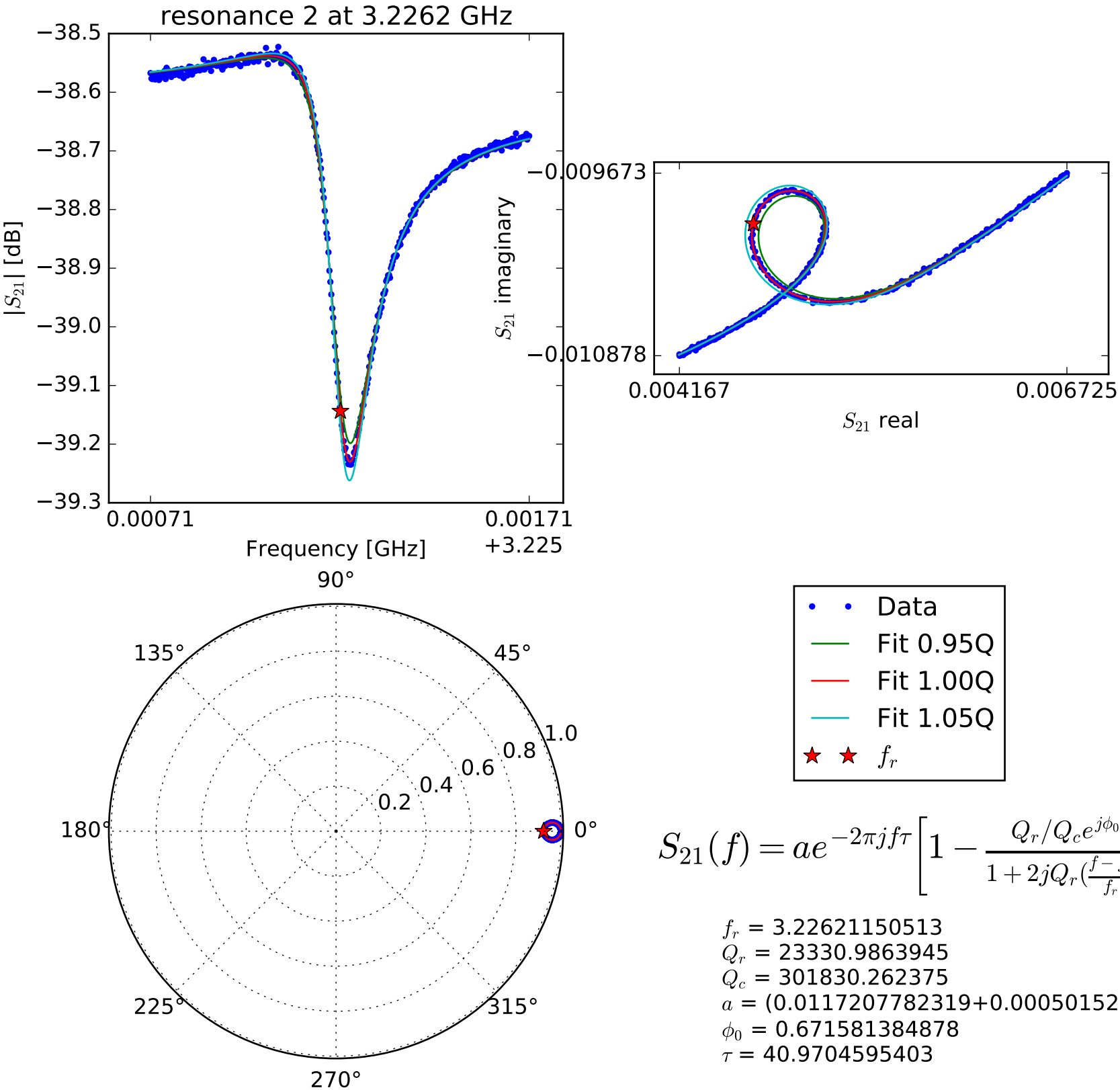
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.21558250628
Q_r = 6305.32919638
Q_c = 107968.848387
a = (0.0101891287676+0.000618923359283j)
ϕ_0 = 1.41212313402
τ = 37.2456007427



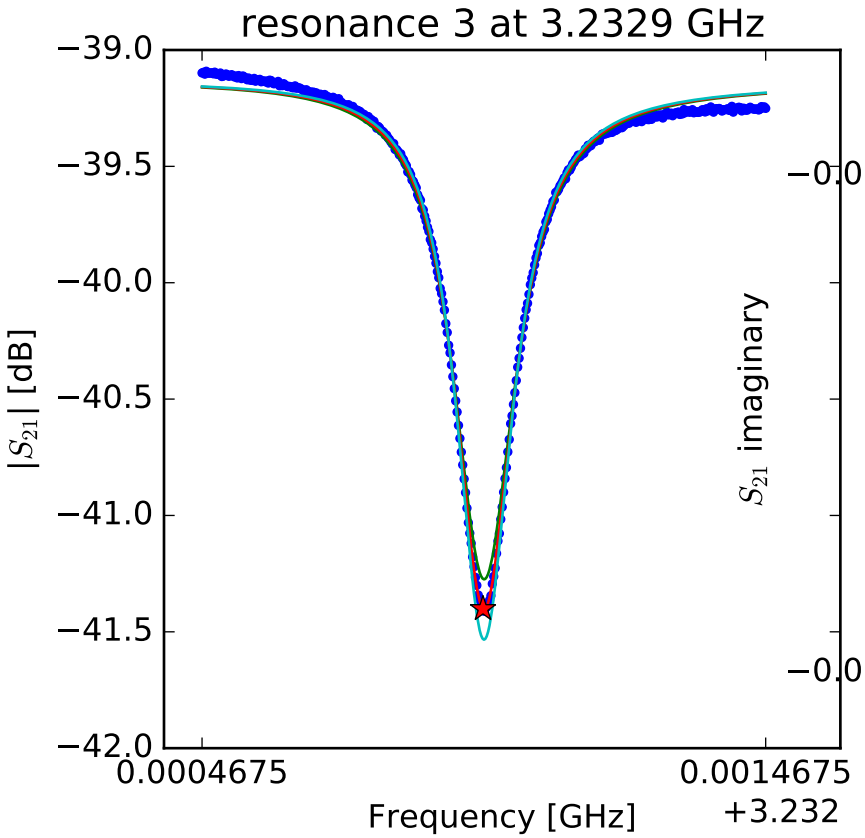
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

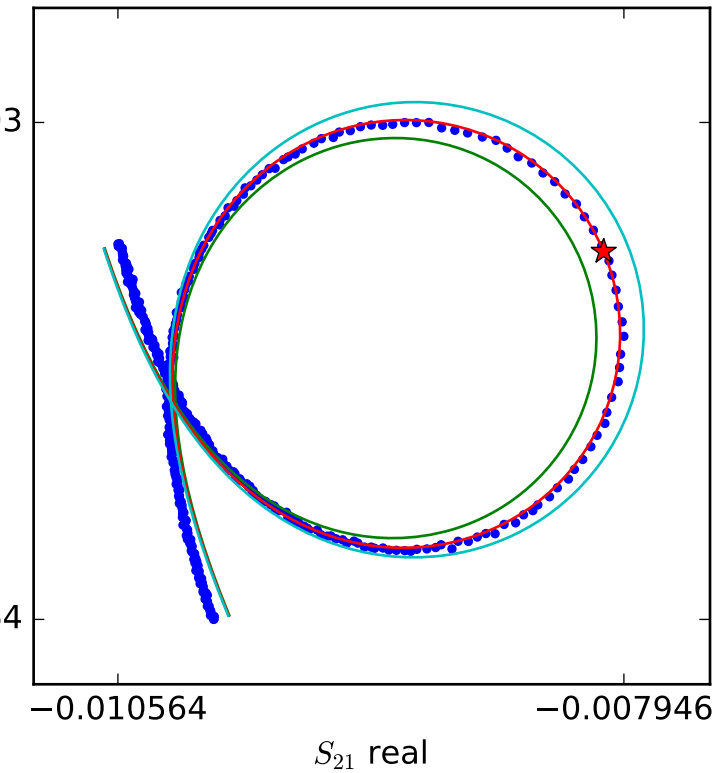
f_r = 3.21935410222
Q_r = 21012.4476466
Q_c = 183412.354004
a = (0.0102661858987+0.00352777902763j)
ϕ_0 = 0.178077273162
τ = 38.8123968084

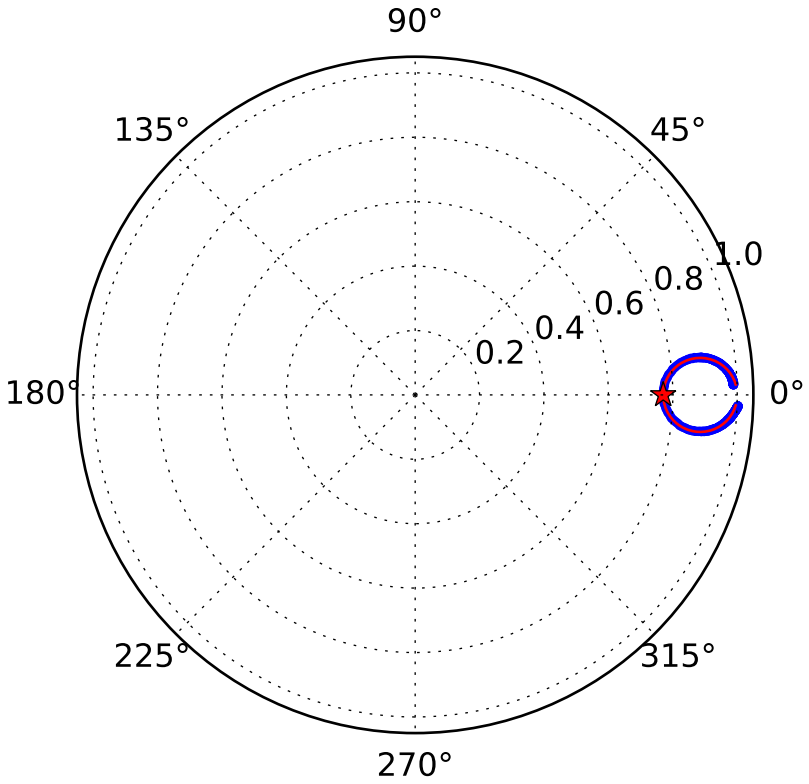


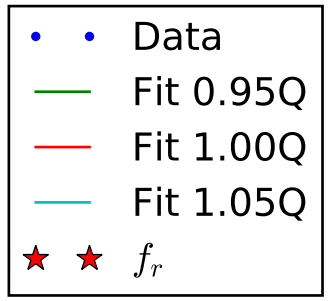
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.22621150513
Q_r = 23330.9863945
Q_c = 301830.262375
a = (0.0117207782319+0.000501529982926j)
ϕ_0 = 0.671581384878
τ = 40.9704595403



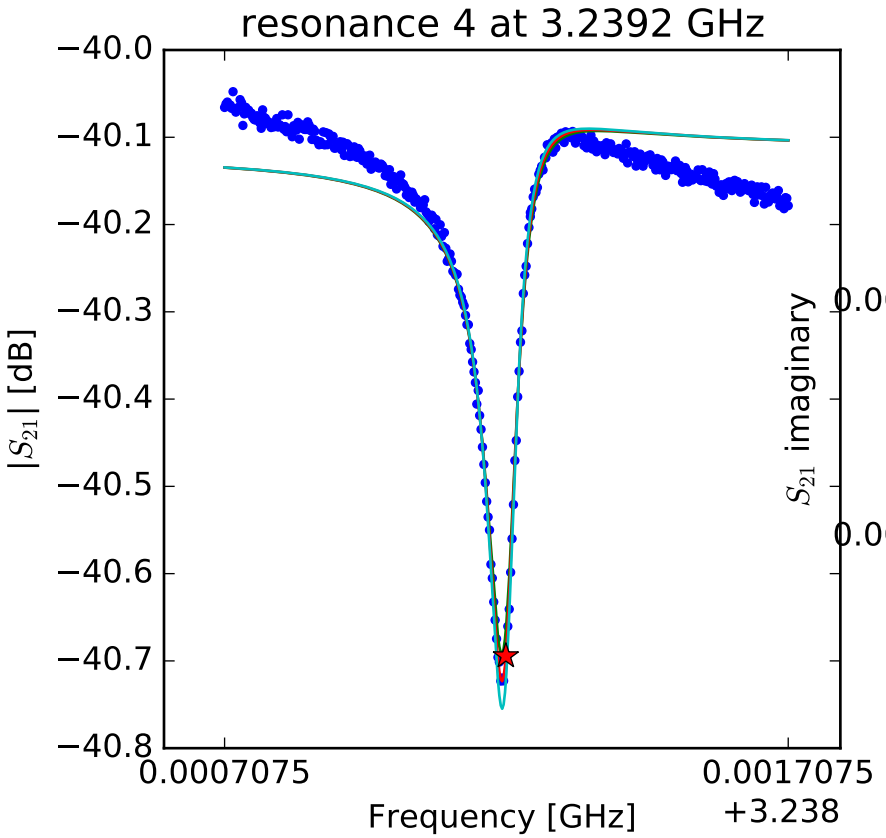


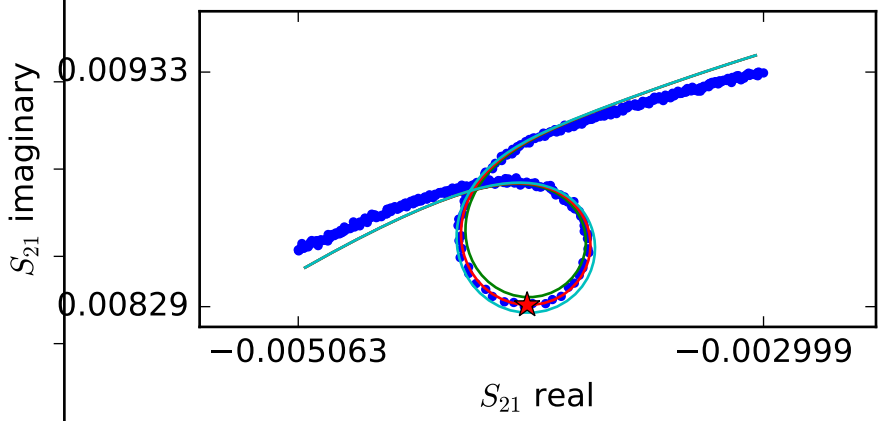


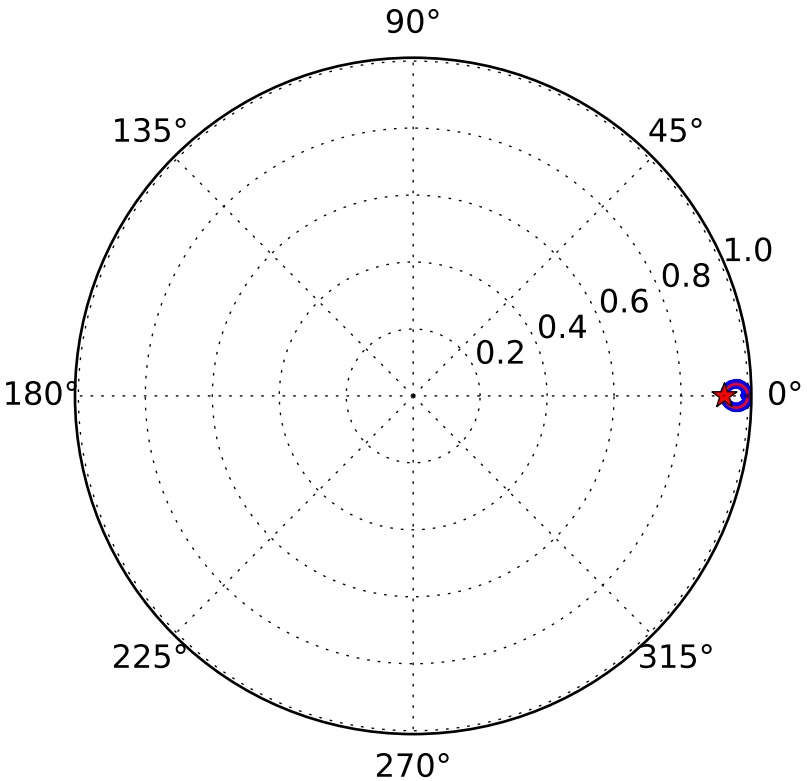


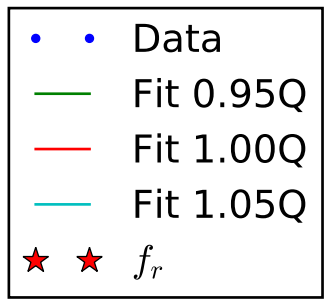
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.23296596139
Q_r = 22299.7883226
Q_c = 96985.7737149
a = (0.0088051563309+0.00667030479795j)
ϕ_0 = 0.0476988729476
τ = 39.452423328



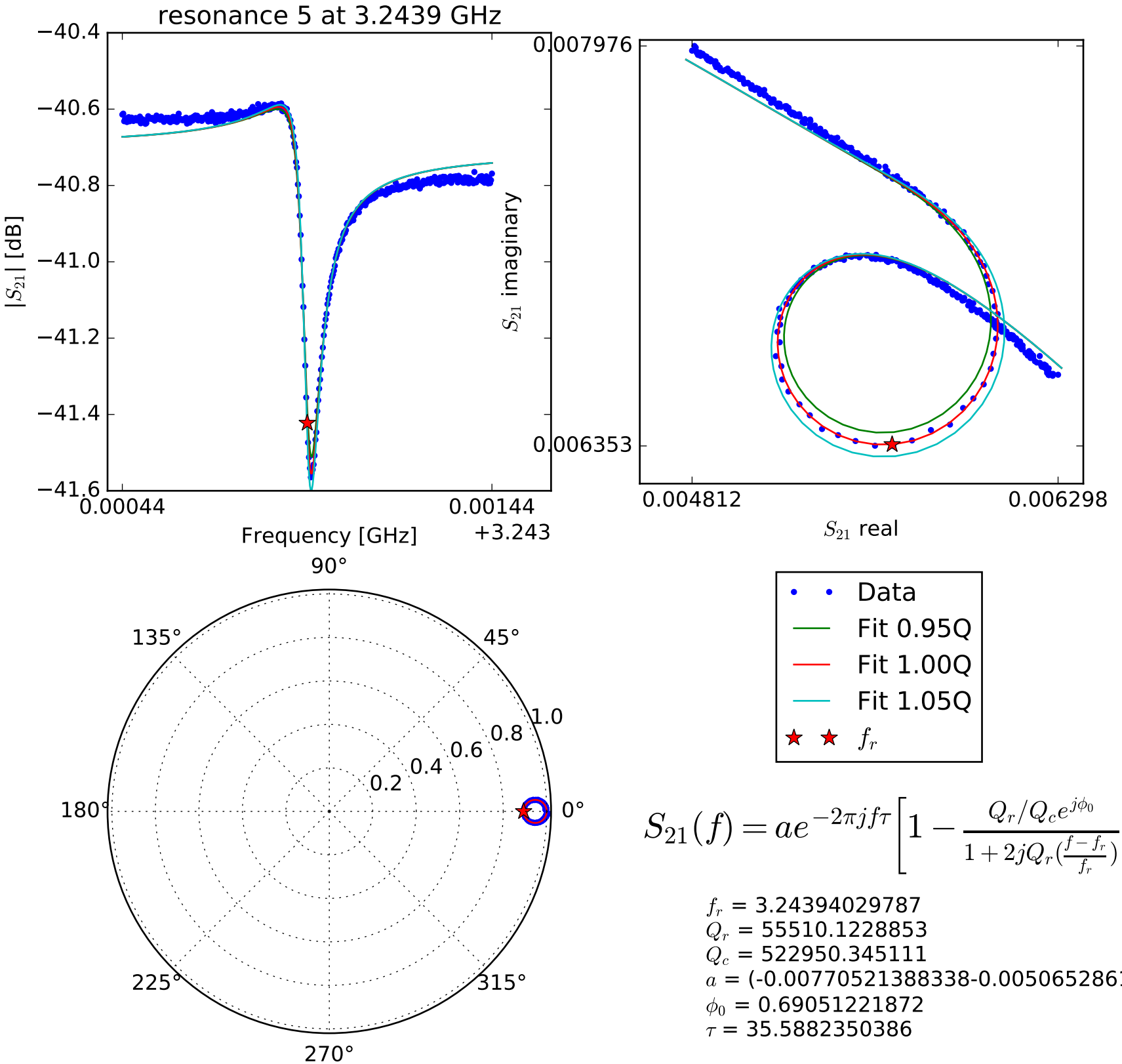






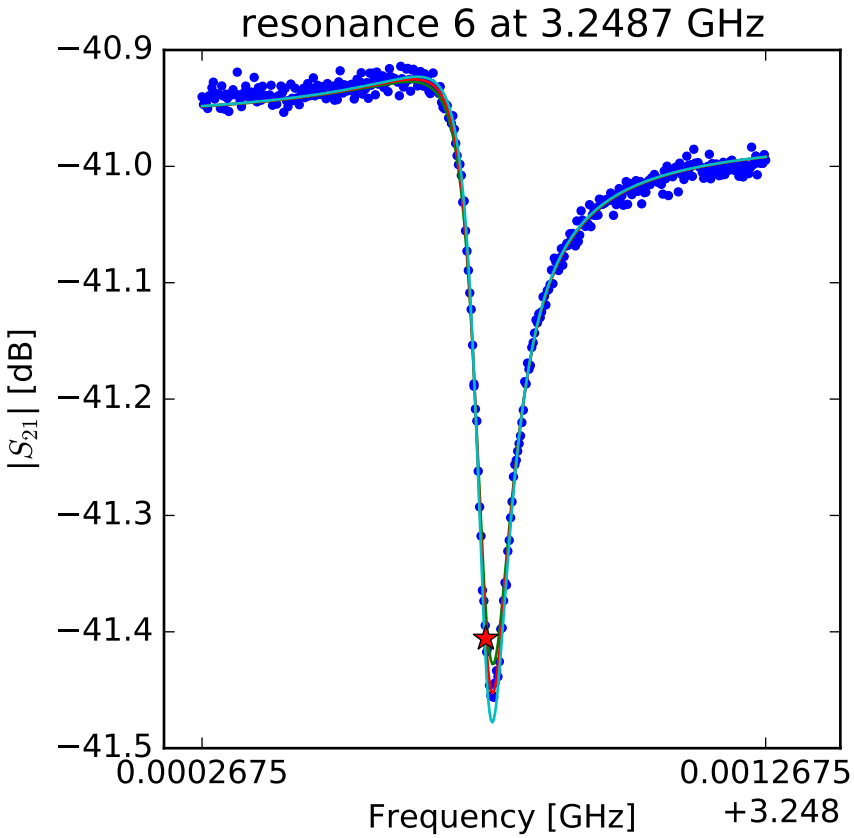
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

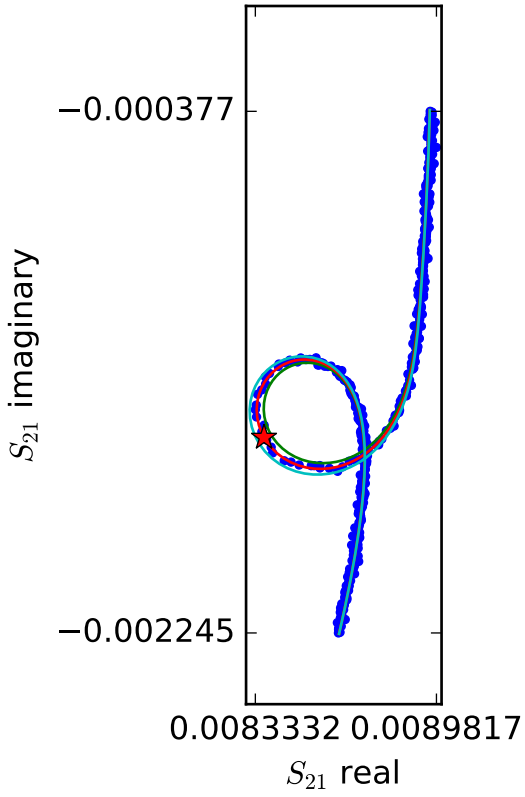
f_r = 3.23920648051
Q_r = 49658.4720406
Q_c = 705584.308909
a = (-0.00386615529072+0.0090775006871j)
ϕ_0 = -0.402752027381
τ = 37.0450428873

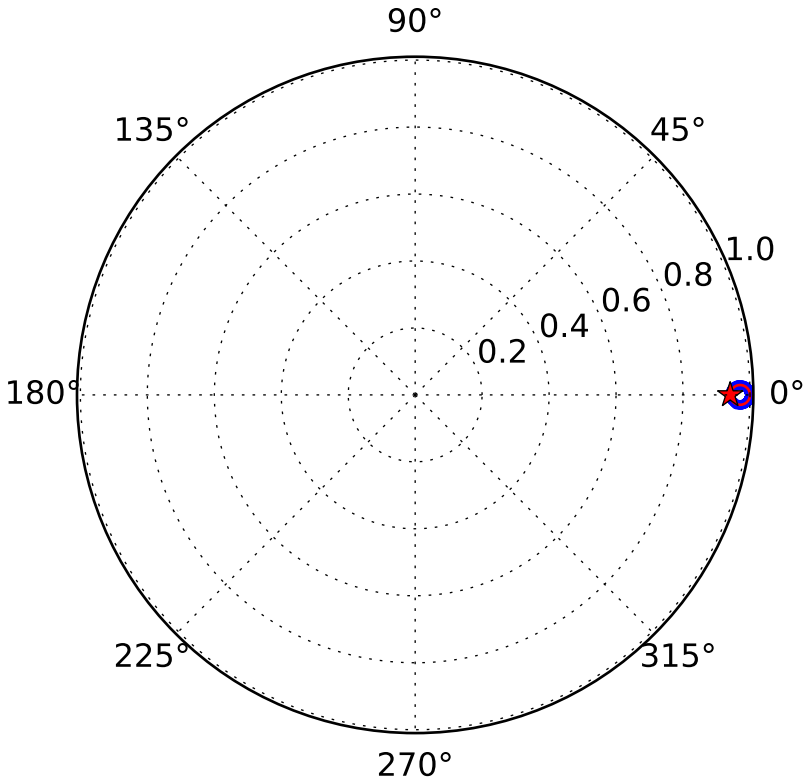


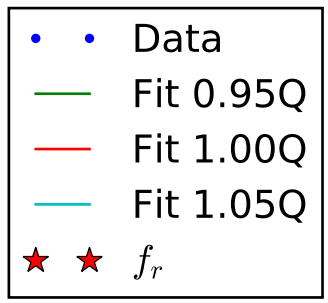
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.24394029787
Q_r = 55510.1228853
Q_c = 522950.345111
a = (-0.00770521388338-0.00506528614713j)
ϕ_0 = 0.69051221872
τ = 35.5882350386



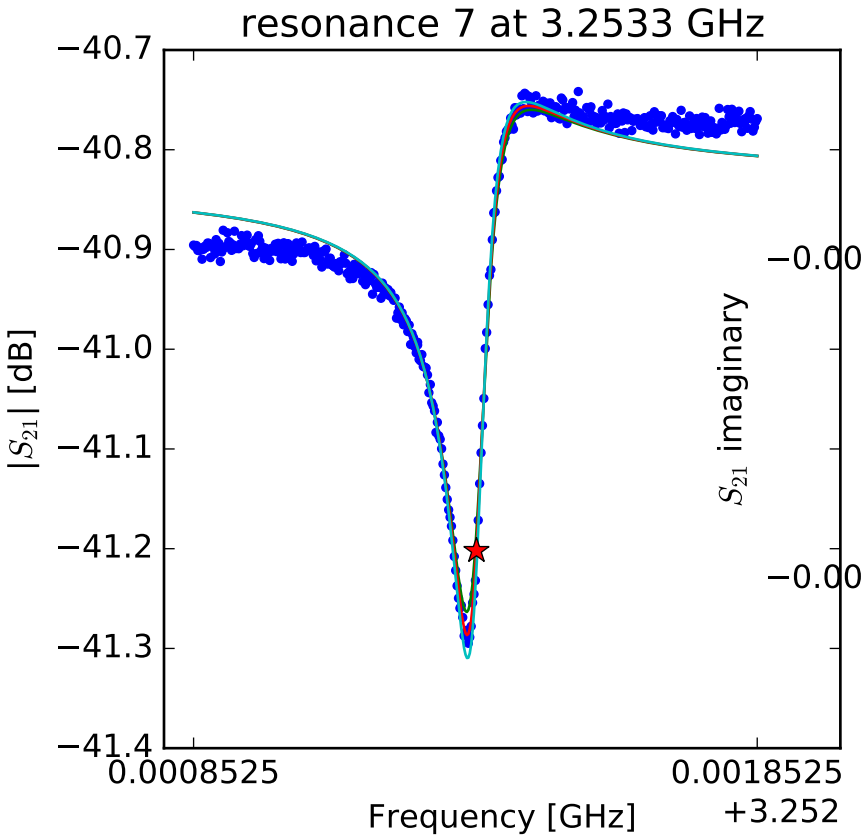


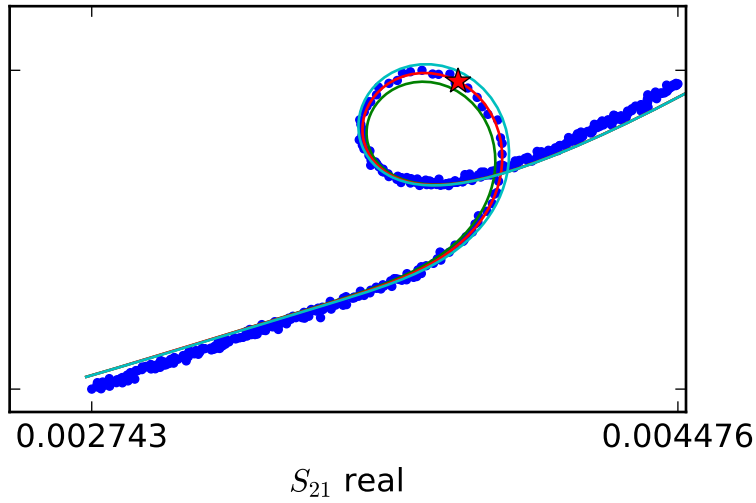


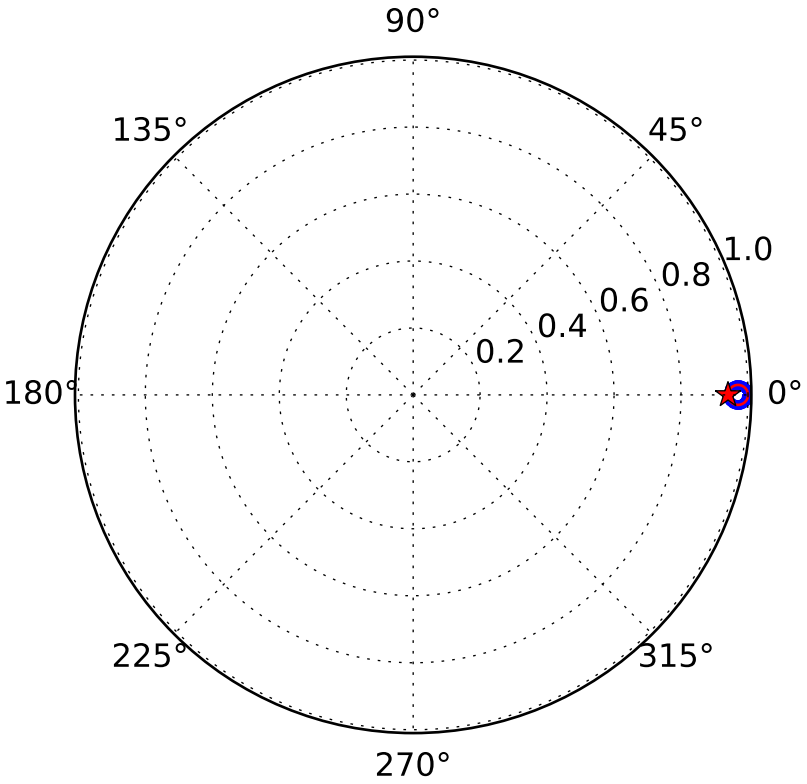


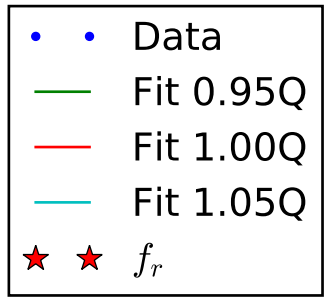
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.2487710553
Q_r = 41539.8453483
Q_c = 701166.41077
a = (0.00357746154792+0.00819960111989j)
ϕ_0 = 0.573921386701
τ = 35.1542799055



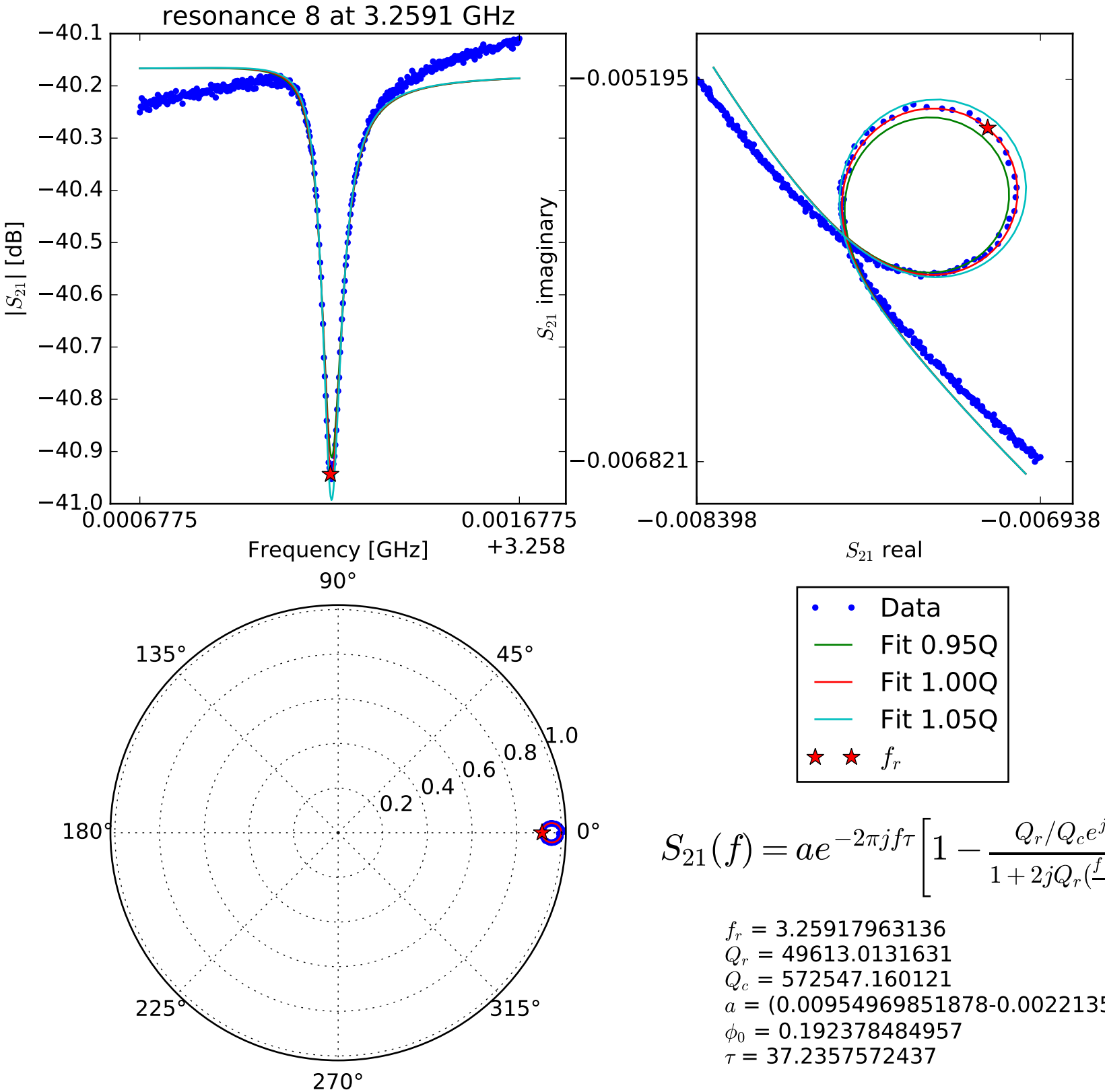






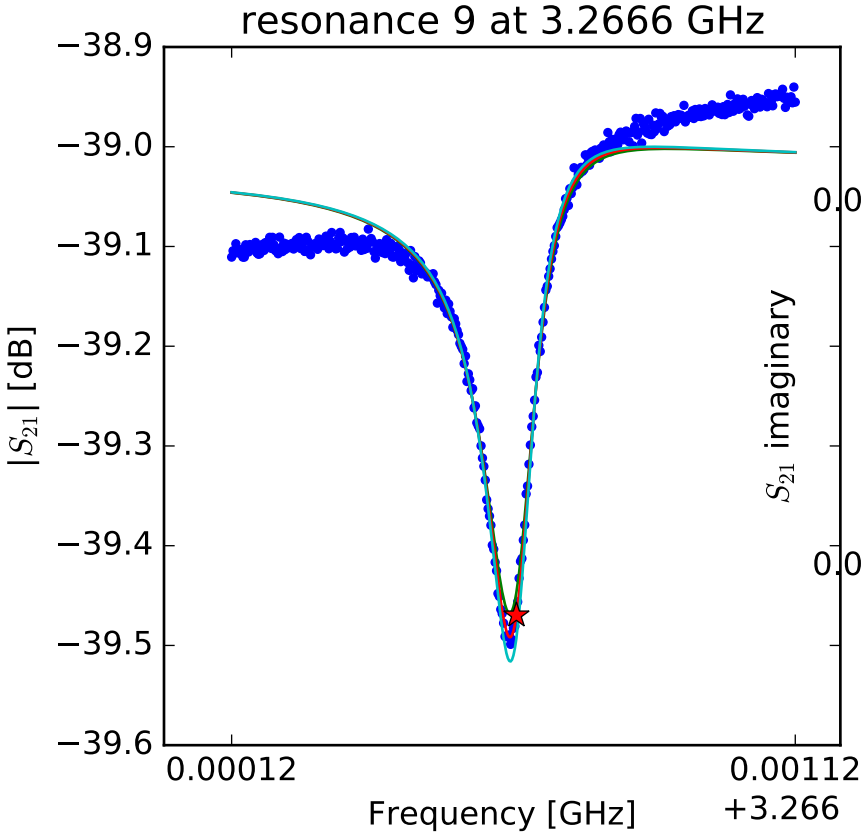
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

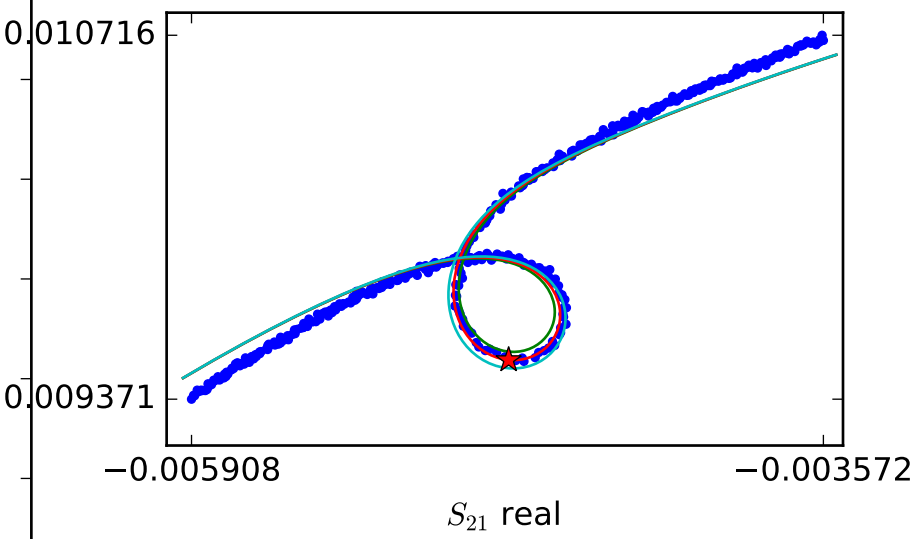
f_r = 3.25335433809
Q_r = 41658.779143
Q_c = 696753.372754
a = (0.00895500930021+0.00153829487762j)
ϕ_0 = -0.778226870196
τ = 35.4131864257

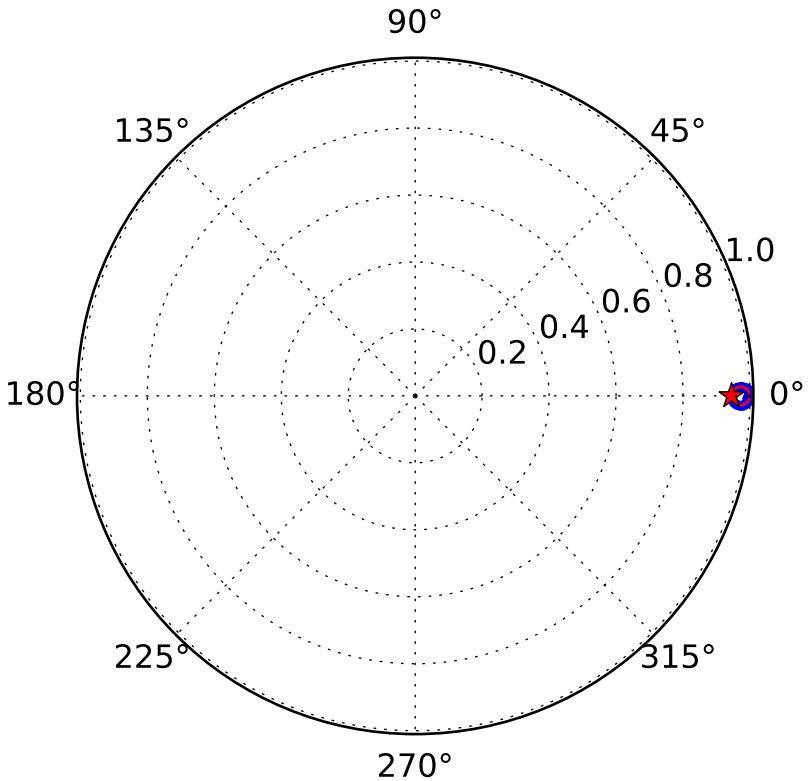


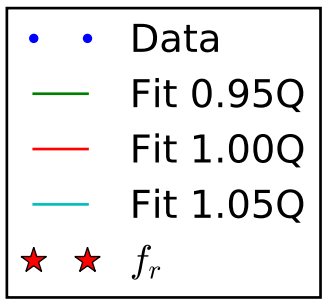
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.25917963136
Q_r = 49613.0131631
Q_c = 572547.160121
a = (0.00954969851878-0.00221357241731j)
ϕ_0 = 0.192378484957
τ = 37.2357572437



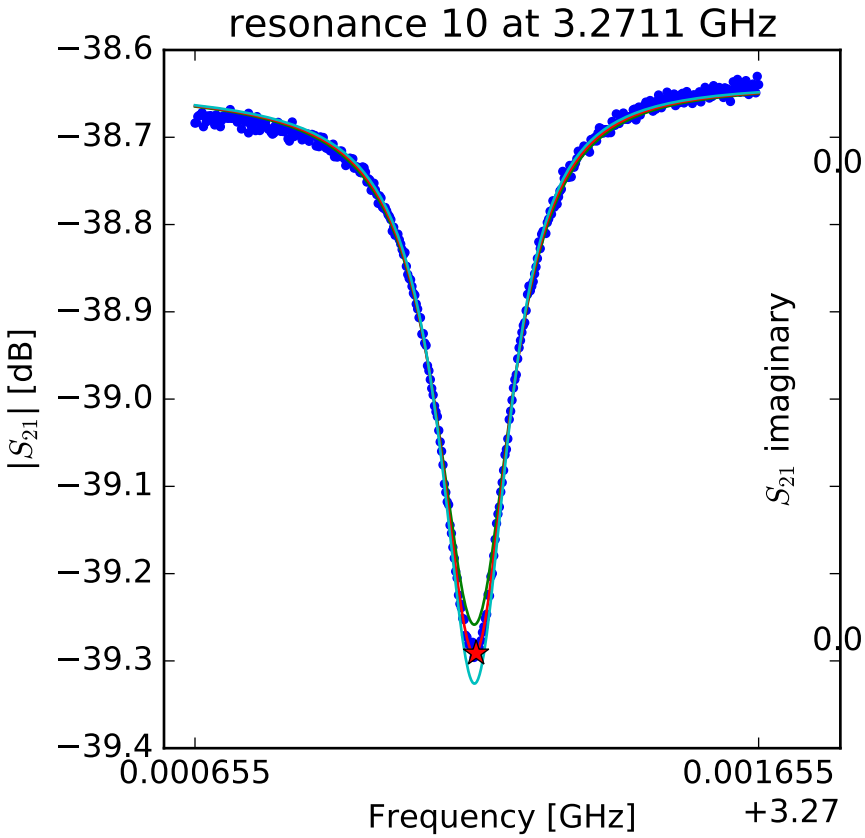


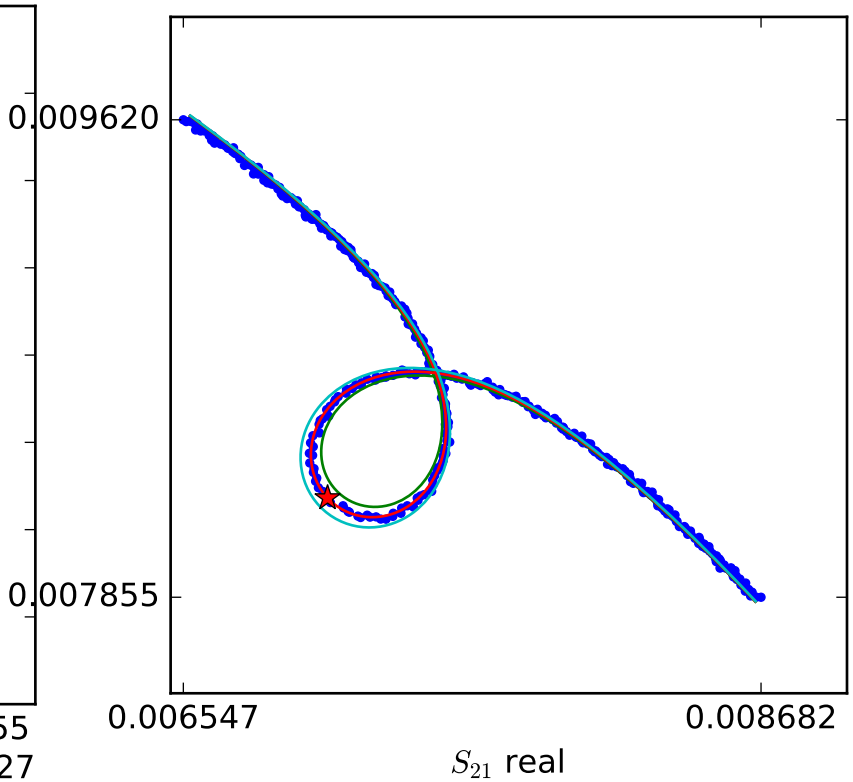


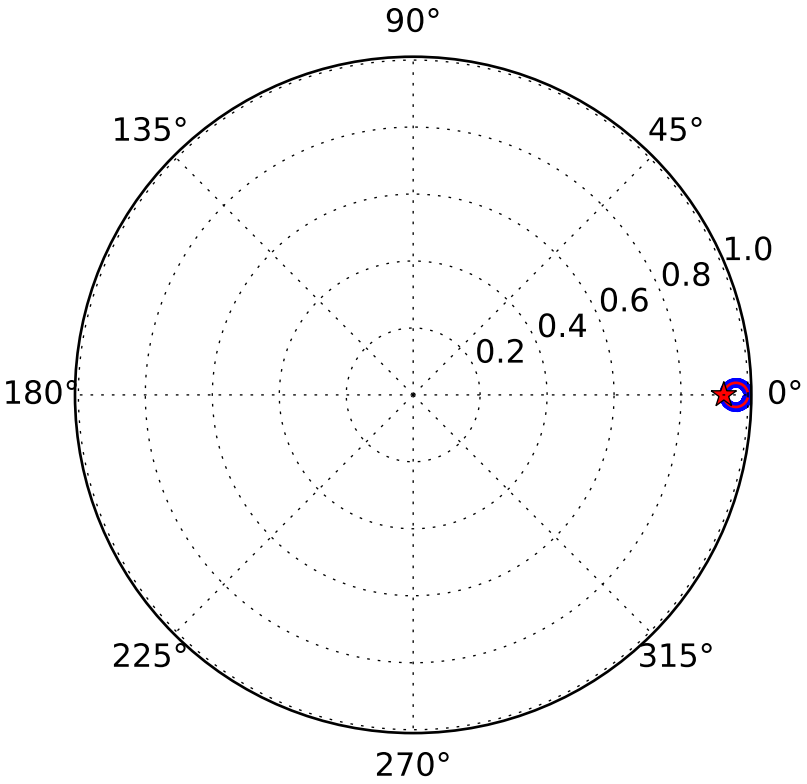


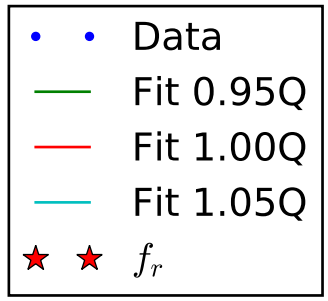
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.26662526411
Q_r = 30304.870674
Q_c = 550236.814609
a = (-0.00930038264502+0.00622792460208j)
ϕ_0 = -0.406420345213
τ = 40.1289507687



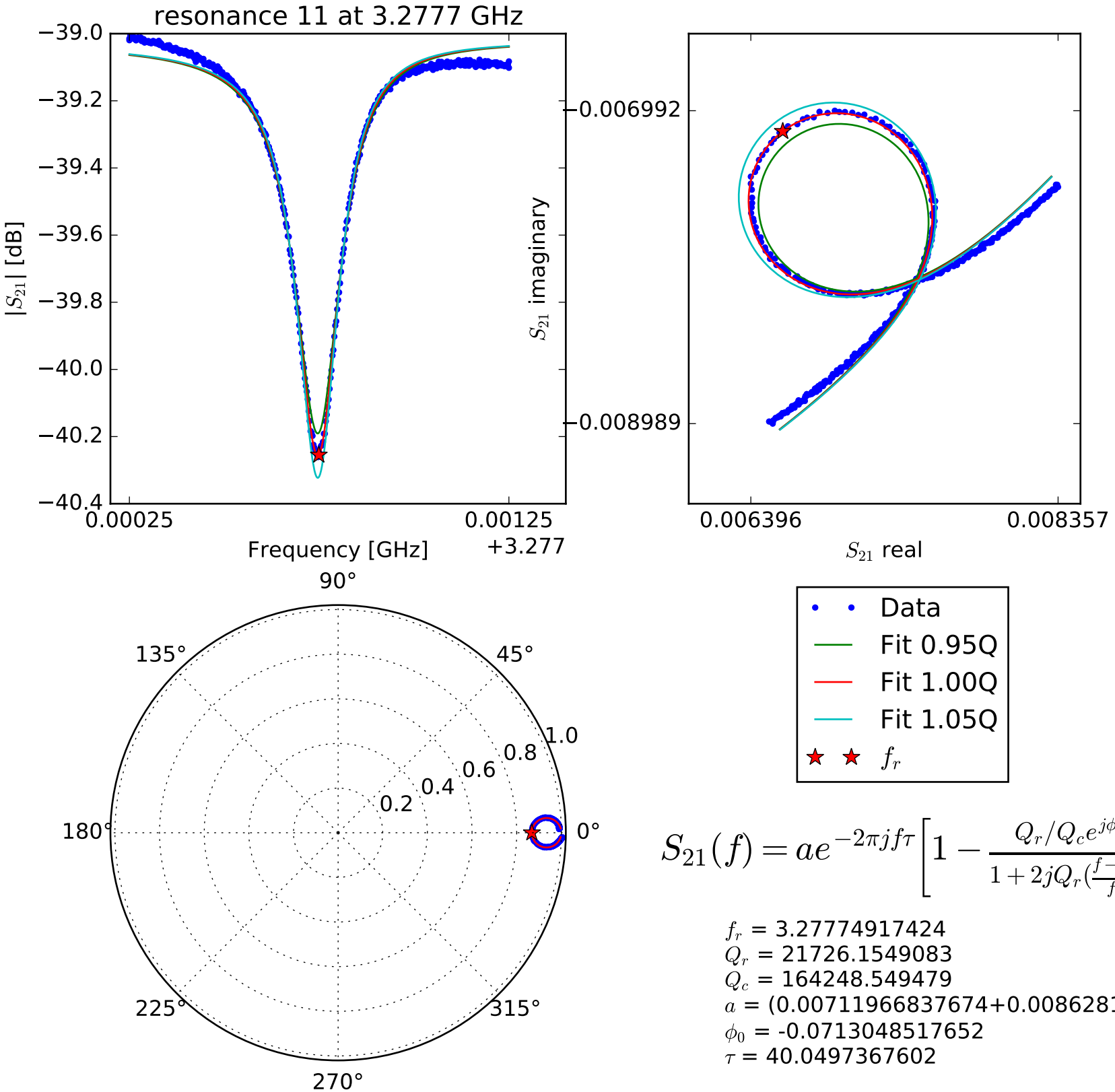






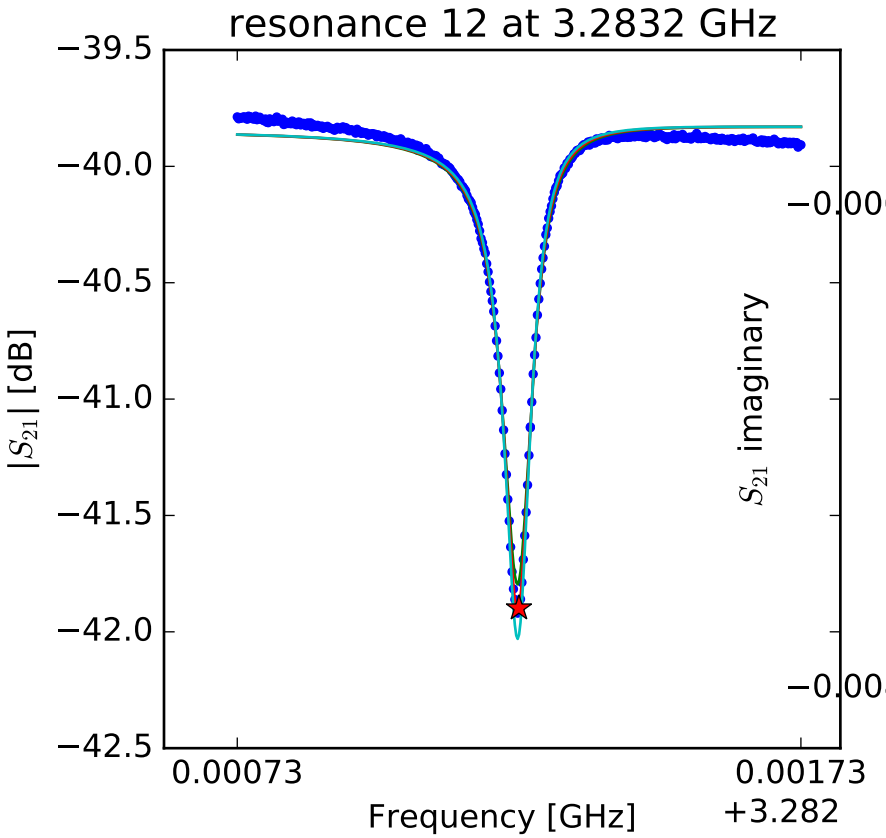
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

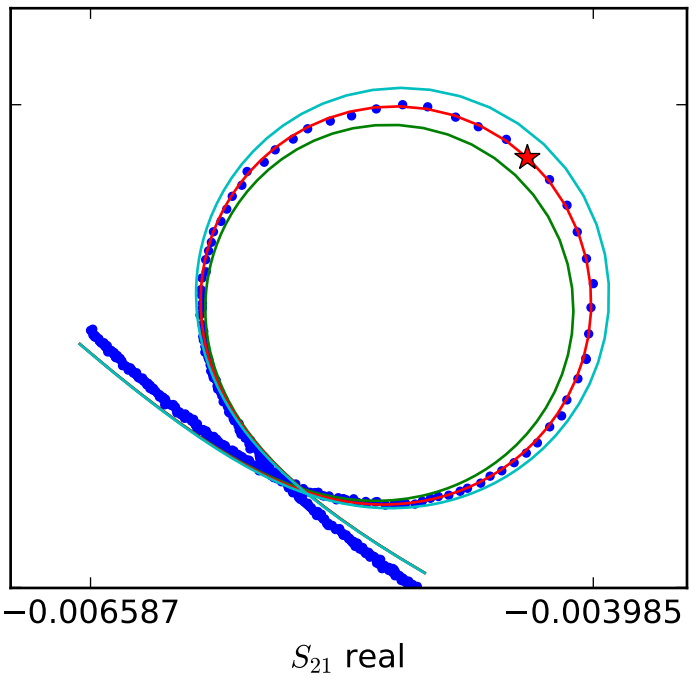
f_r = 3.2711537772
Q_r = 20387.1083469
Q_c = 281970.845908
a = (0.0107679124576+0.00455861724034j)
ϕ_0 = -0.0744149258145
τ = 41.2477720438

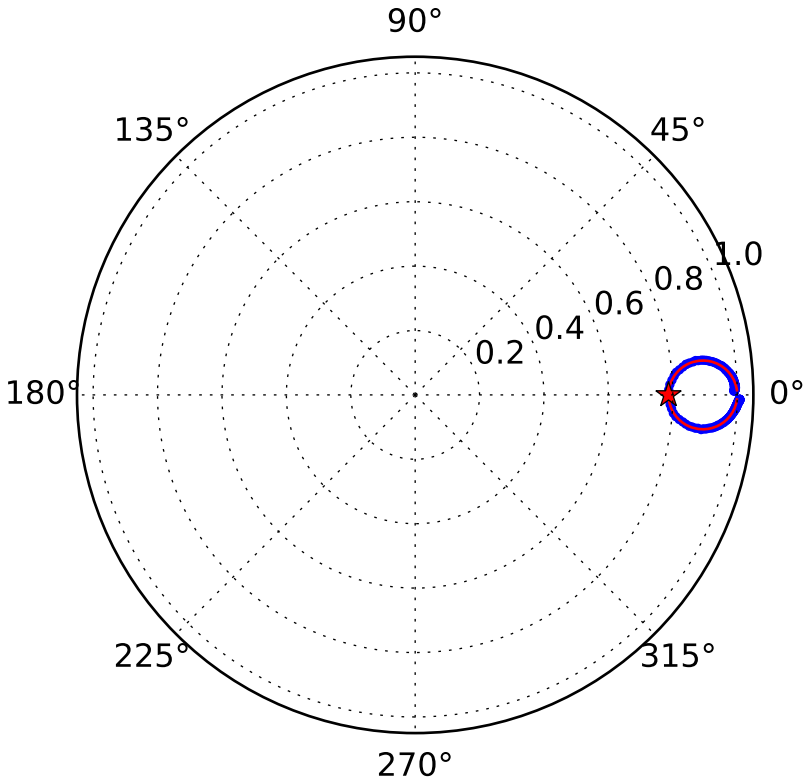


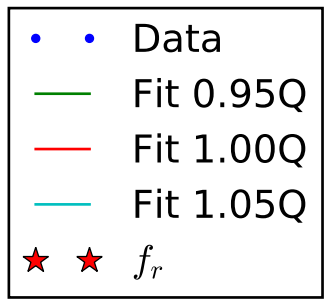
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.27774917424
Q_r = 21726.1549083
Q_c = 164248.549479
a = (0.00711966837674+0.00862810249533j)
ϕ_0 = -0.0713048517652
τ = 40.0497367602



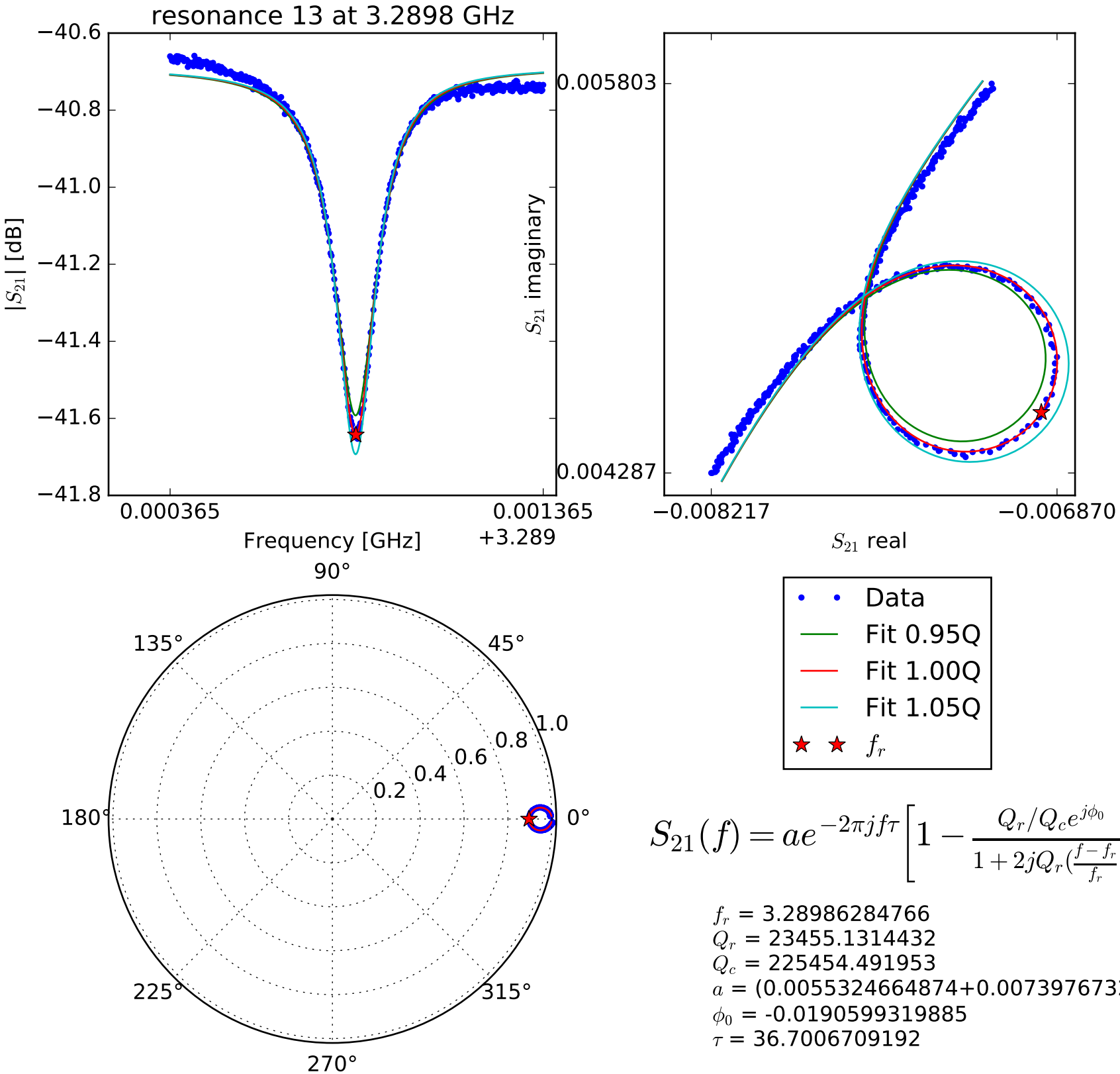






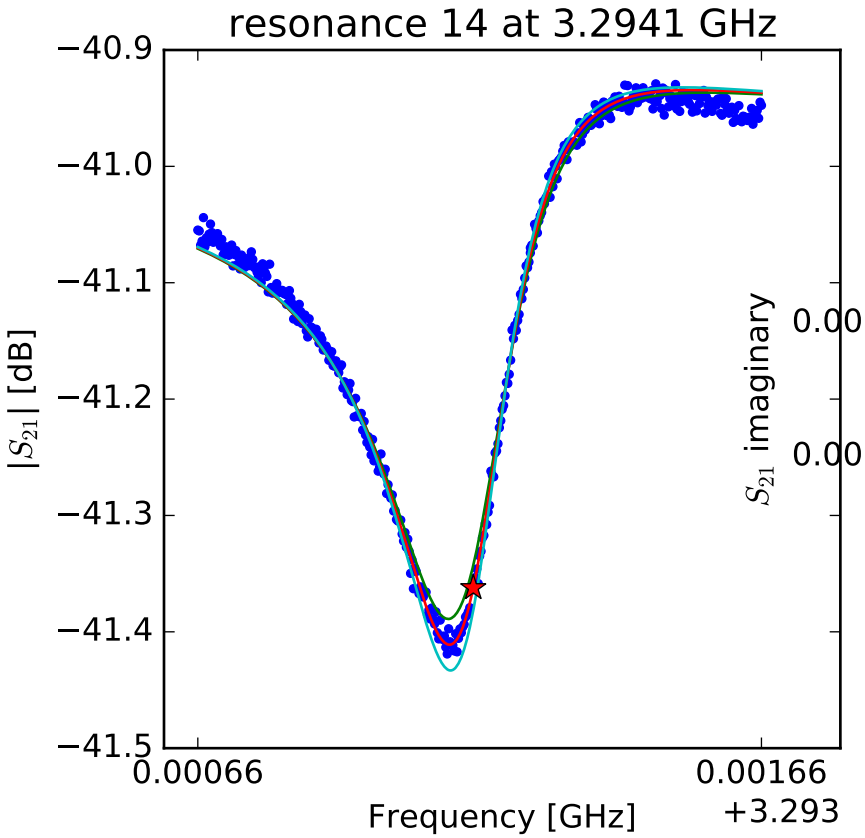
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

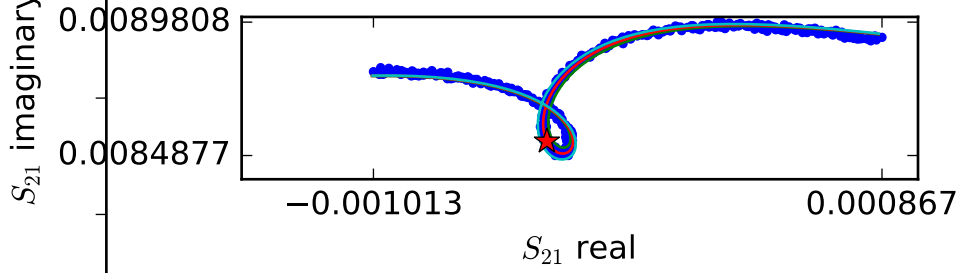
f_r = 3.28322976431
Q_r = 48019.8465961
Q_c = 225000.658956
a = (0.00476006708966-0.00900654203408j)
ϕ_0 = -0.132053182697
τ = 38.1251142517

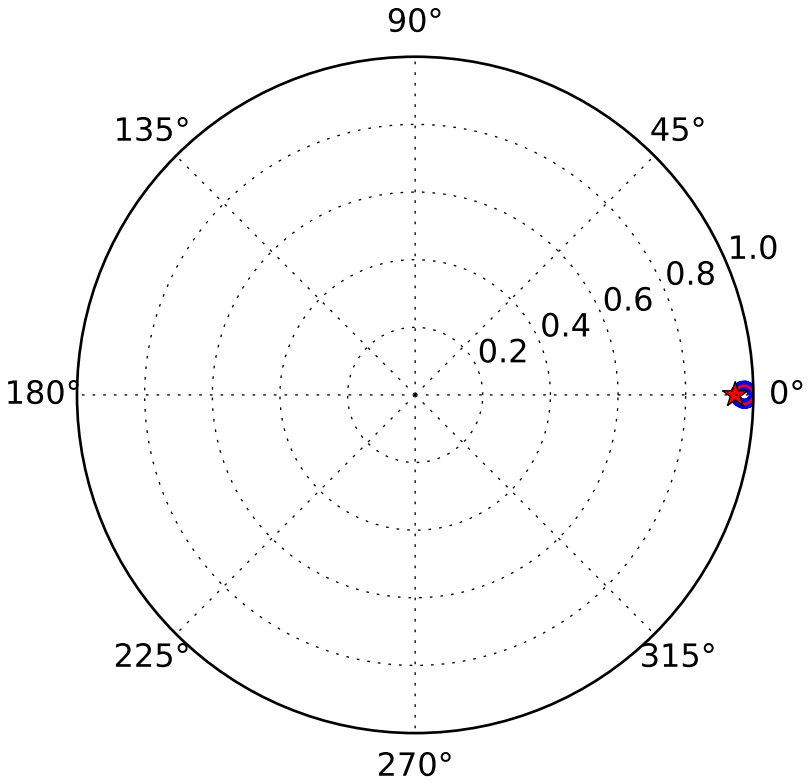


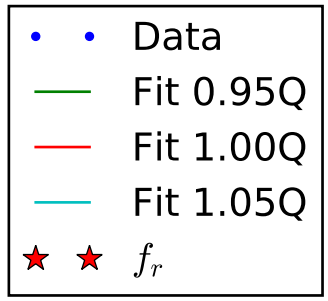
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.28986284766
Q_r = 23455.1314432
Q_c = 225454.491953
a = (0.0055324664874+0.00739767320212j)
ϕ_0 = -0.0190599319885
τ = 36.7006709192



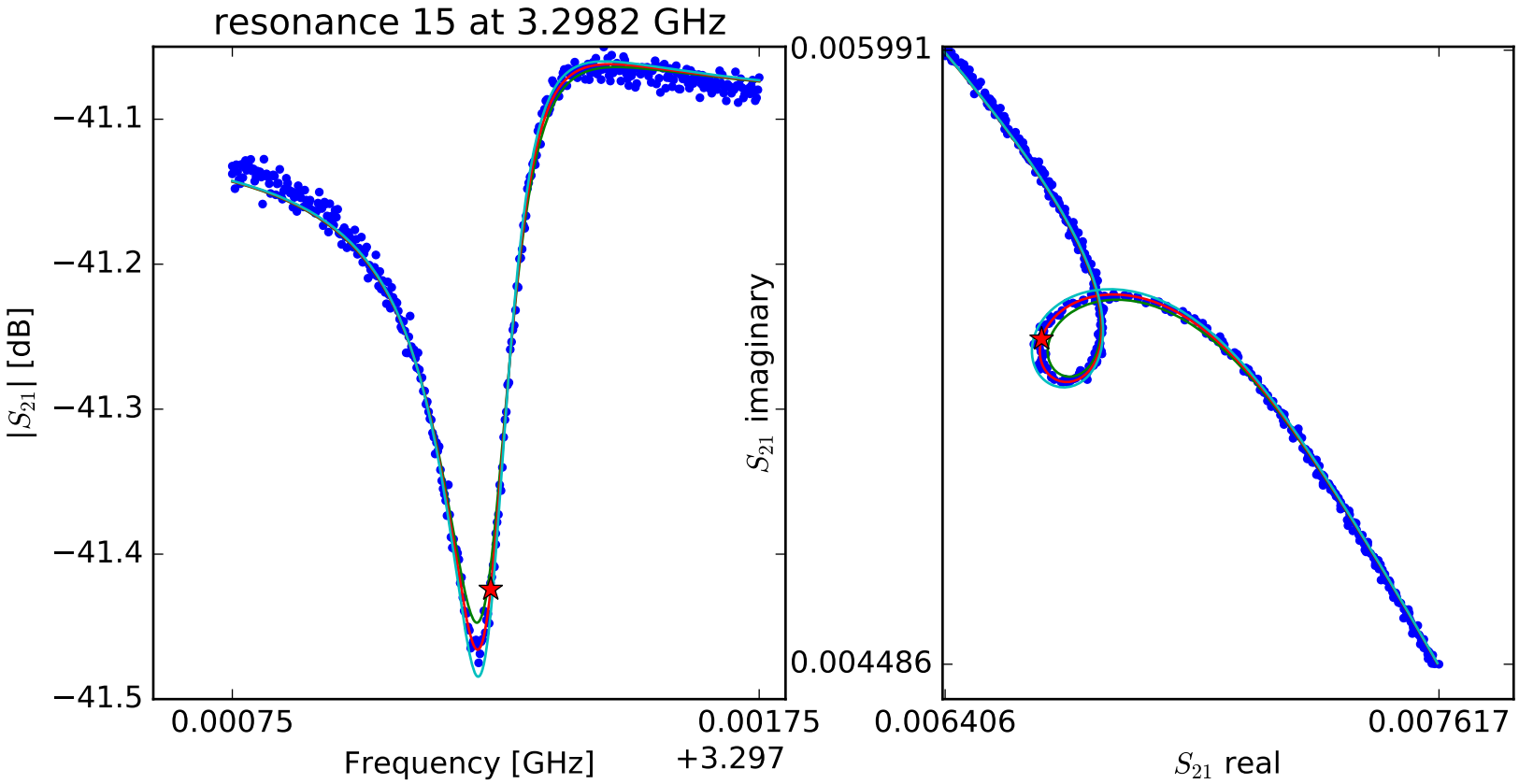


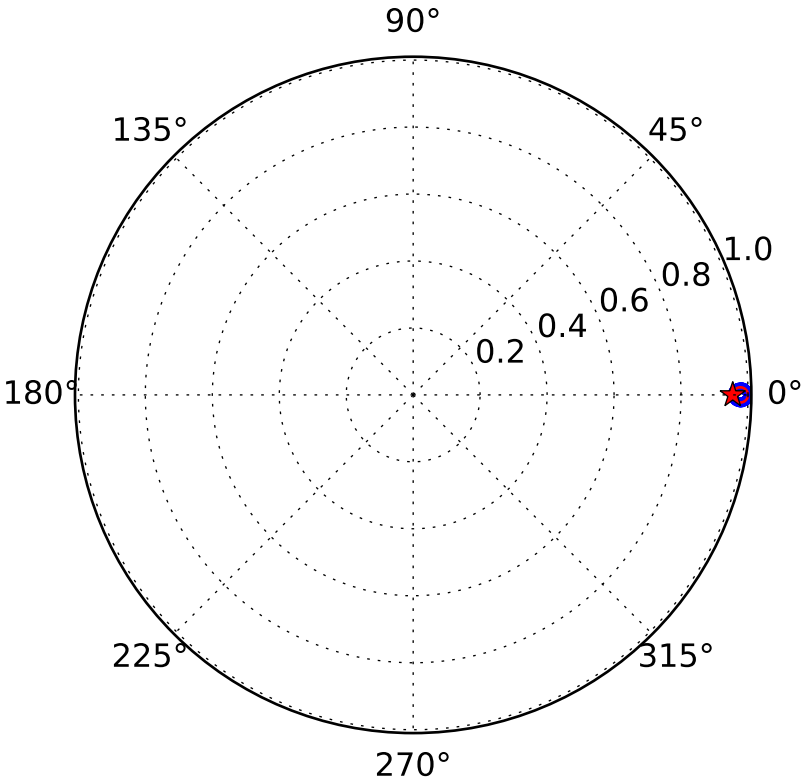


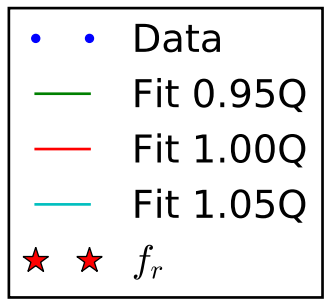


$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.29414874649
Q_r = 12802.8545893
Q_c = 238505.343624
a = (-0.00384398638971-0.00806526946338j)
ϕ_0 = -0.619336119989
τ = 36.8615641987

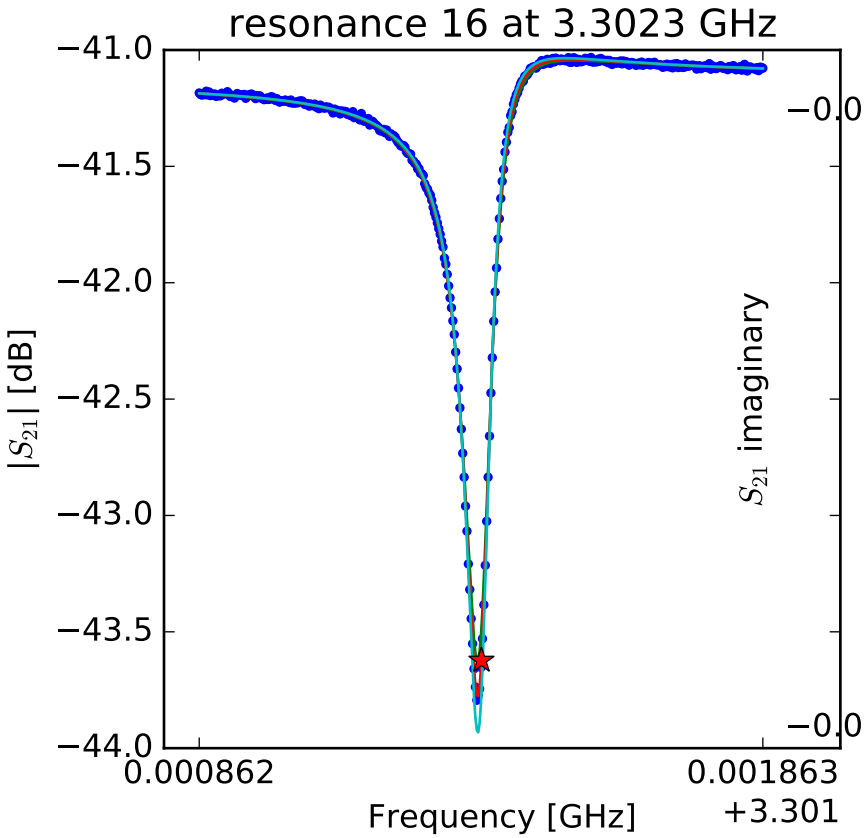


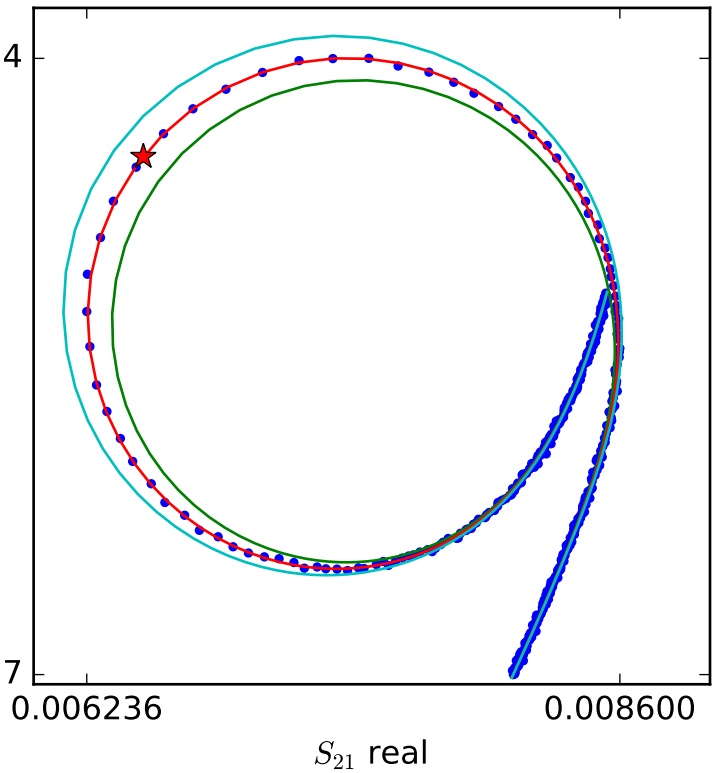


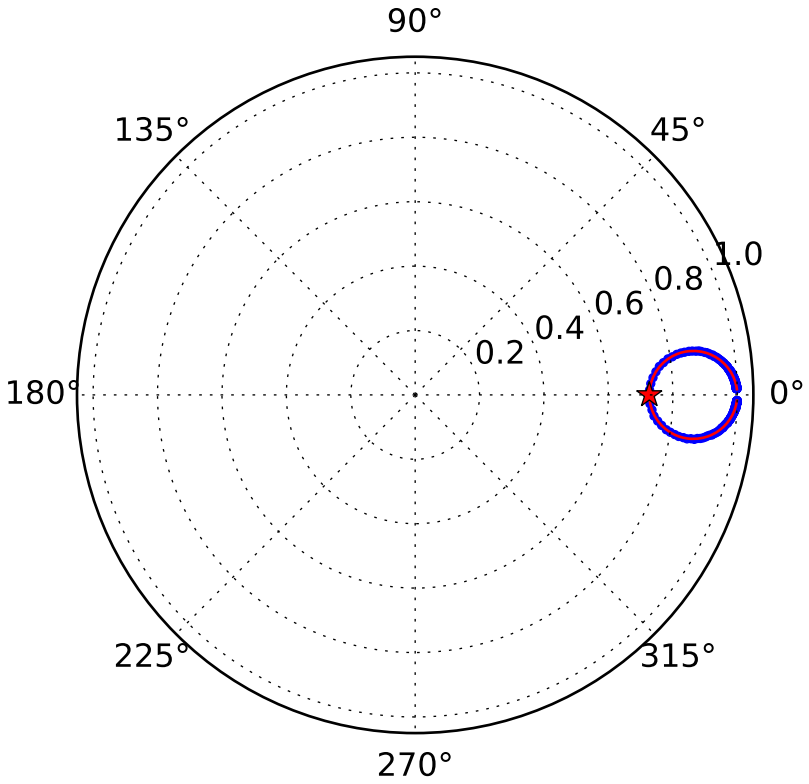


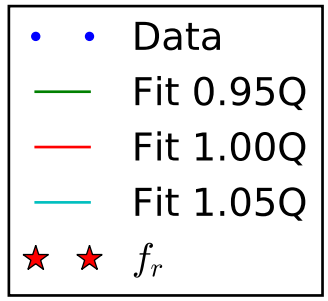
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.29824046244
Q_r = 21879.0624905
Q_c = 479402.207224
a = (0.00845576661417-0.00247320010965j)
ϕ_0 = -0.627059174137
τ = 36.6414160892



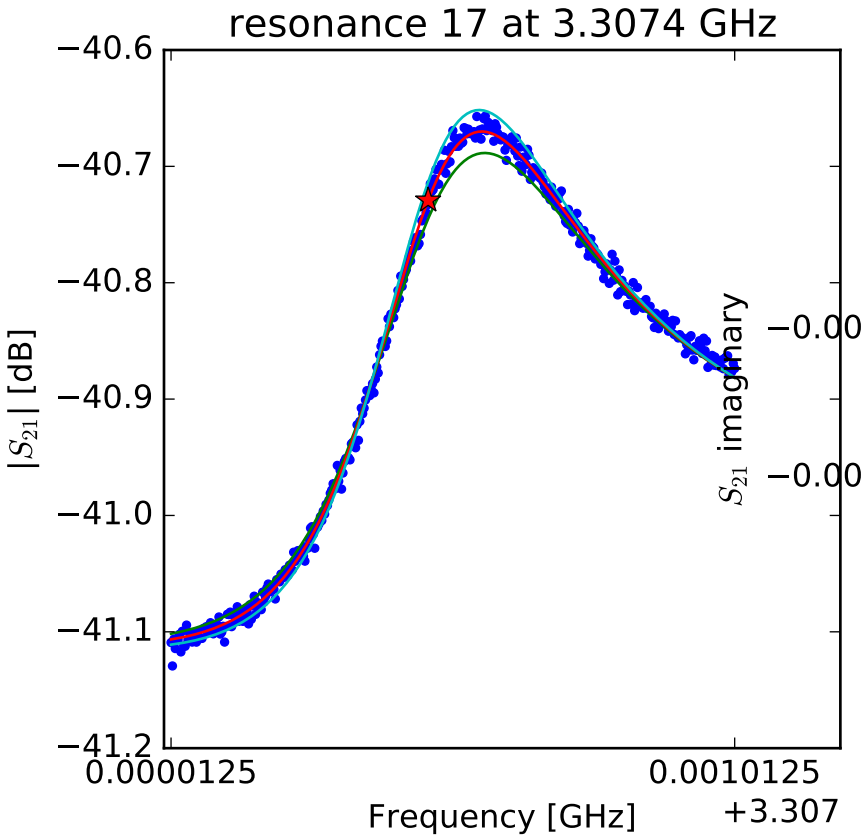


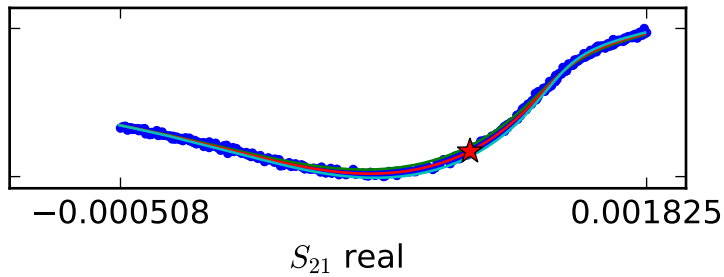


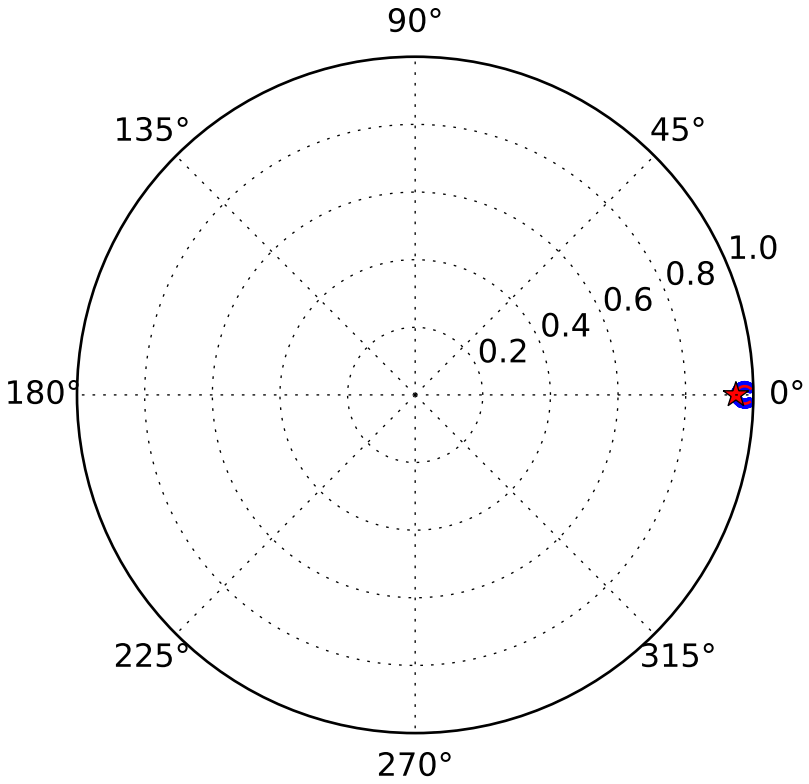


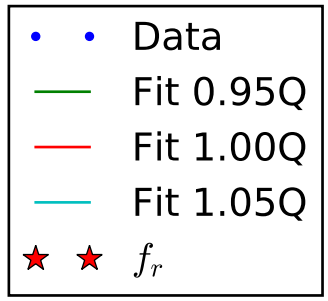
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.30236322481
Q_r = 50841.4703347
Q_c = 186165.637744
a = (0.00460650217071-0.00748059800579j)
ϕ_0 = -0.355841730639
τ = 37.2116057383



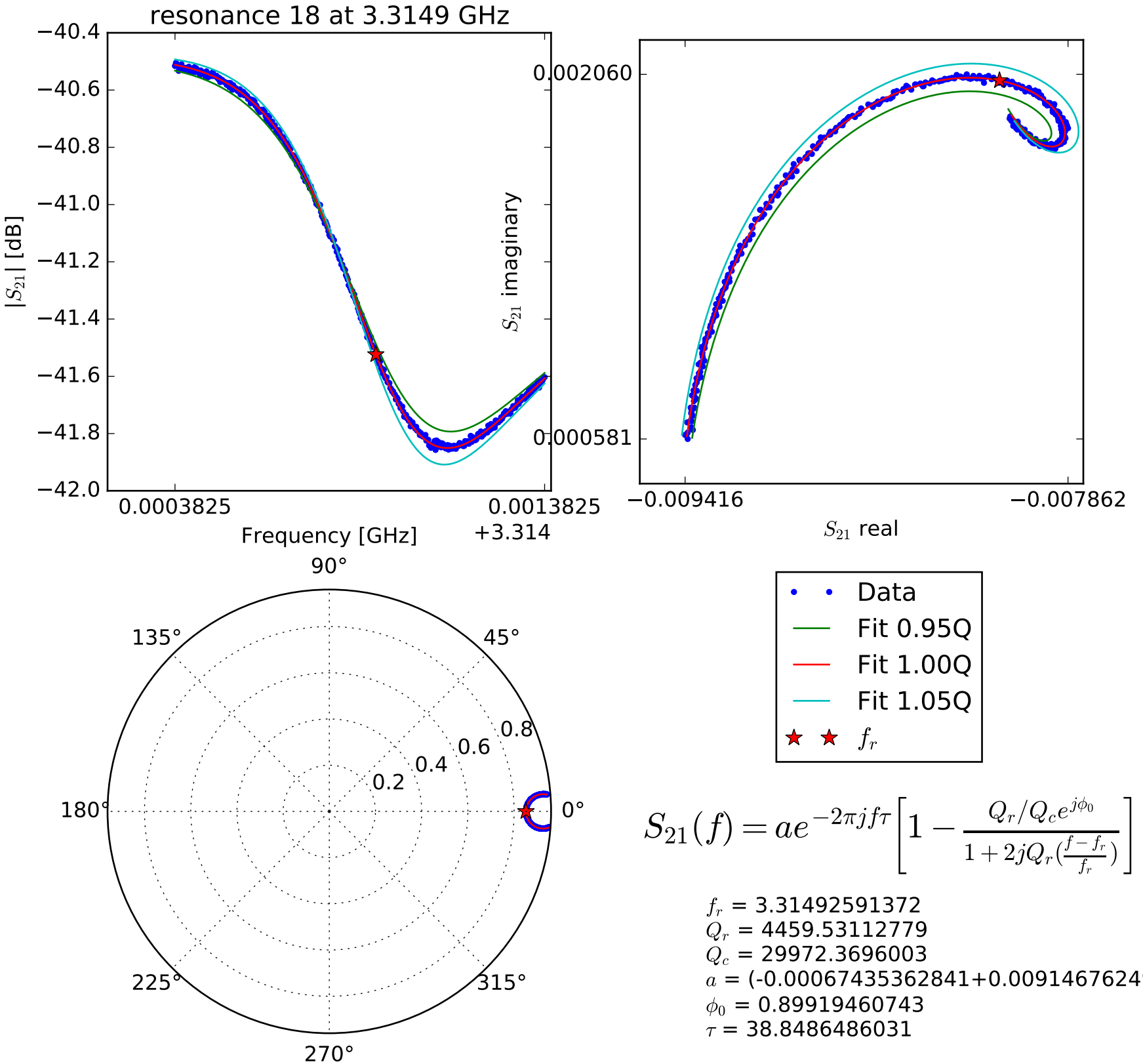






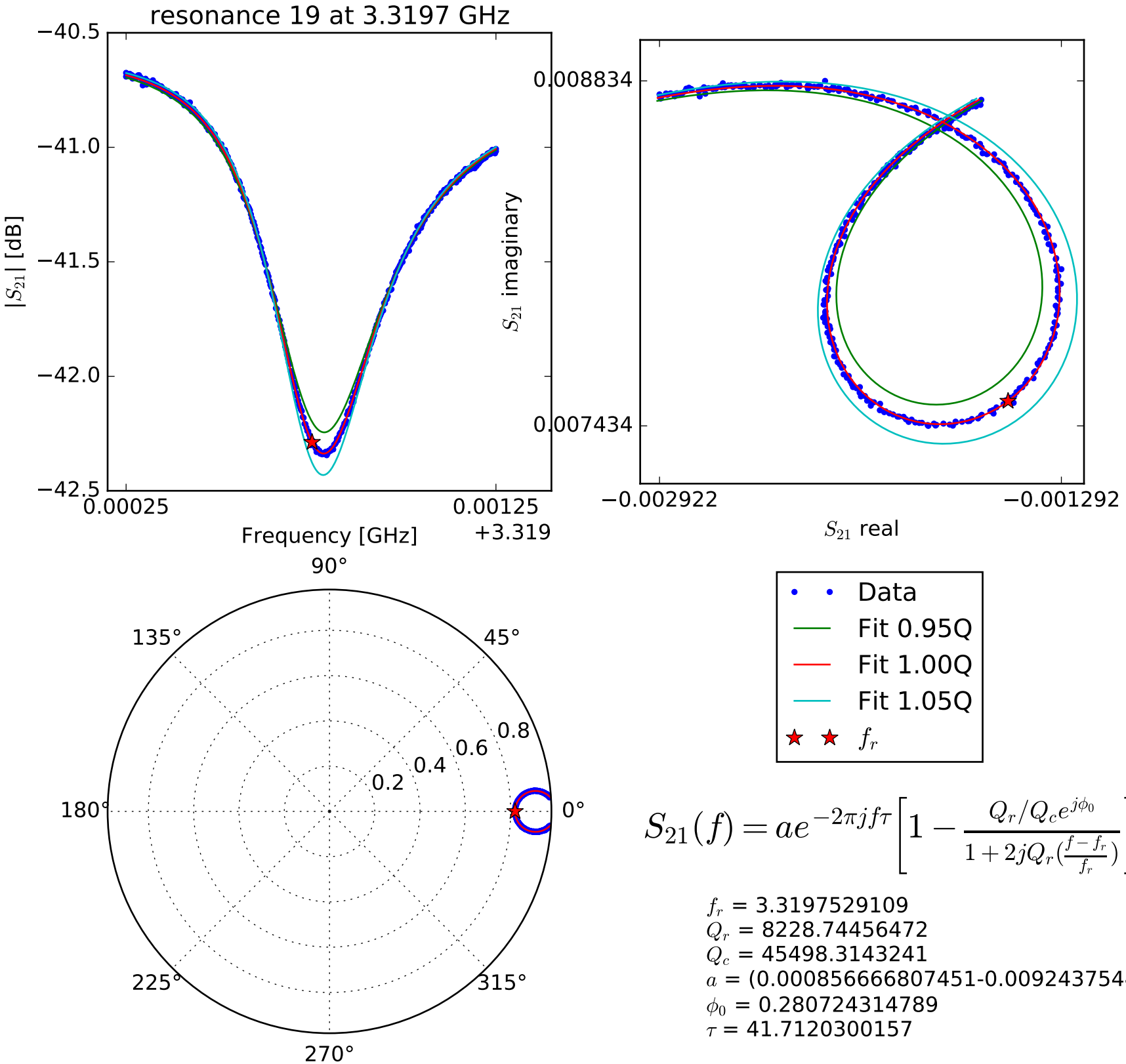
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.30746868541
Q_r = 7018.64599436
Q_c = 135924.608963
a = (0.00659092079954+0.00592919885164j)
ϕ_0 = -2.35625054833
τ = 37.2956297881



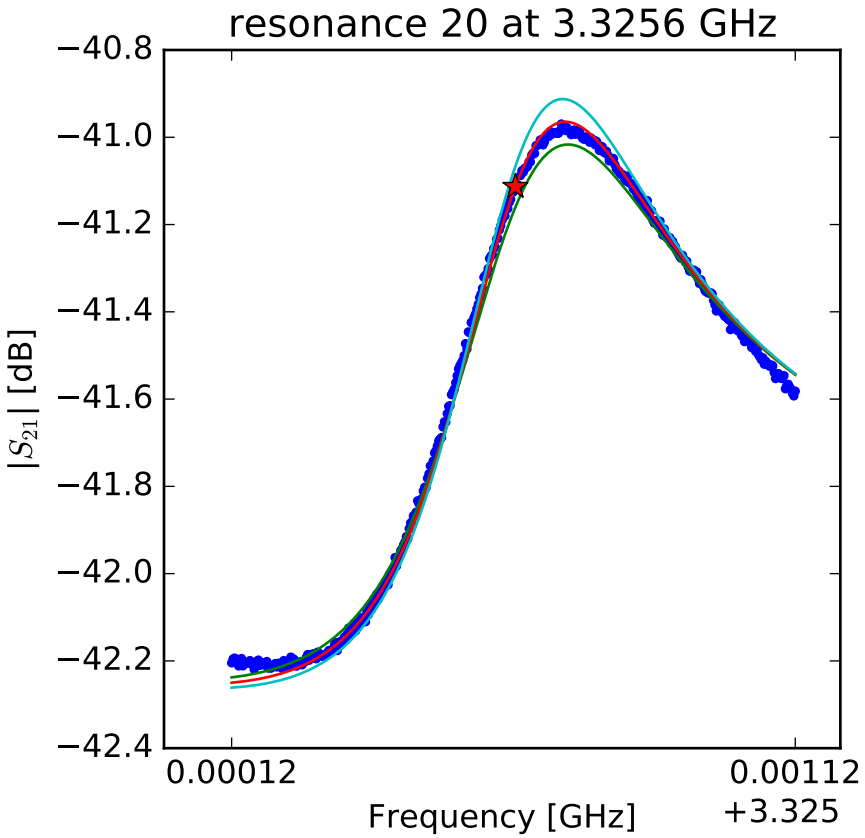
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

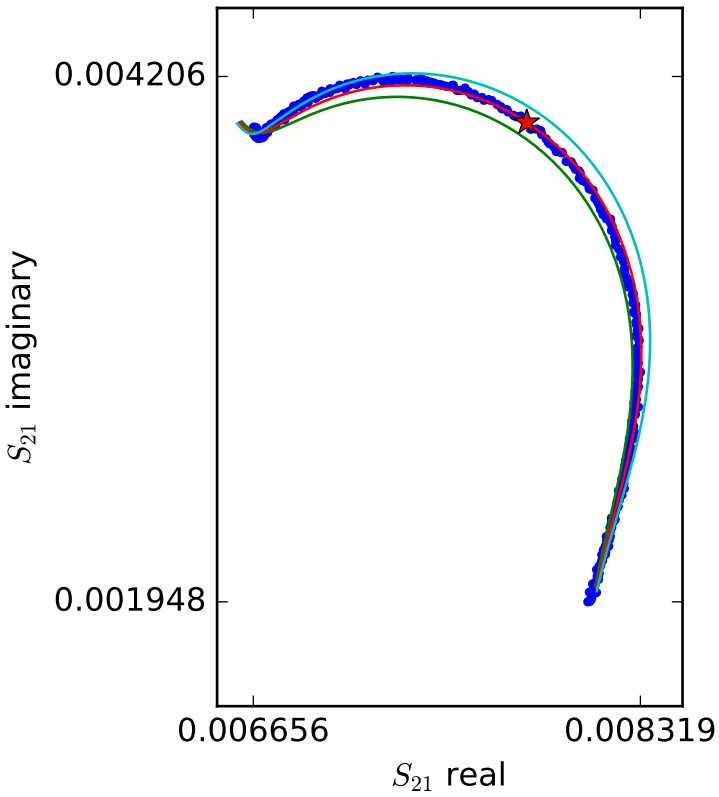
f_r = 3.31492591372
Q_r = 4459.53112779
Q_c = 29972.3696003
a = (-0.000674353628 41+0.00914676249905j)
ϕ_0 = 0.89919460743
τ = 38.8486486031

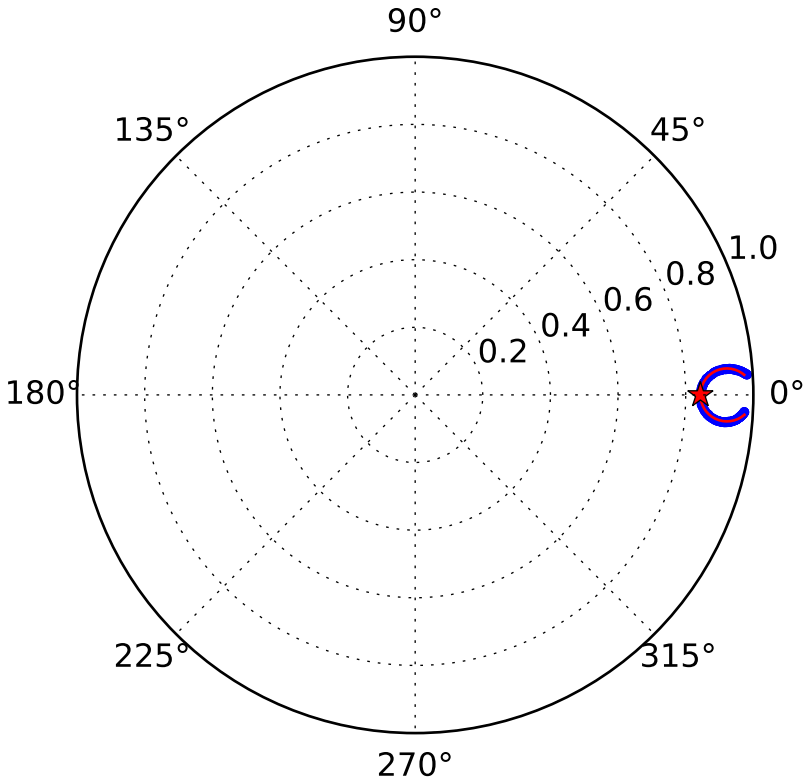


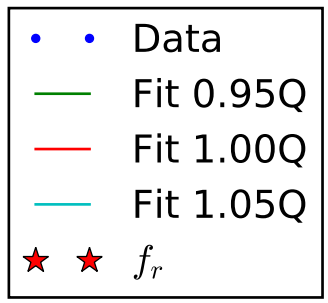
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.3197529109
Q_r = 8228.74456472
Q_c = 45498.3143241
a = (0.000856666807451-0.00924375441404j)
ϕ_0 = 0.280724314789
τ = 41.7120300157



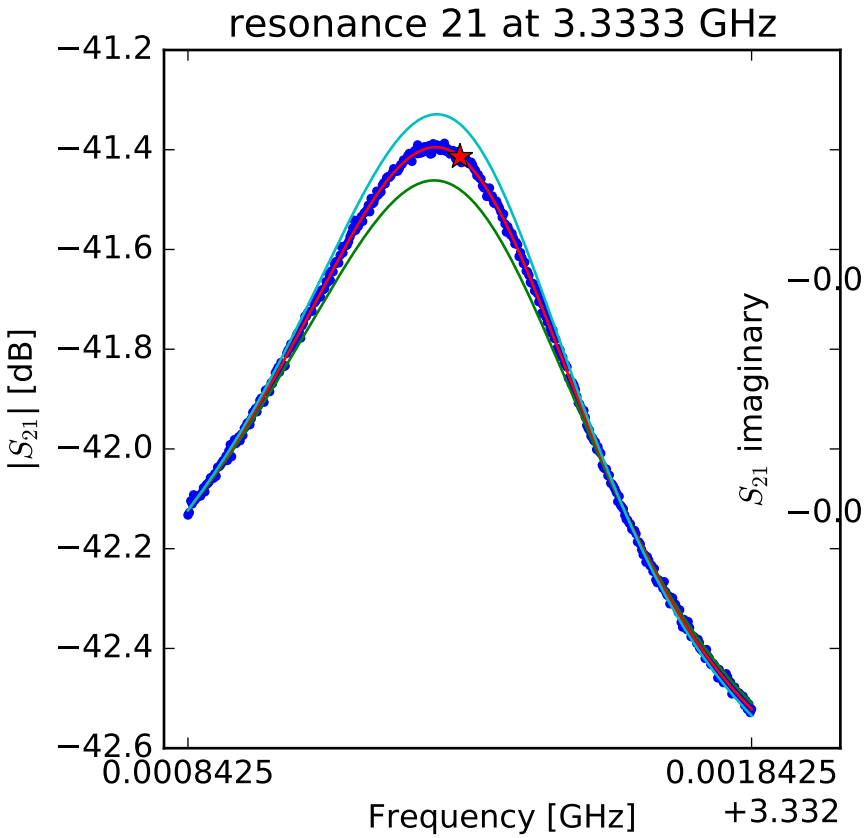


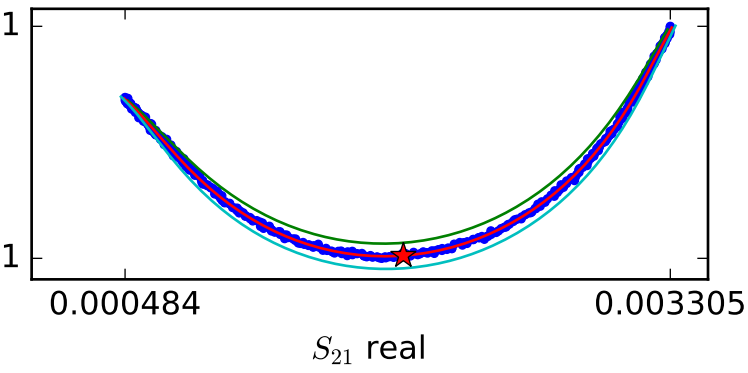


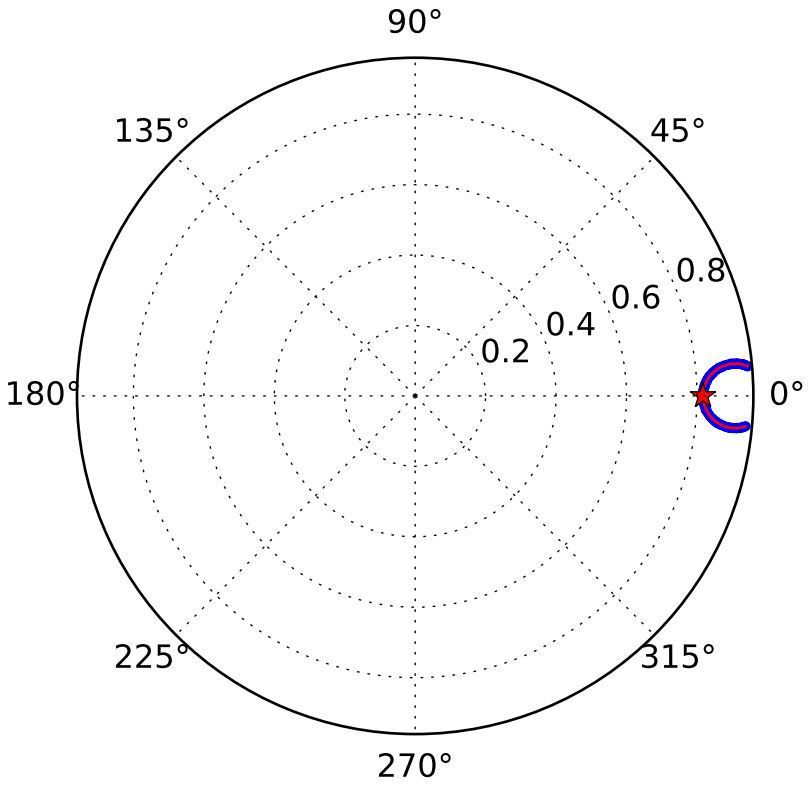


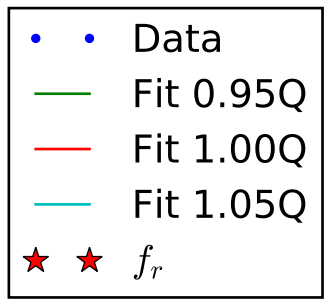
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.32562346225
Q_r = 7309.7461518
Q_c = 46675.0323239
a = (-0.00772319796271+0.0015988364963j)
ϕ_0 = -2.34783662723
τ = 35.3041059785



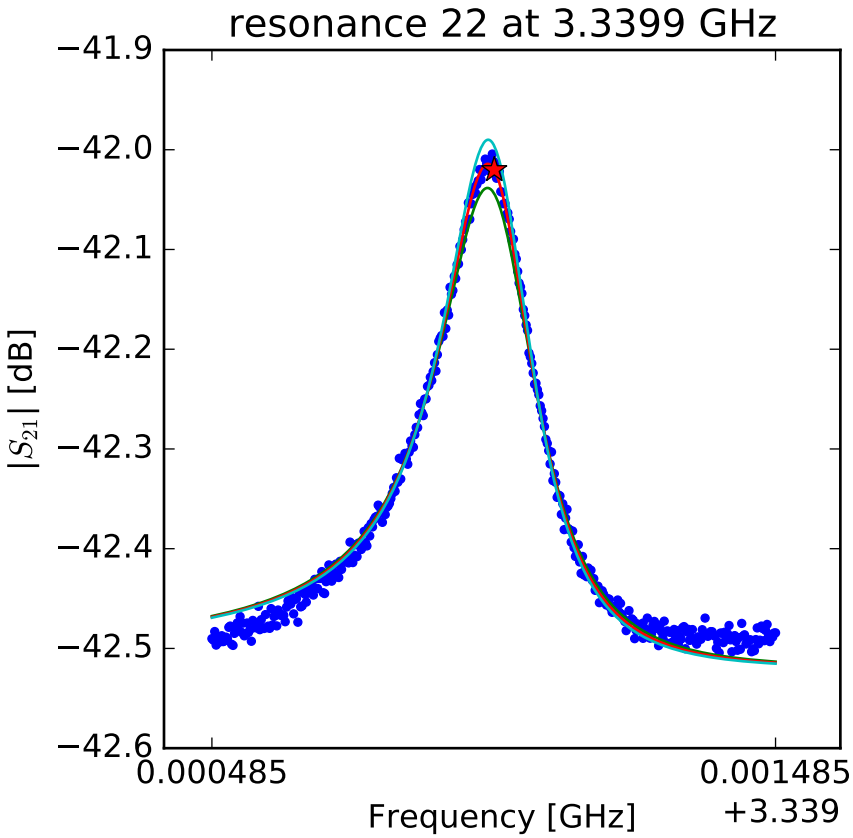


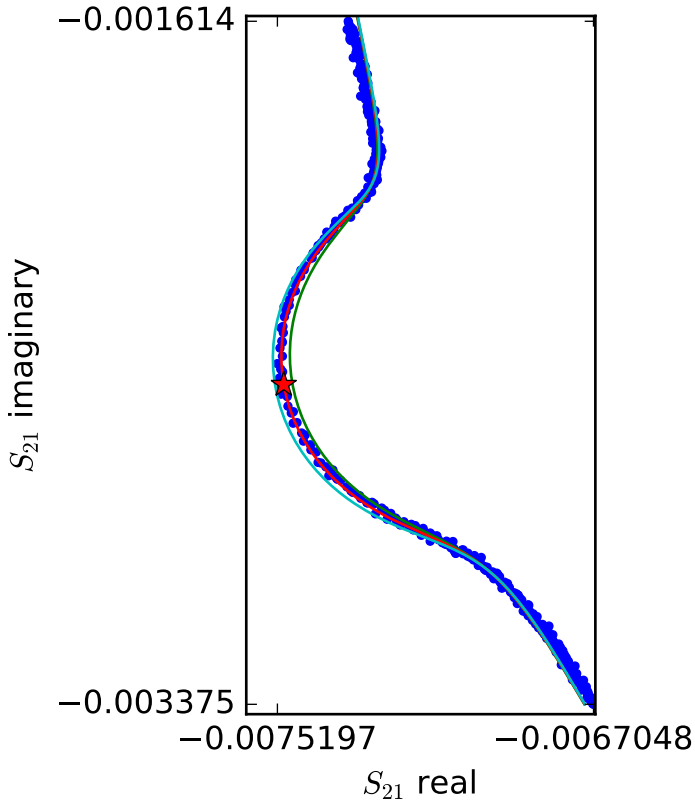


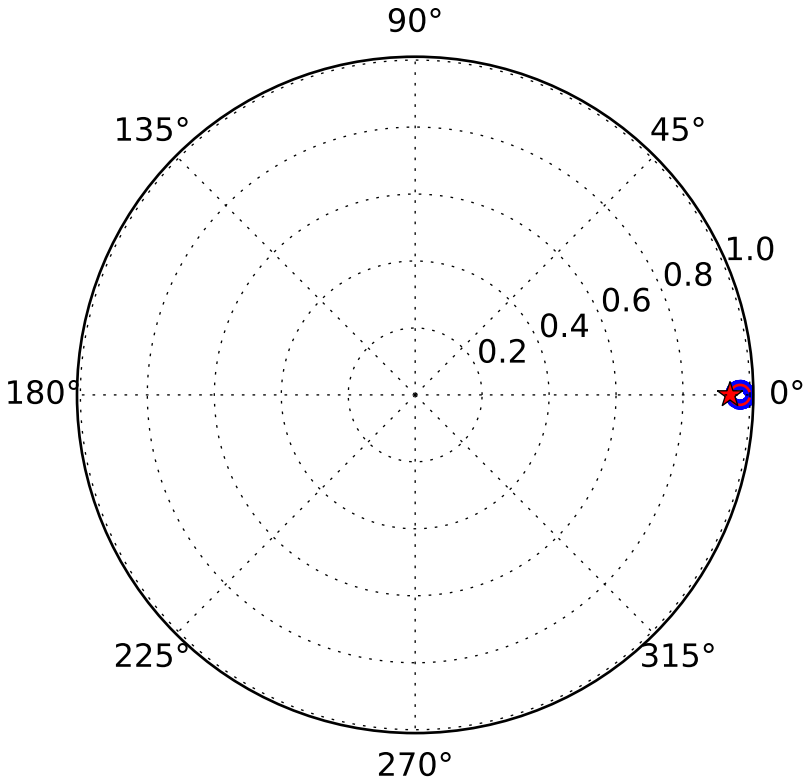


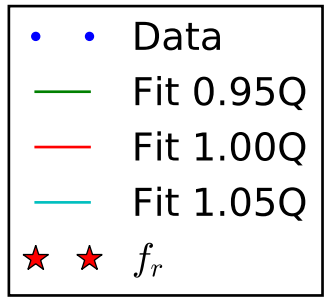
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.33332510409
Q_r = 4818.17543234
Q_c = 26329.8595995
a = (0.00182282258135+0.00698377942445j)
ϕ_0 = 2.87041868156
τ = 34.6250034117



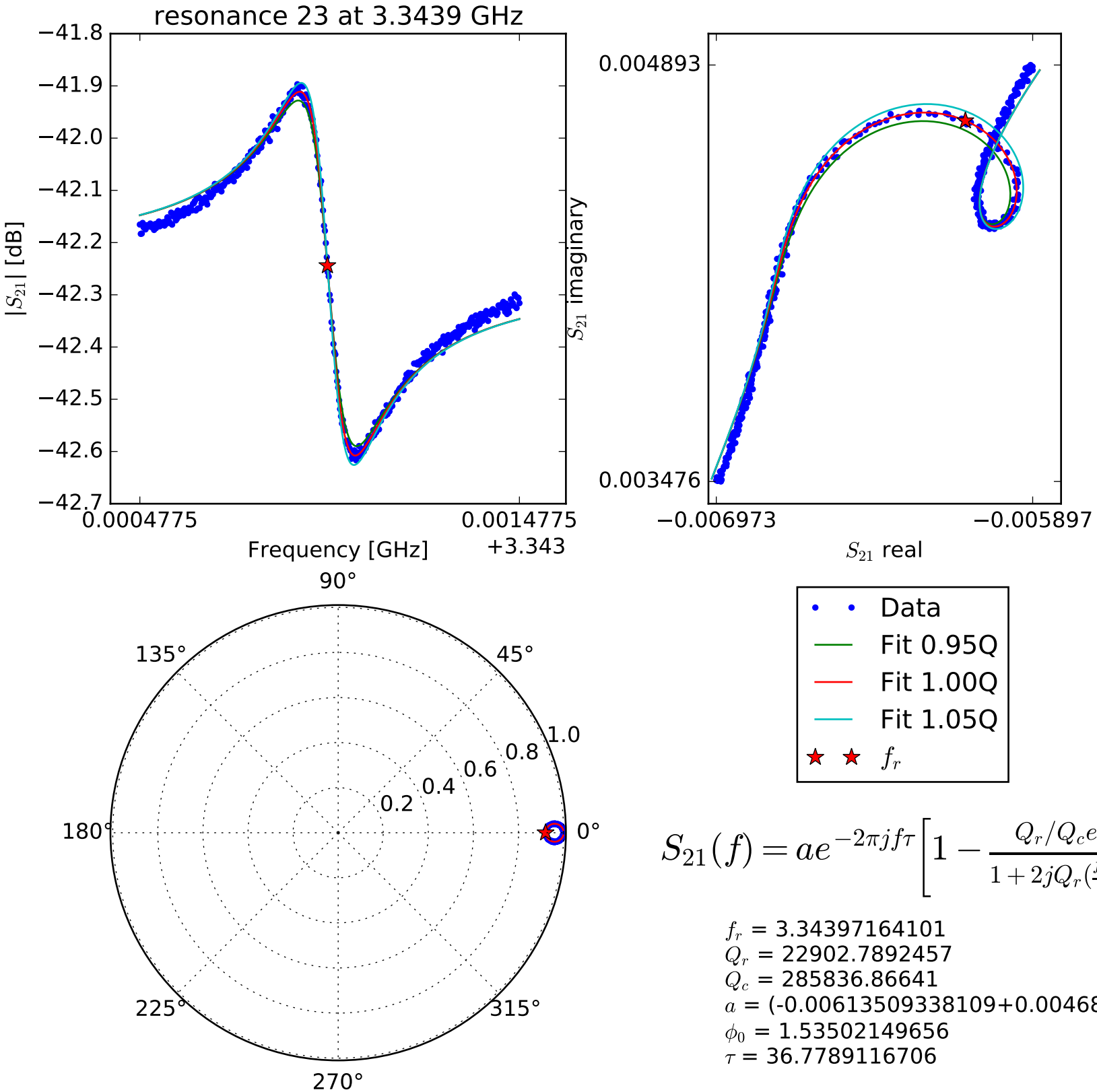






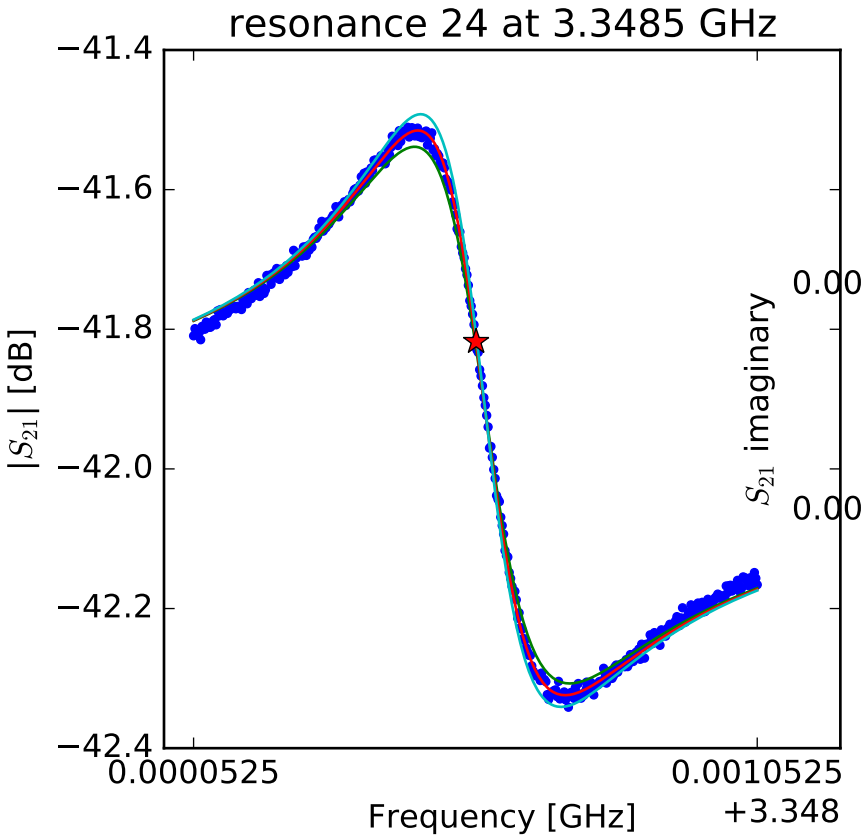
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

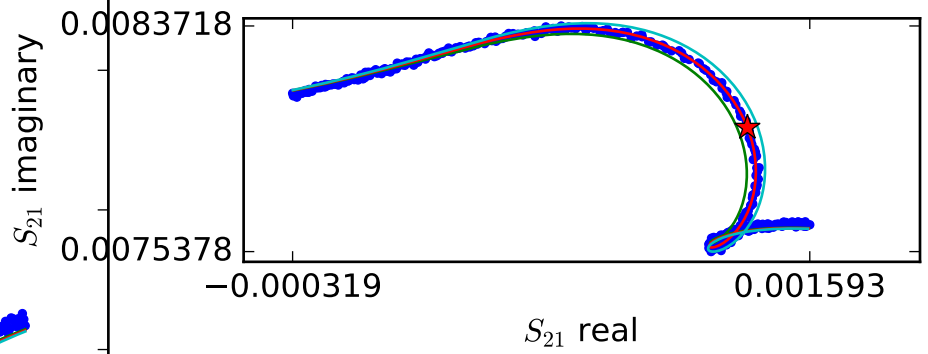
f_r = 3.33998599673
Q_r = 16588.274564
Q_c = 277792.339964
a = (0.00460326973573+0.00590725706801j)
ϕ_0 = 2.90906800637
τ = 36.105071289

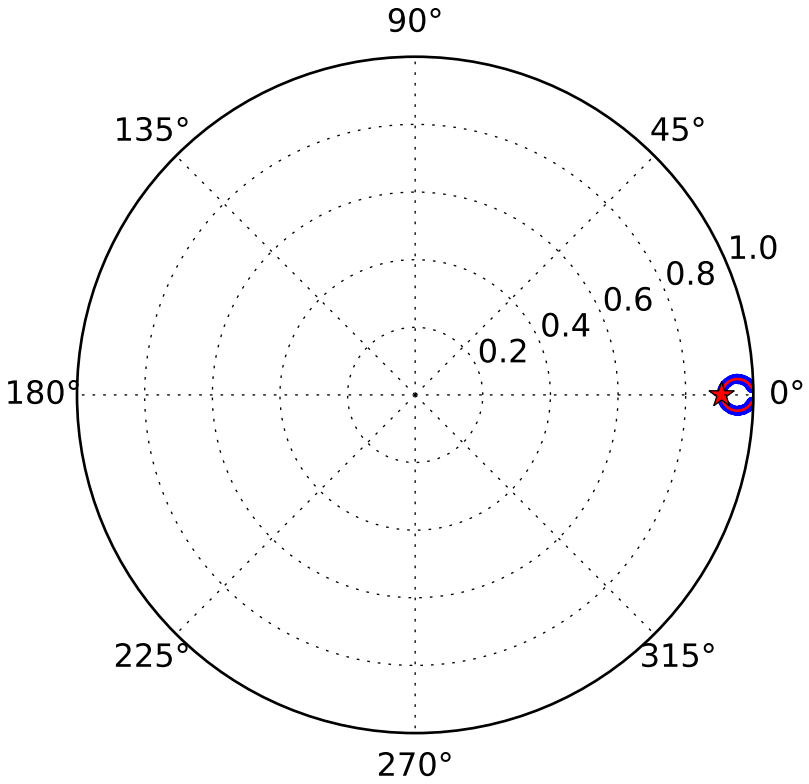


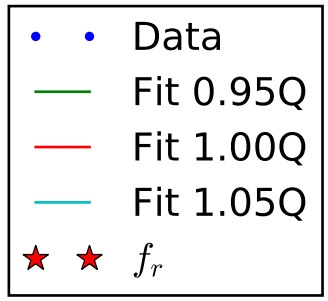
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.34397164101
Q_r = 22902.7892457
Q_c = 285836.86641
a = (-0.00613509338109+0.0046869754101j)
ϕ_0 = 1.53502149656
τ = 36.7789116706



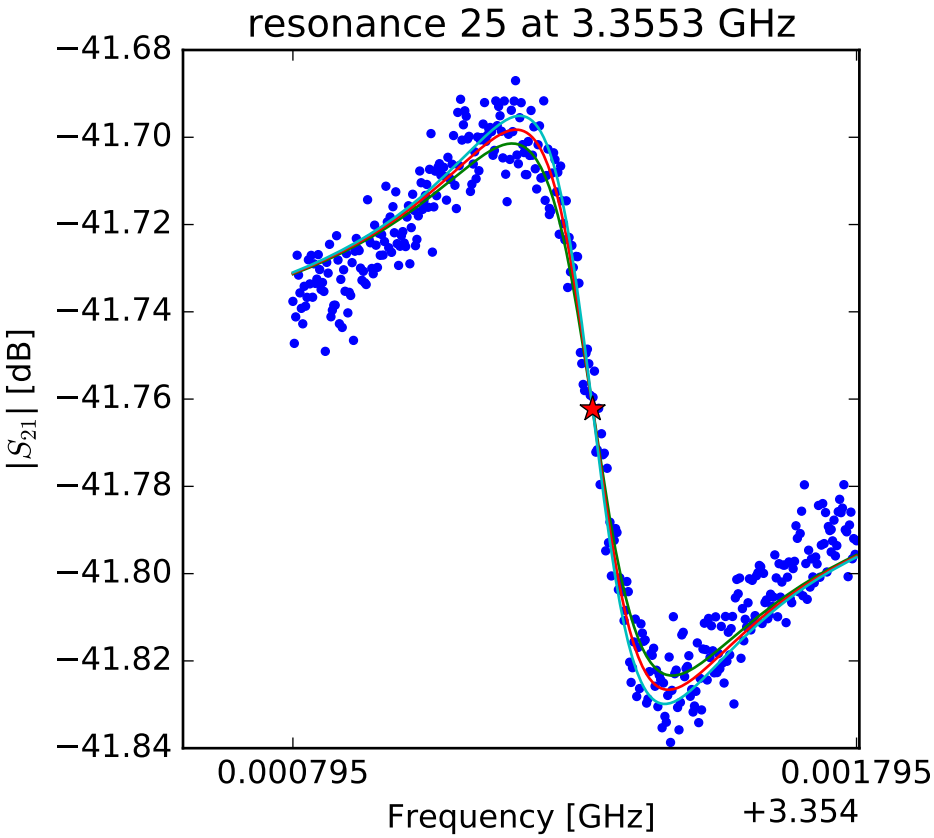


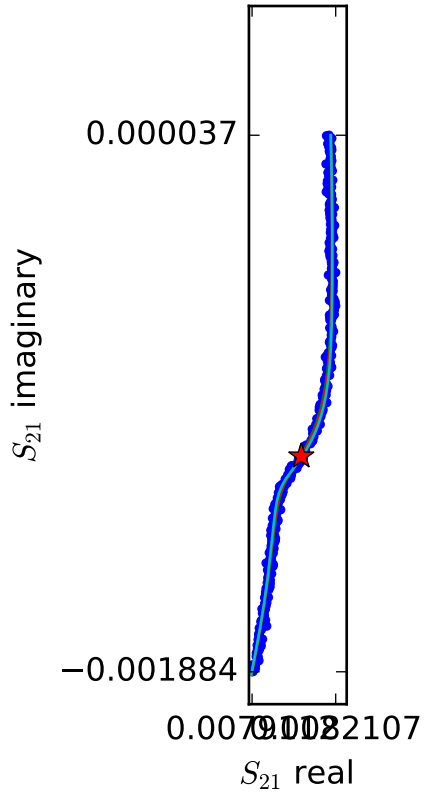


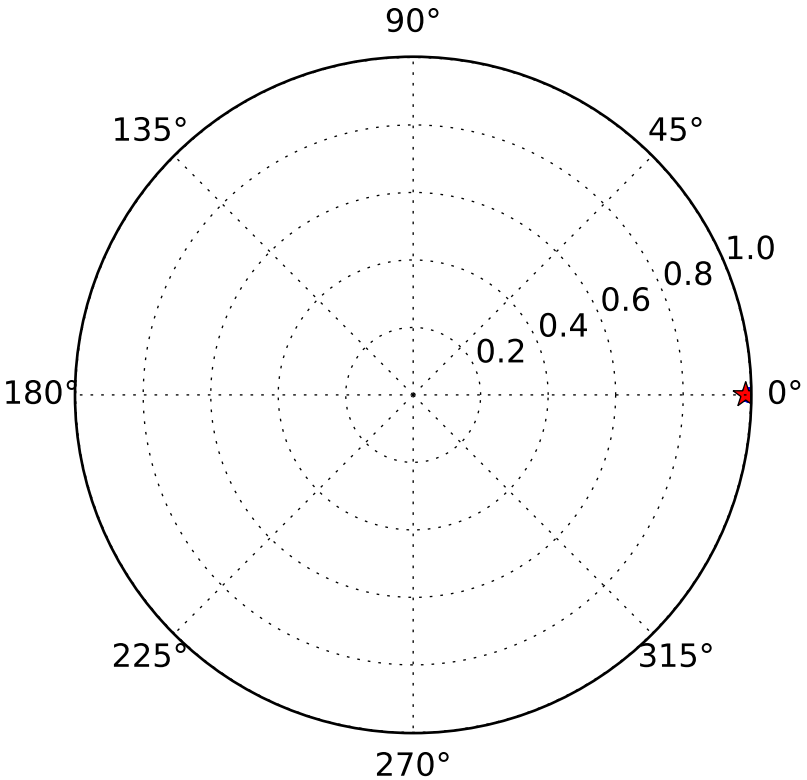


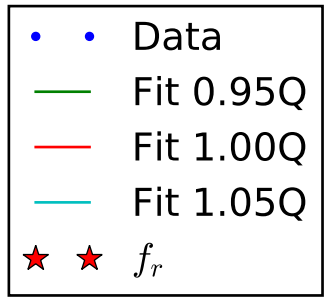
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.34855376862
Q_r = 13089.4852991
Q_c = 139446.190259
a = (-0.00278861350433+0.00745173376792j)
ϕ_0 = 1.73455472206
τ = 37.6488999808



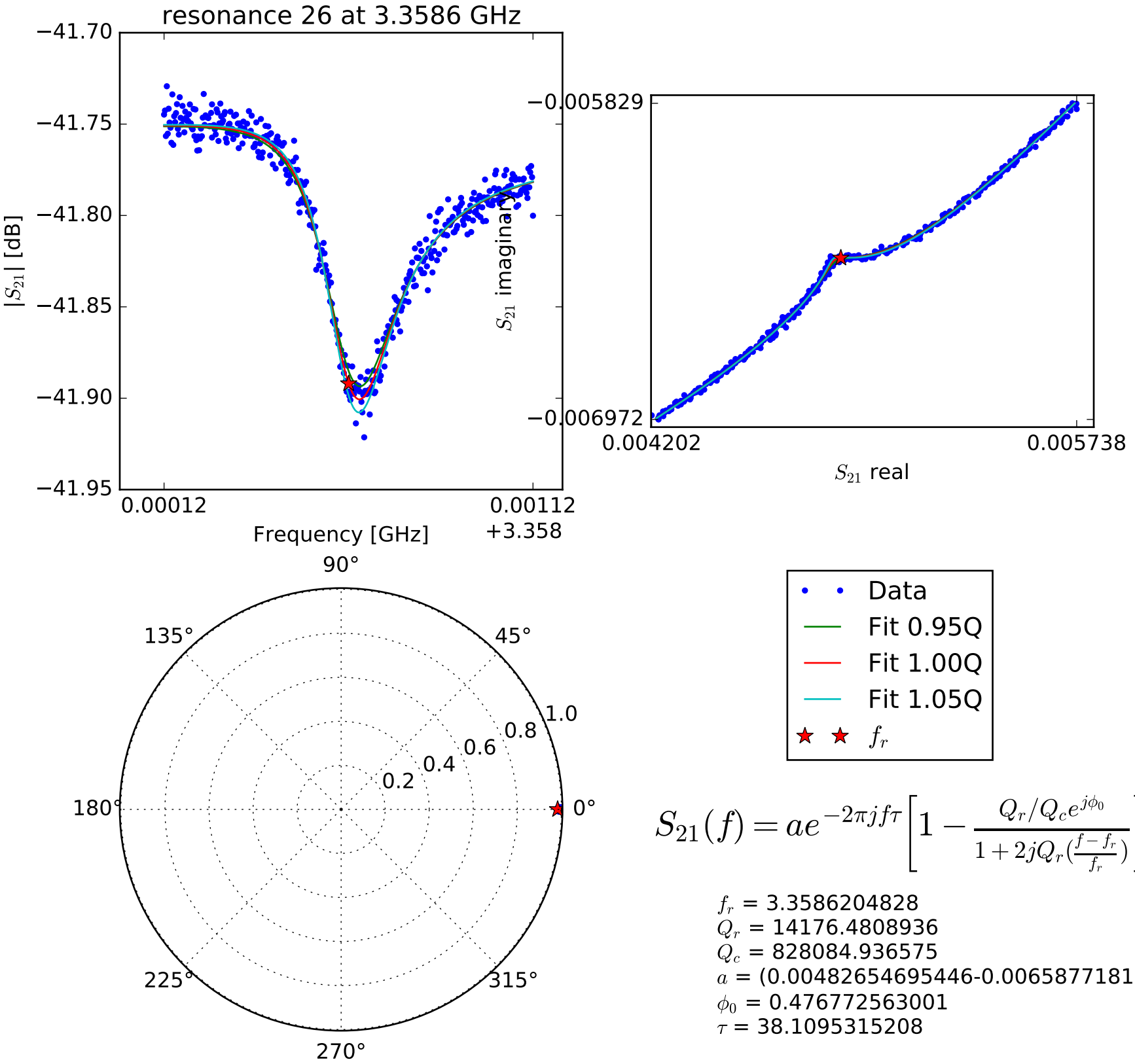






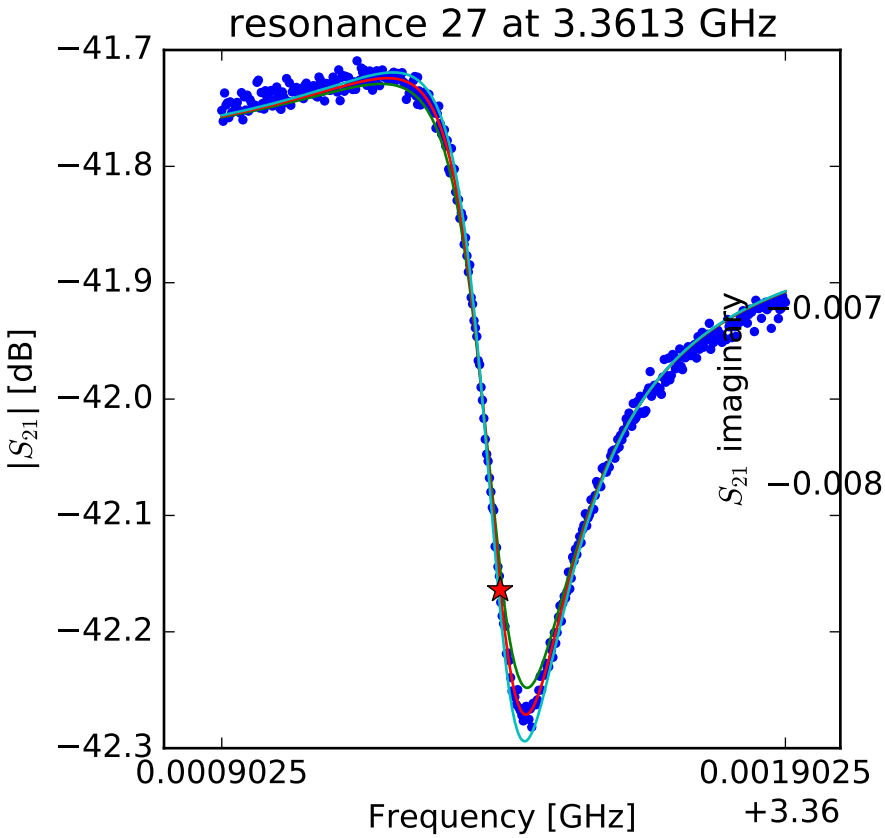
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

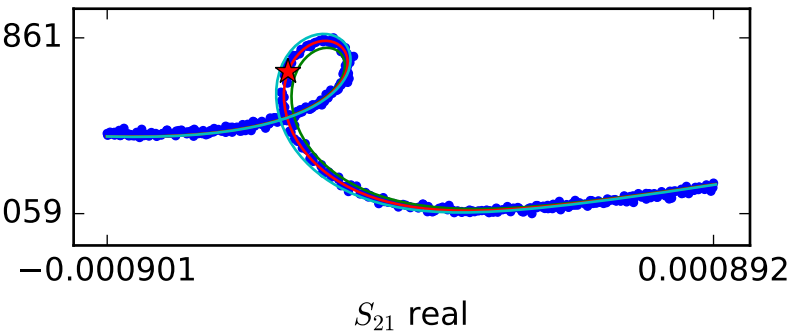
f_r = 3.35532676578
Q_r = 12420.852355
Q_c = 840540.177237
a = (0.00501801529404-0.00644011587715j)
ϕ_0 = 1.5583297074
τ = 38.1109655225

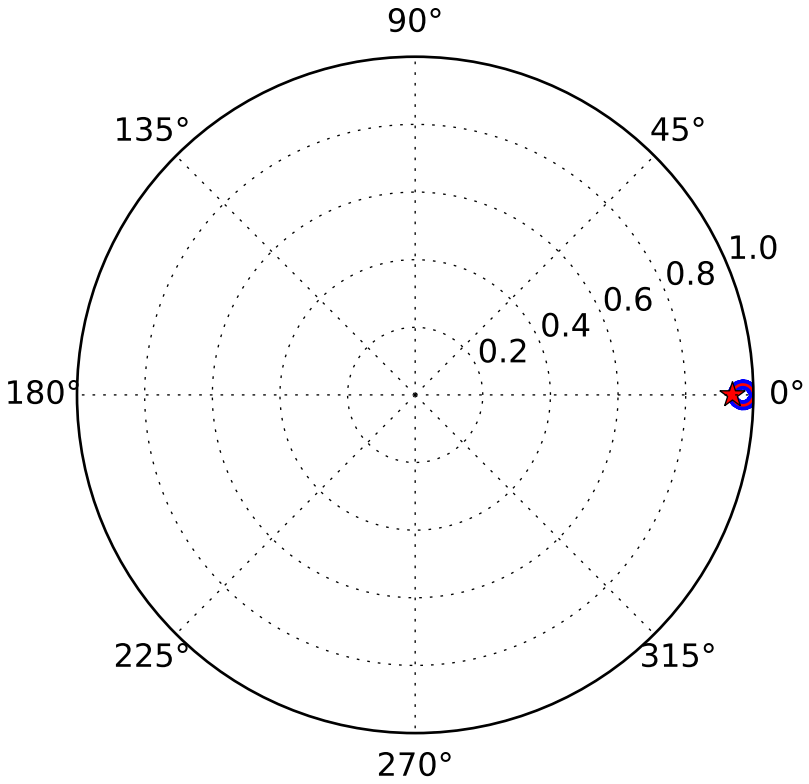


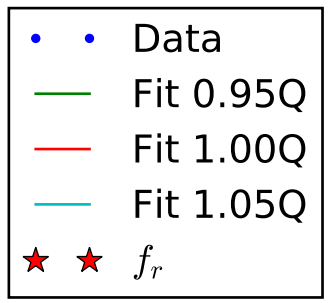
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.3586204828
Q_r = 14176.4808936
Q_c = 828084.936575
a = (0.00482654695446-0.00658771817506j)
ϕ_0 = 0.476772563001
τ = 38.1095315208



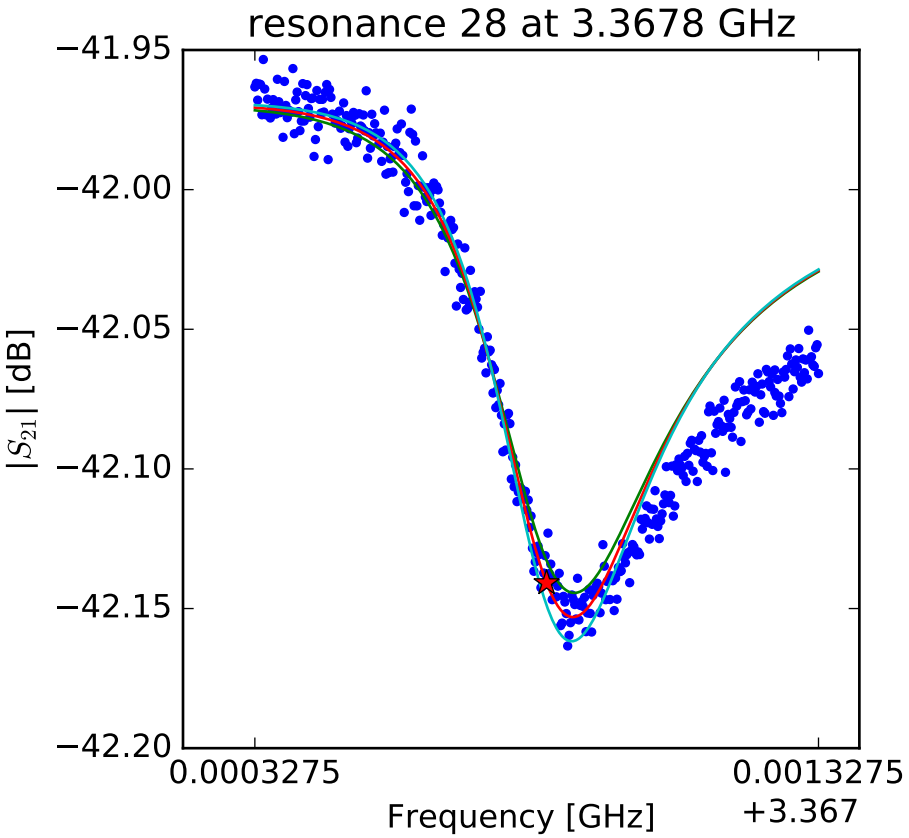


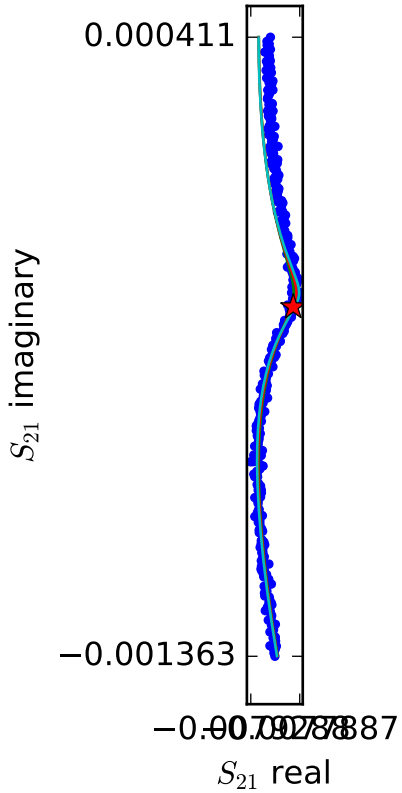


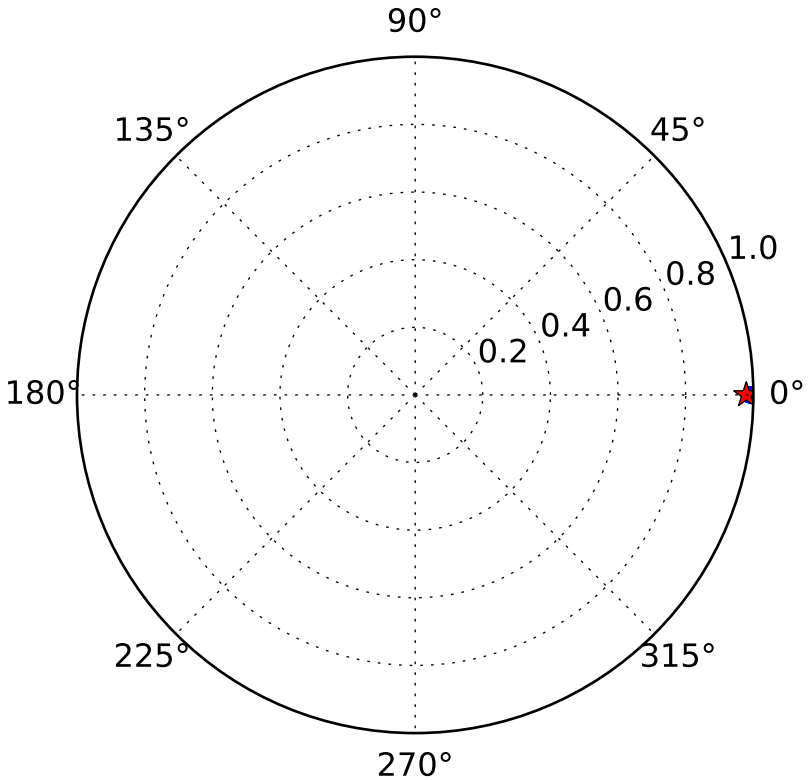


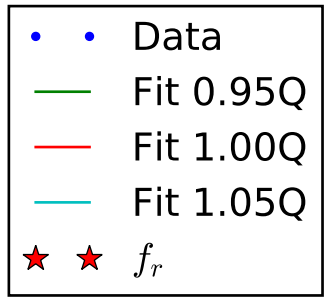
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.36139629892
Q_r = 17597.3409429
Q_c = 285165.206018
a = (0.00595123178848-0.00550780281236j)
ϕ_0 = 0.867798884566
τ = 37.8208413837



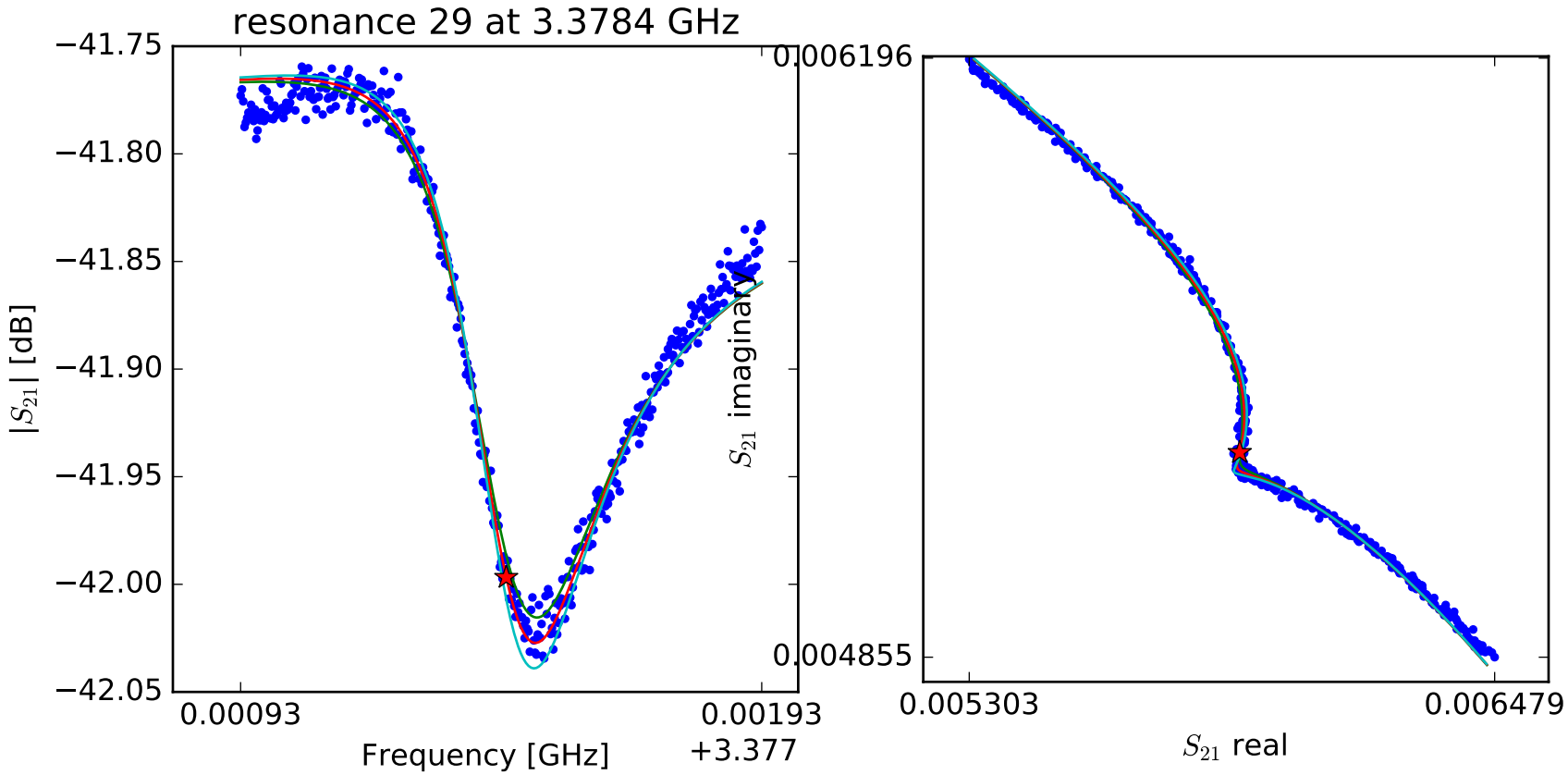


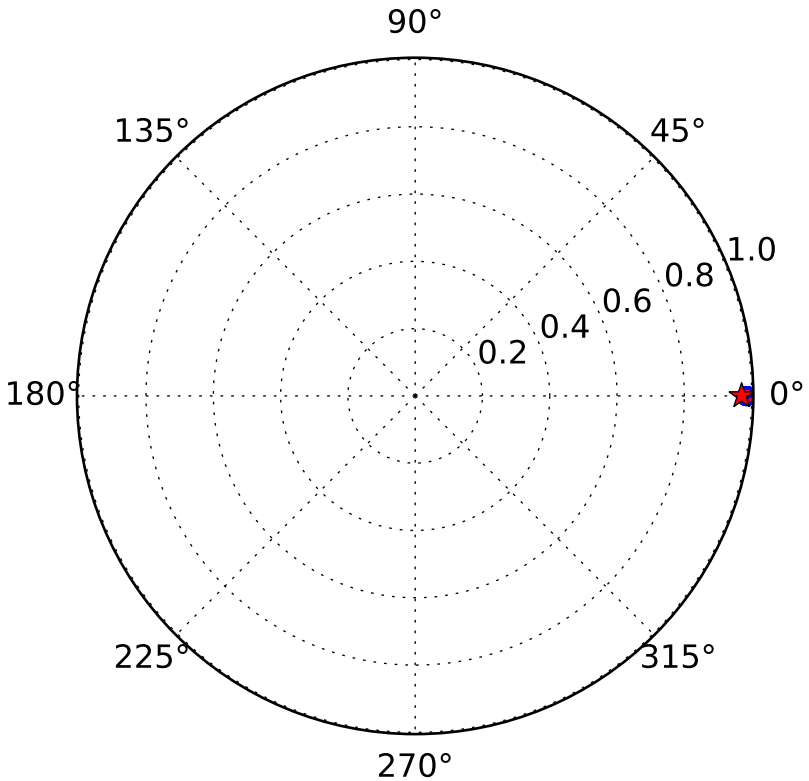


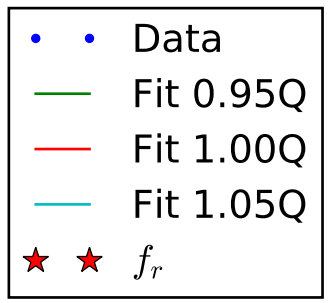


$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.36784503107
Q_r = 9541.93063405
Q_c = 456277.300277
a = (-0.00631142025965+0.00485085345789j)
ϕ_0 = 0.512326284235
τ = 37.3789970362

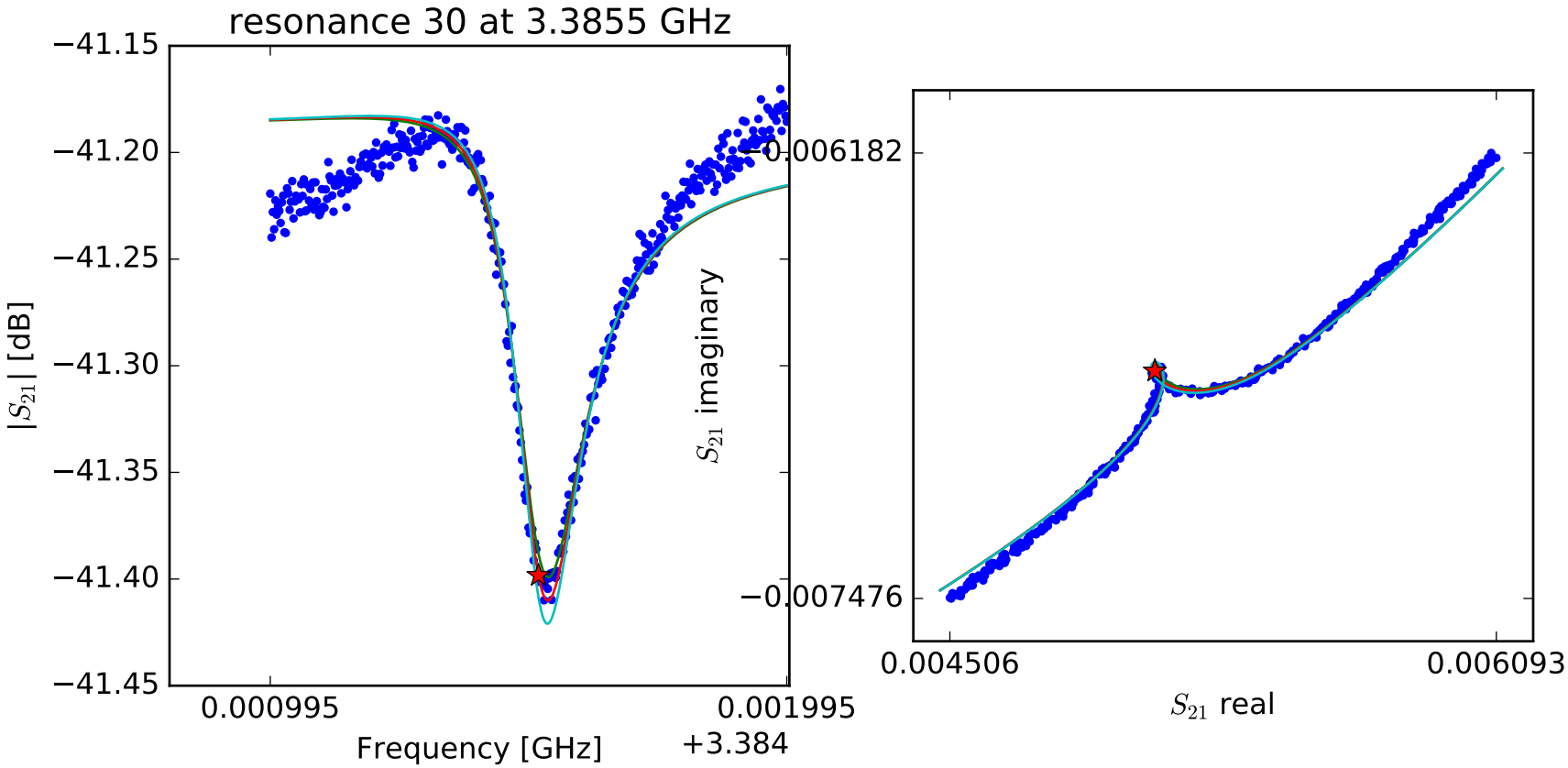


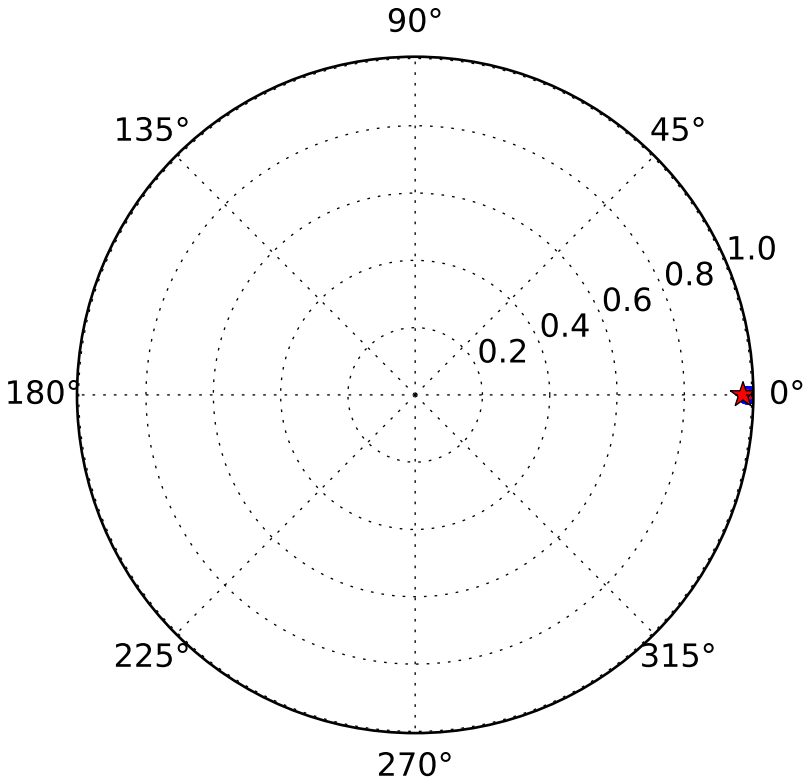


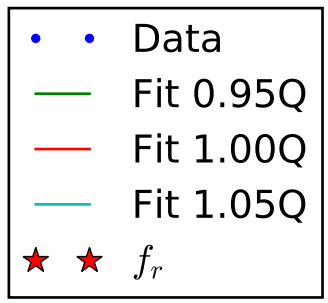


$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.37843969115
Q_r = 10785.3609266
Q_c = 361505.181578
a = (0.00759221937823-0.00291889451318j)
ϕ_0 = 0.676644232197
τ = 36.9466329824

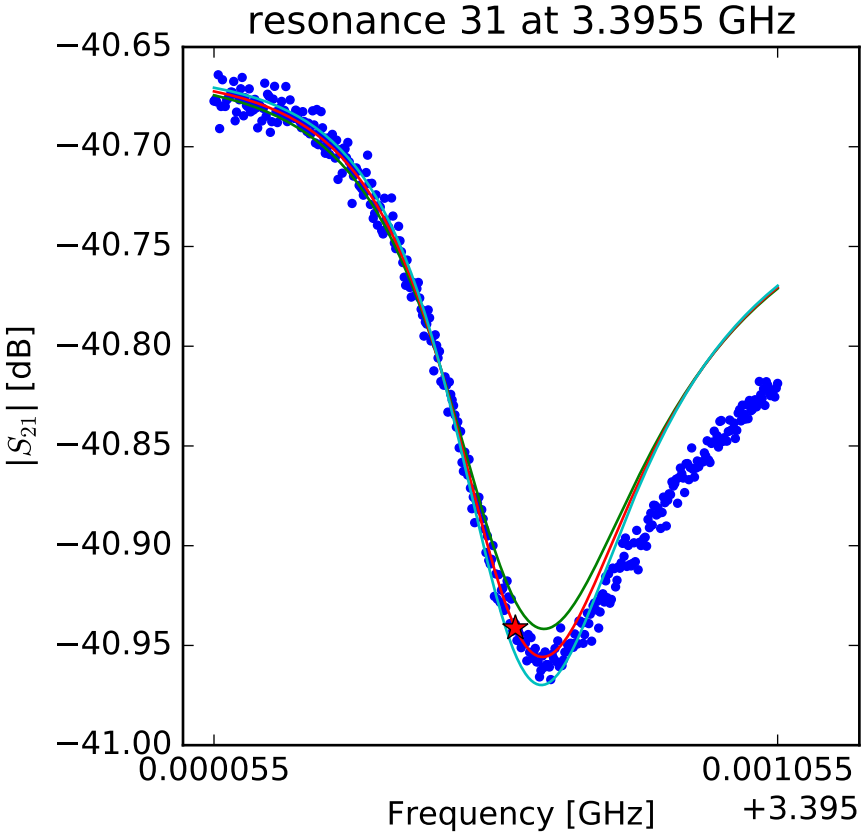


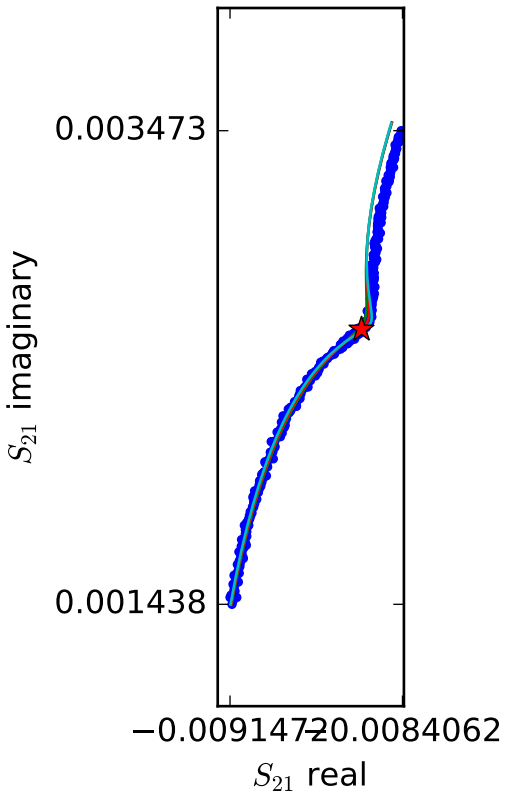


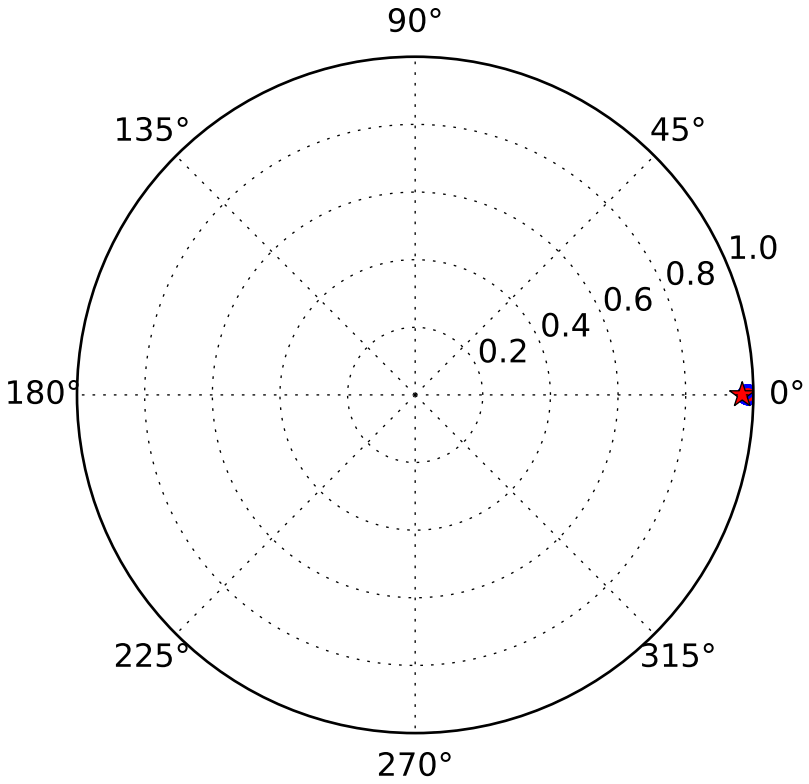


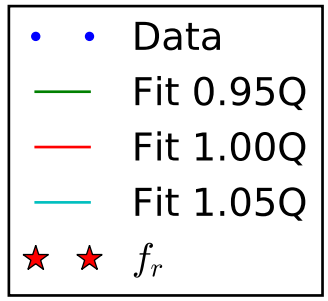
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.38551417954
Q_r = 21334.2336133
Q_c = 827319.942356
a = (-0.00420229985419+0.00763488295734j)
ϕ_0 = 0.449260779826
τ = 38.5394889066



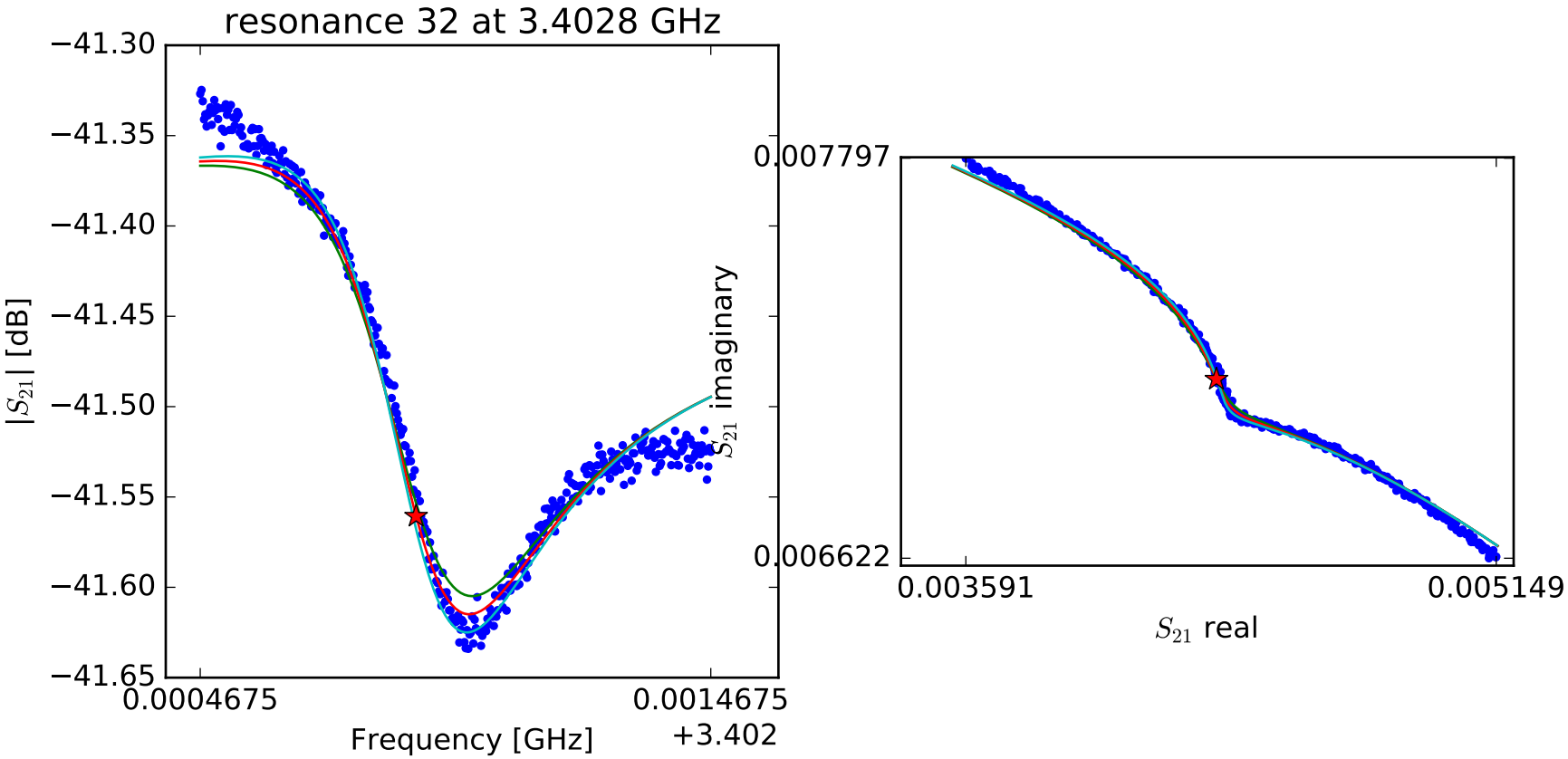


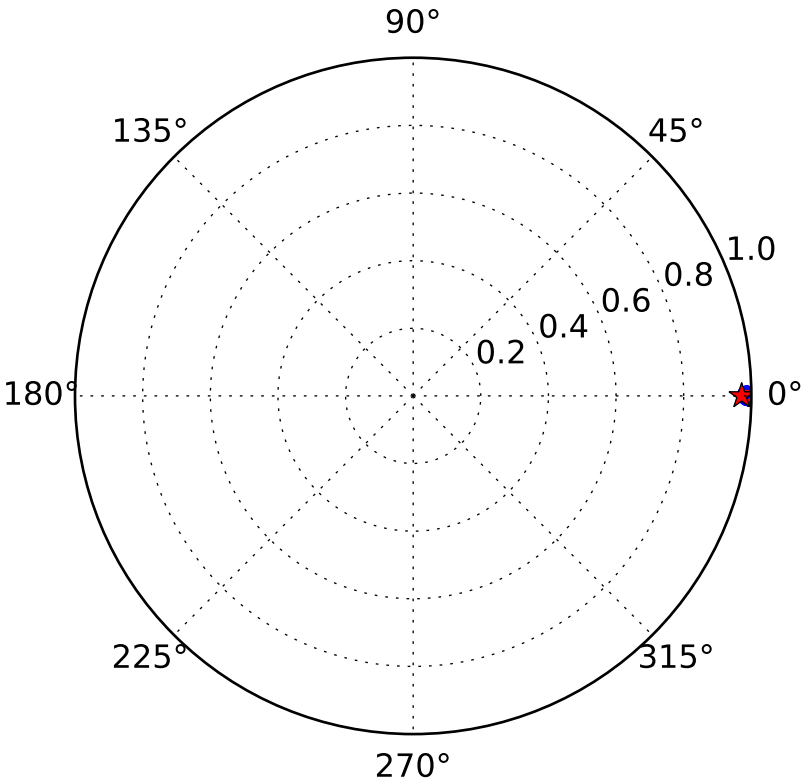


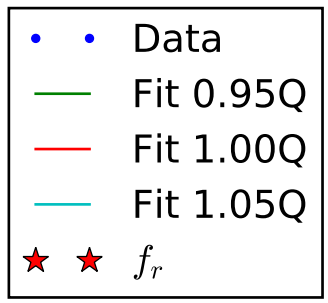


$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.39558969427
Q_r = 7909.86745837
Q_c = 239960.071912
a = (0.00320038623404+0.00867694253768j)
ϕ_0 = 0.43627076182
τ = 41.1529757041

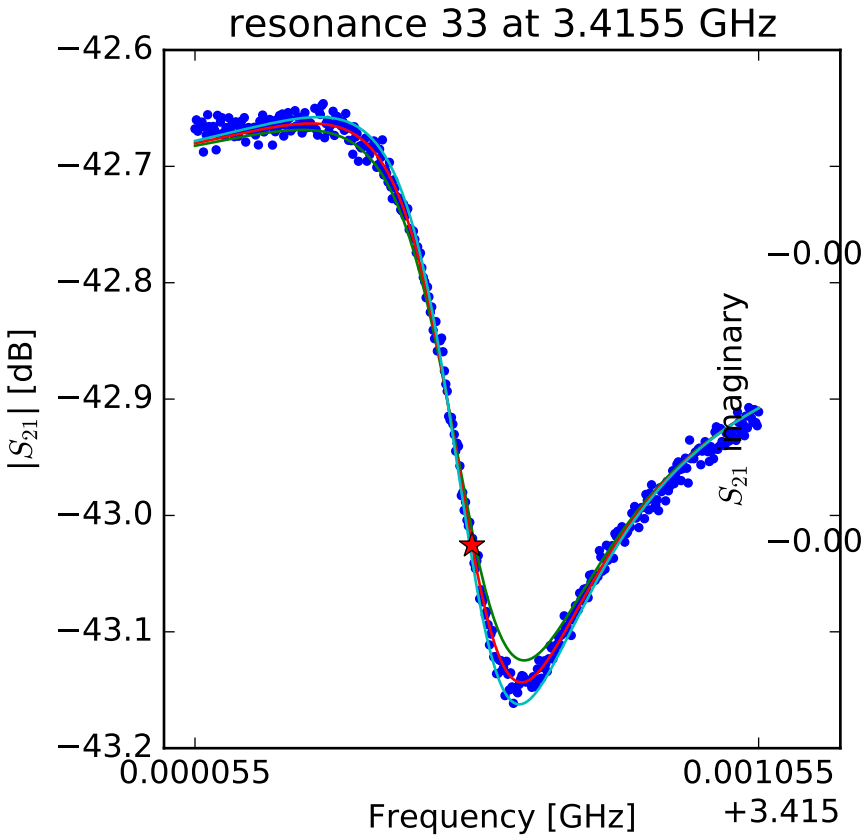


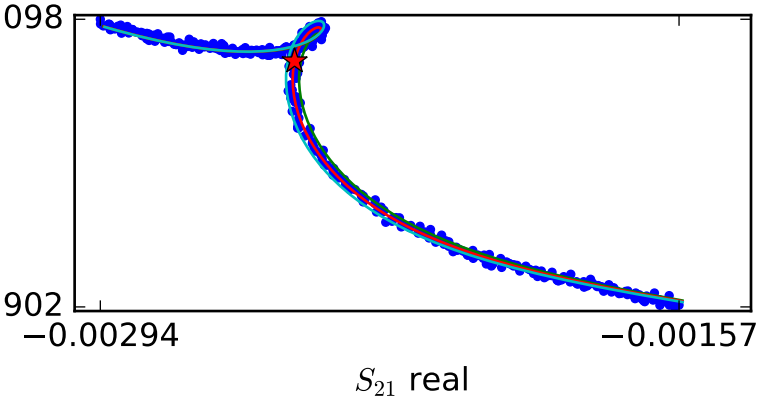


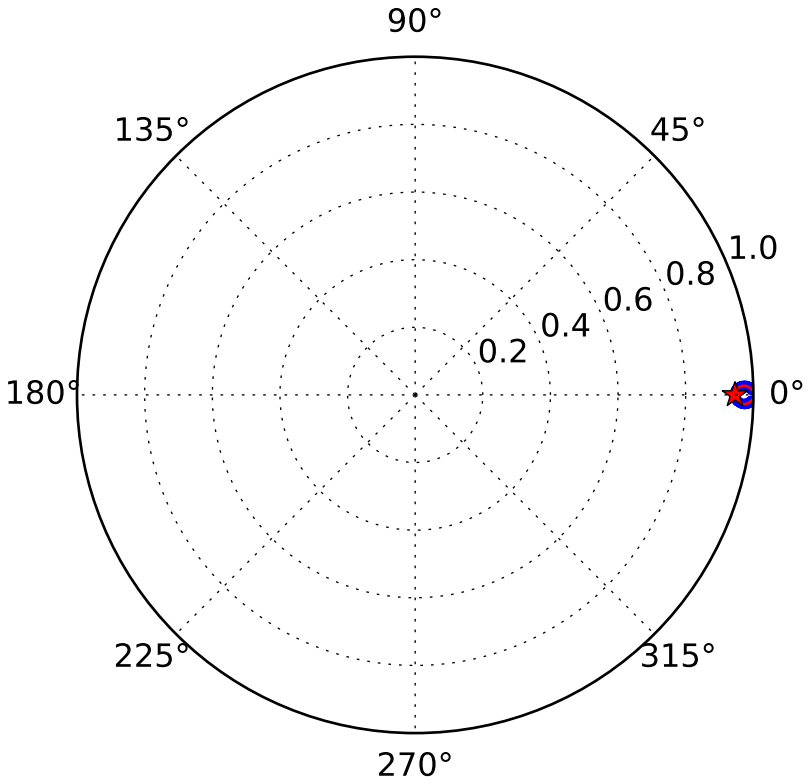


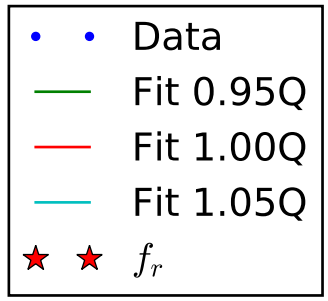
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.40289031819
Q_r = 8457.10186655
Q_c = 295236.6772
a = (0.008456712197+0.00081465155823j)
ϕ_0 = 0.943755336507
τ = 38.7459334258



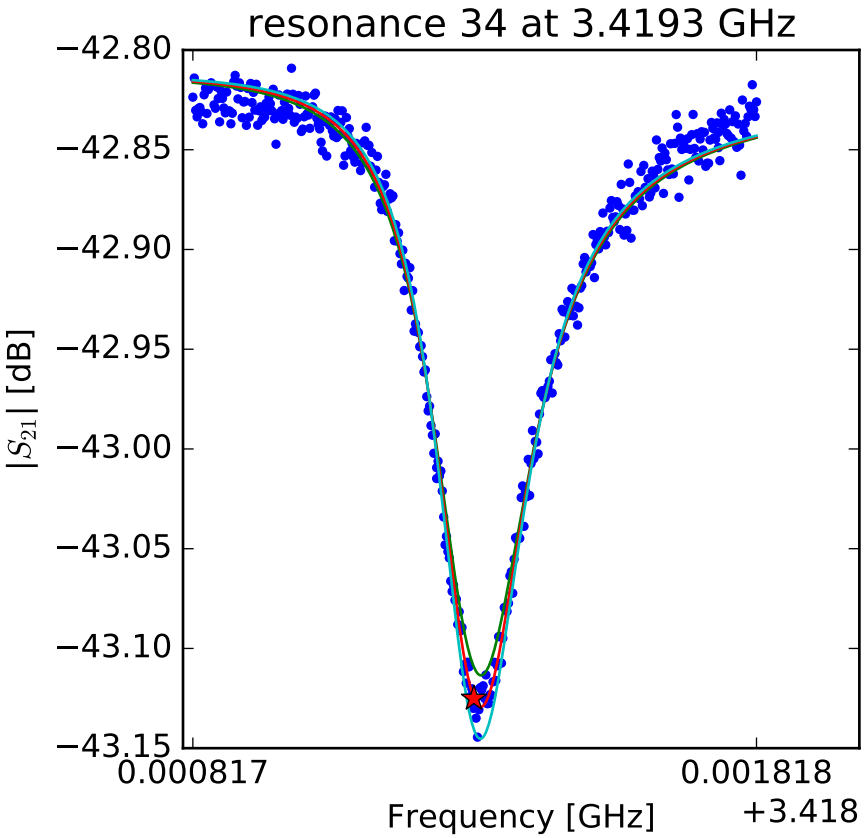


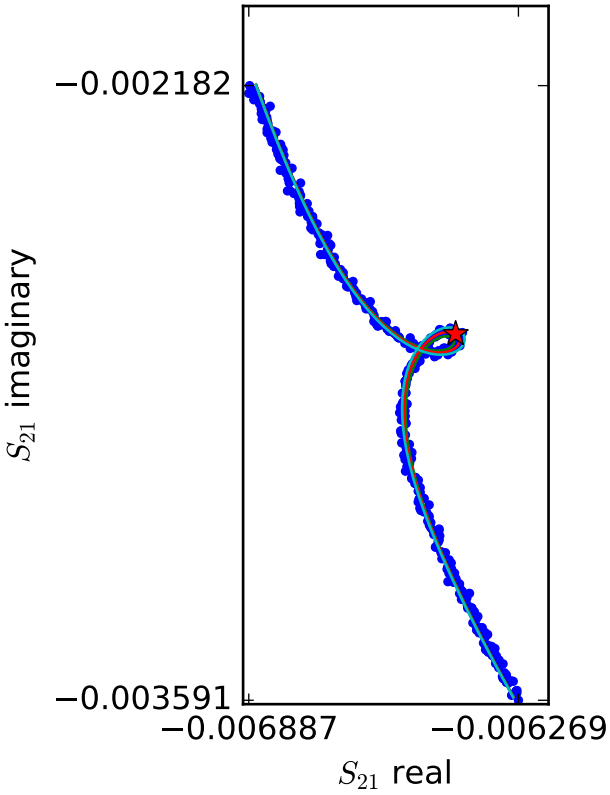


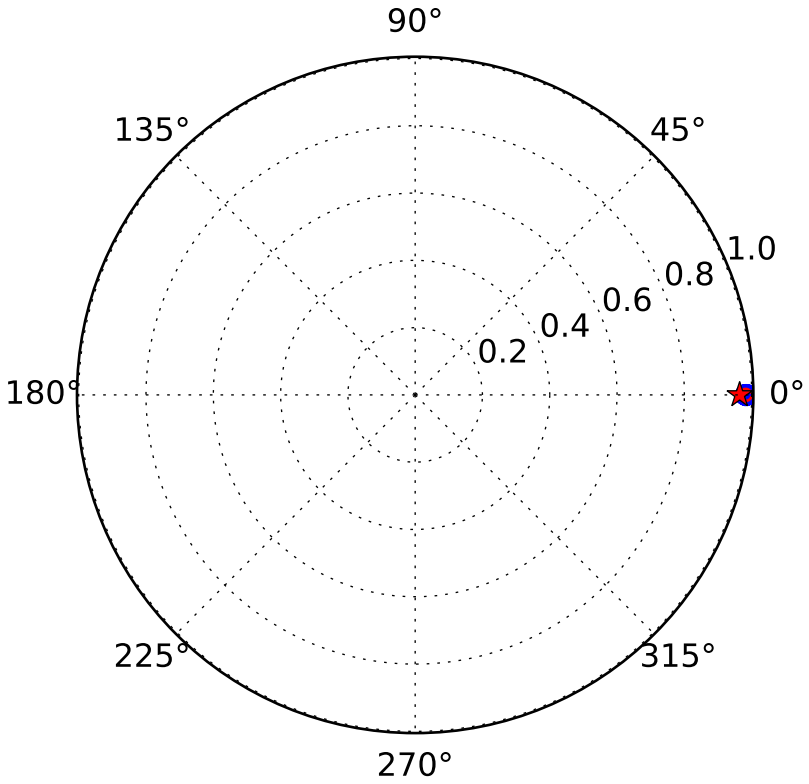


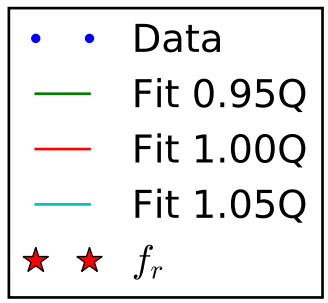
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.41554648075
Q_r = 10772.3725242
Q_c = 197750.961452
a = (0.00645606283663+0.00333856341684j)
ϕ_0 = 0.989762025438
τ = 35.8290019715



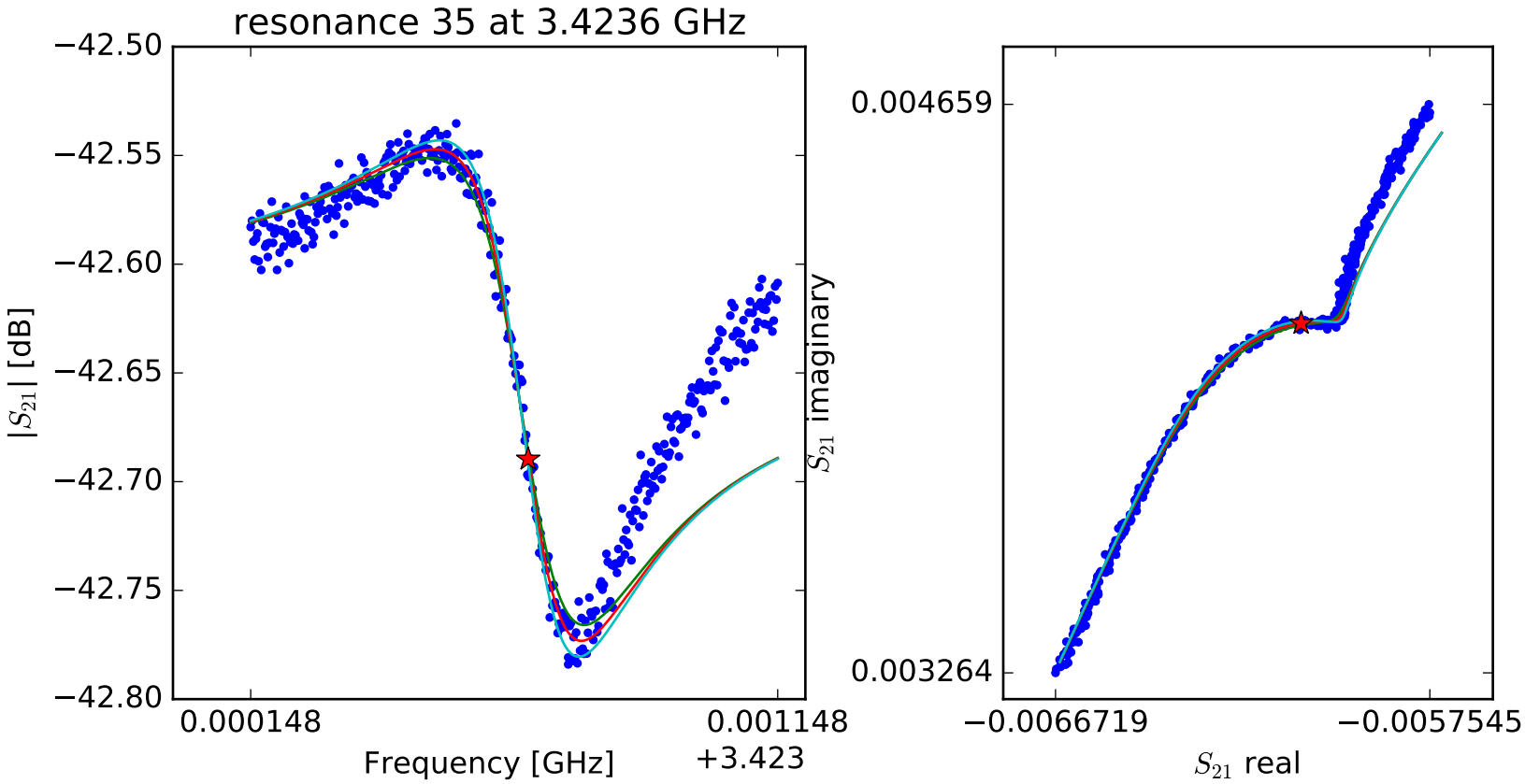


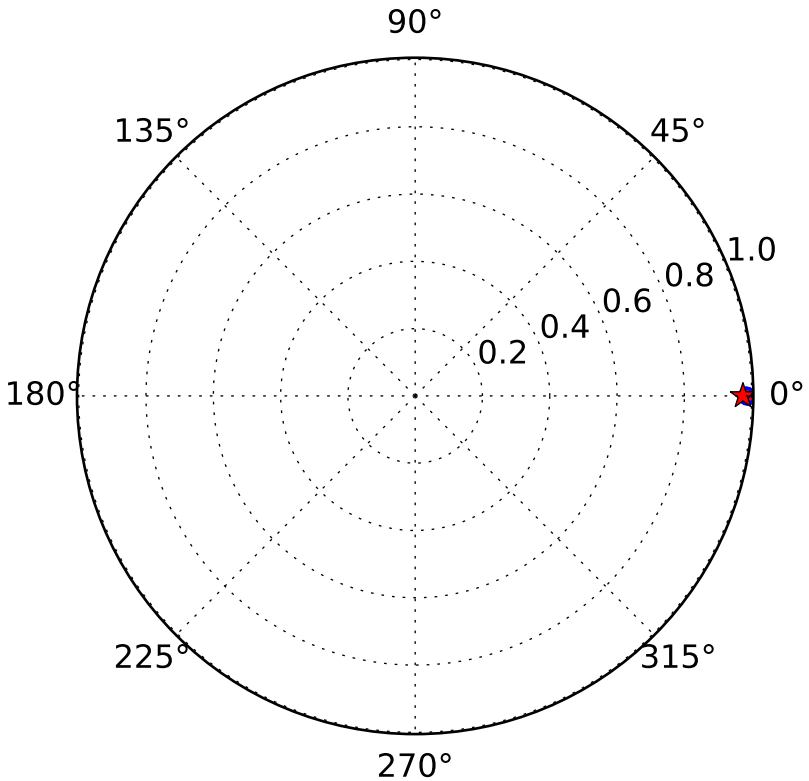


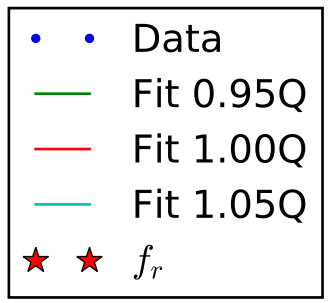


$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.41931612392
Q_r = 16444.3998949
Q_c = 459850.108717
a = (0.00671892481538+0.00266993360195j)
ϕ_0 = 0.226482067559
τ = 35.8242311336

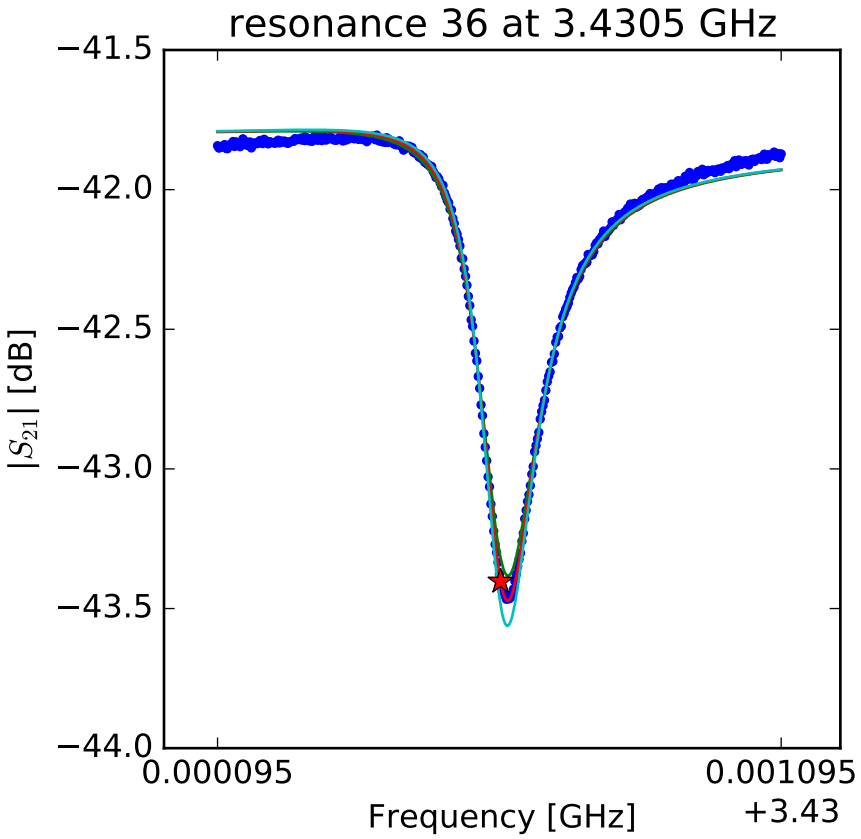


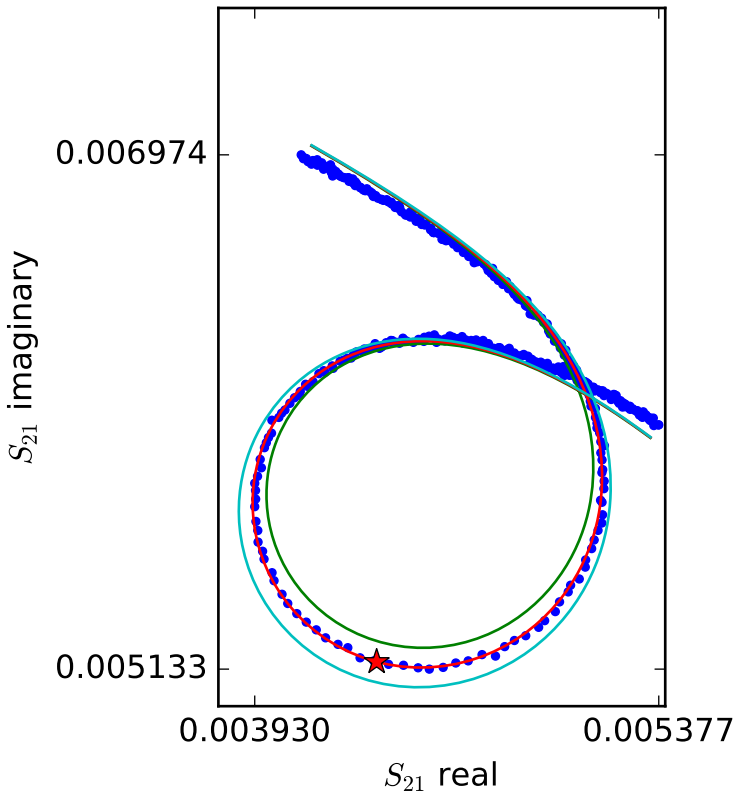


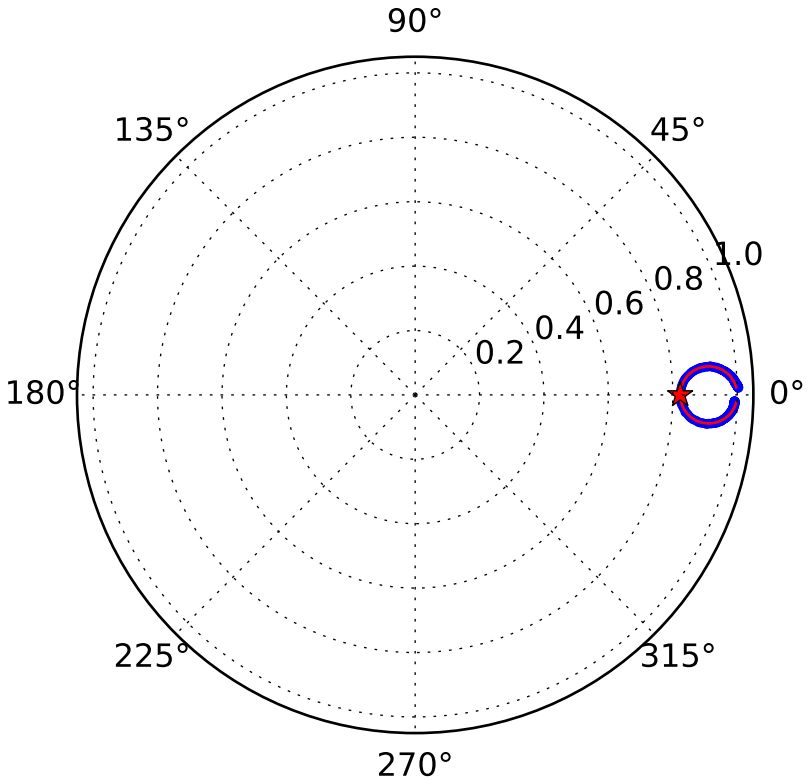


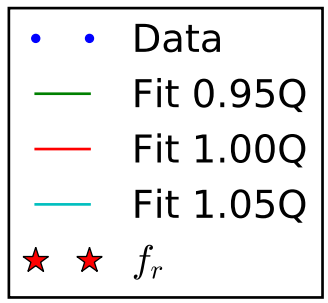
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.42367388913
Q_r = 12818.380241
Q_c = 494210.027776
a = (-0.000714858392513+0.00735460405099
ϕ_0 = 1.28213116898
τ = 35.0081162985



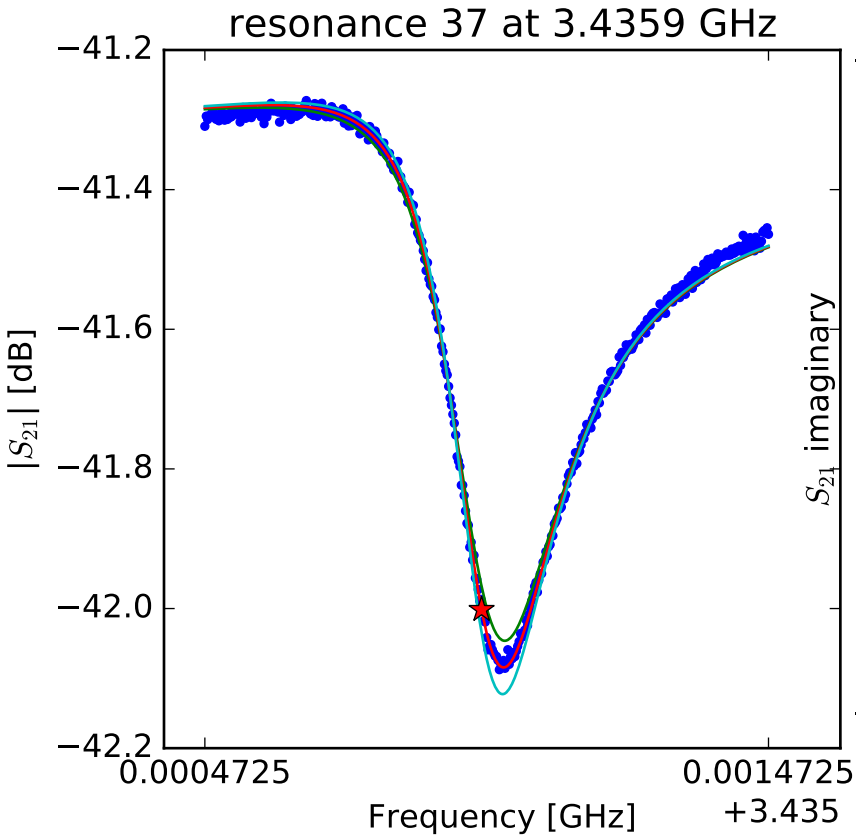


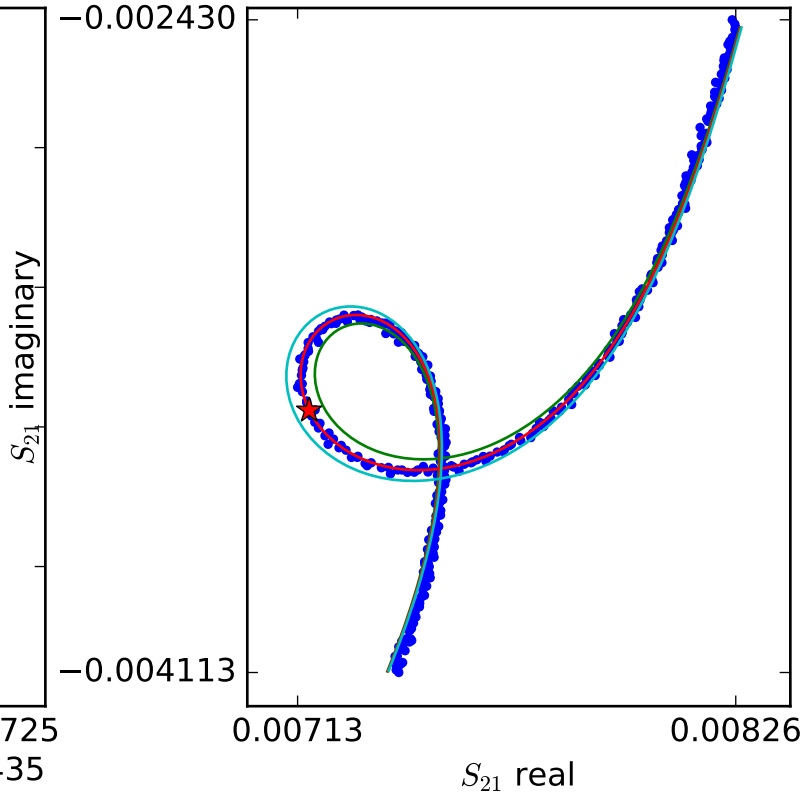


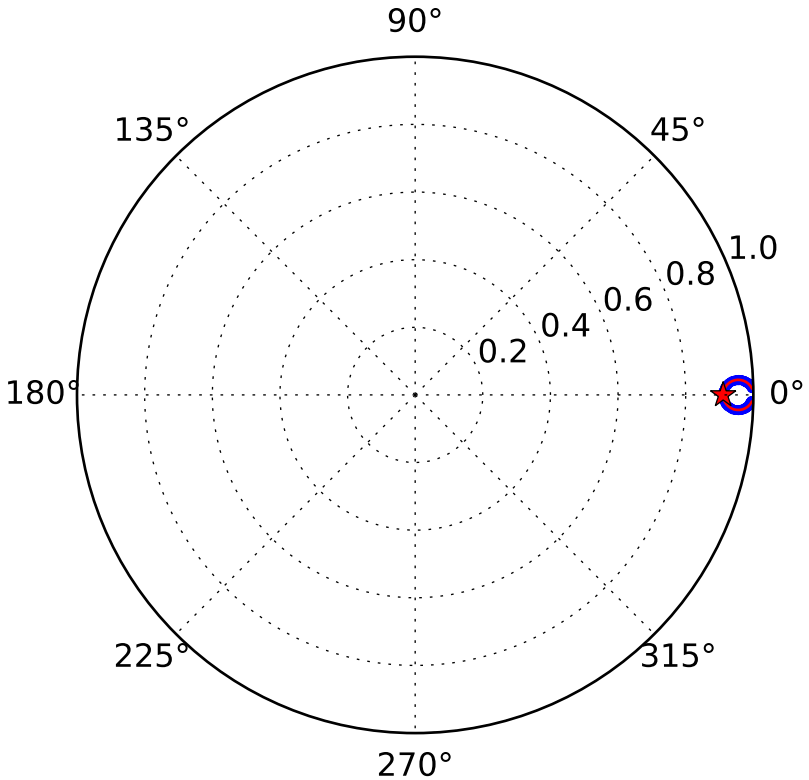


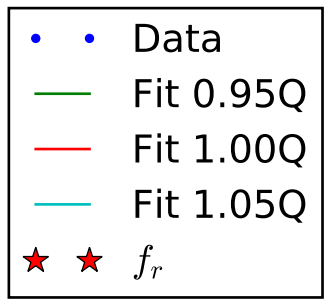
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.43059712353
Q_r = 25495.8135106
Q_c = 143872.762857
a = (-0.00799033678119+0.00129457302008j)
ϕ_0 = 0.339264628952
τ = 38.5719965468



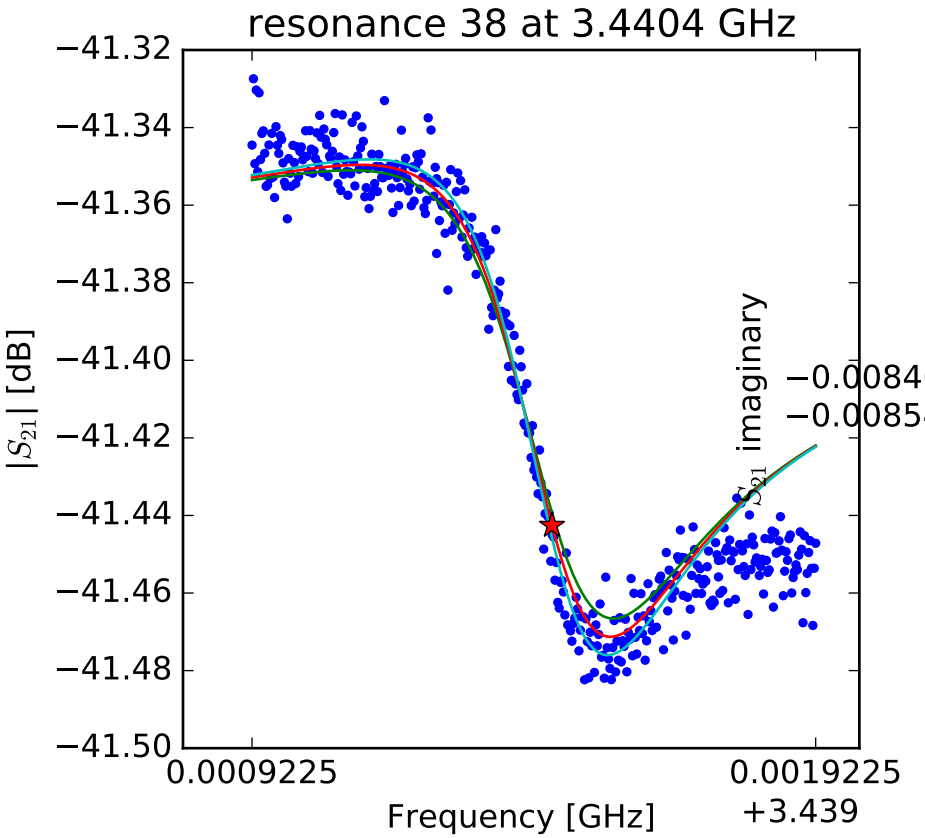


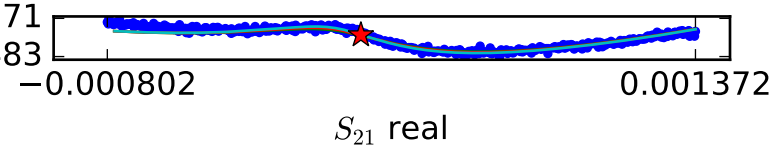


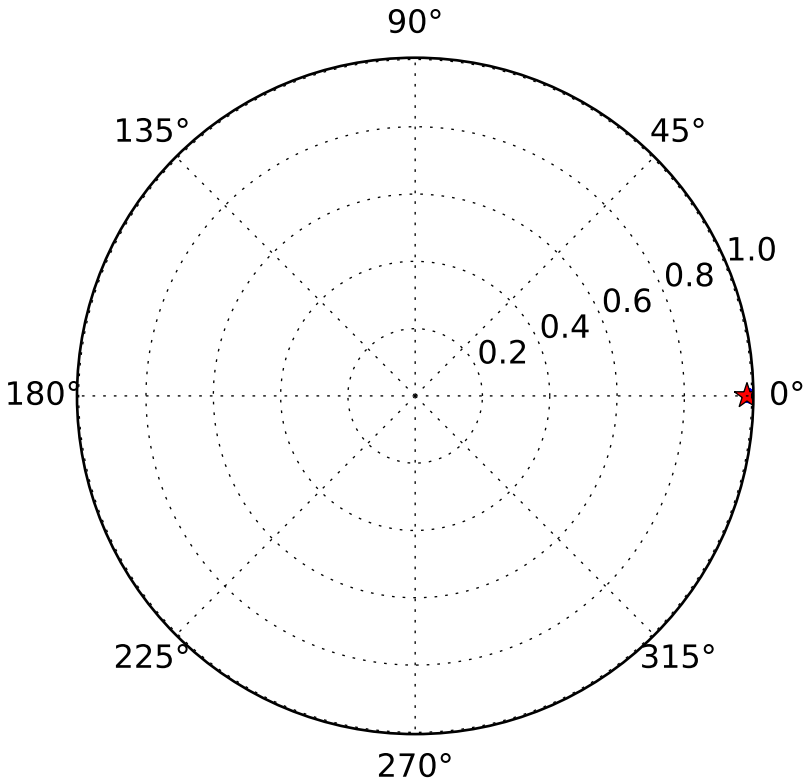


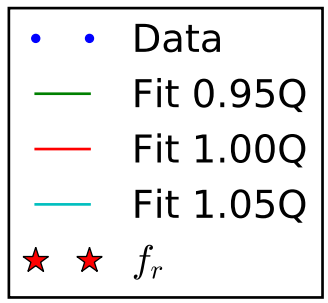
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.43596348073
Q_r = 14207.2141432
Q_c = 159133.358186
a = (-0.00621332597245+0.00589038719713j)
ϕ_0 = 0.598480129102
τ = 40.5830415211



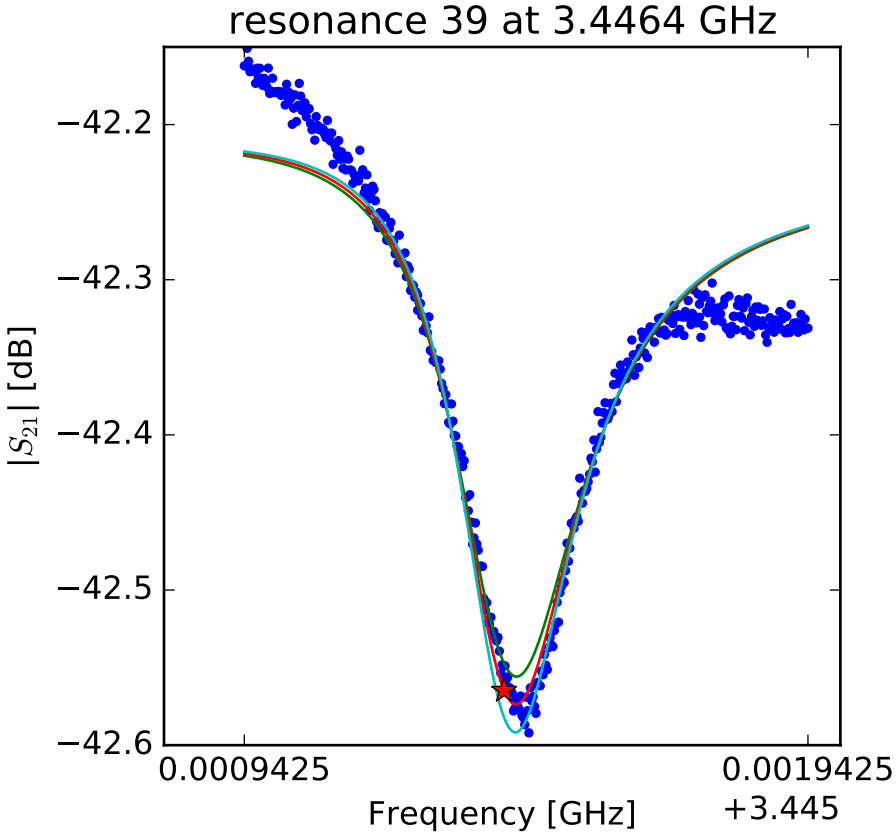


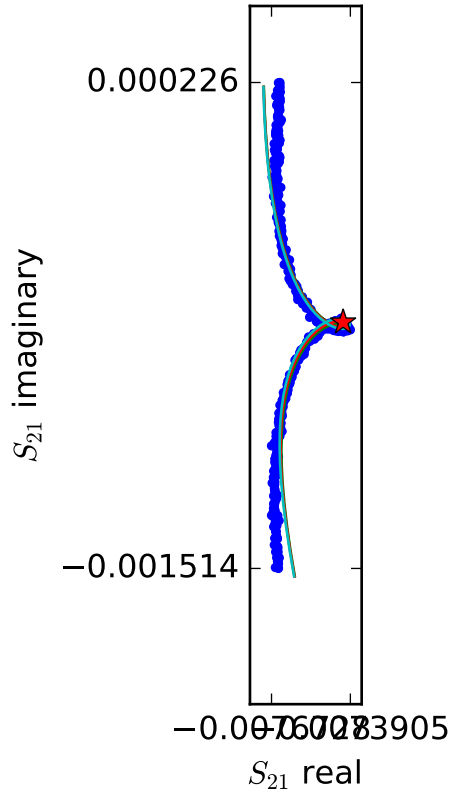


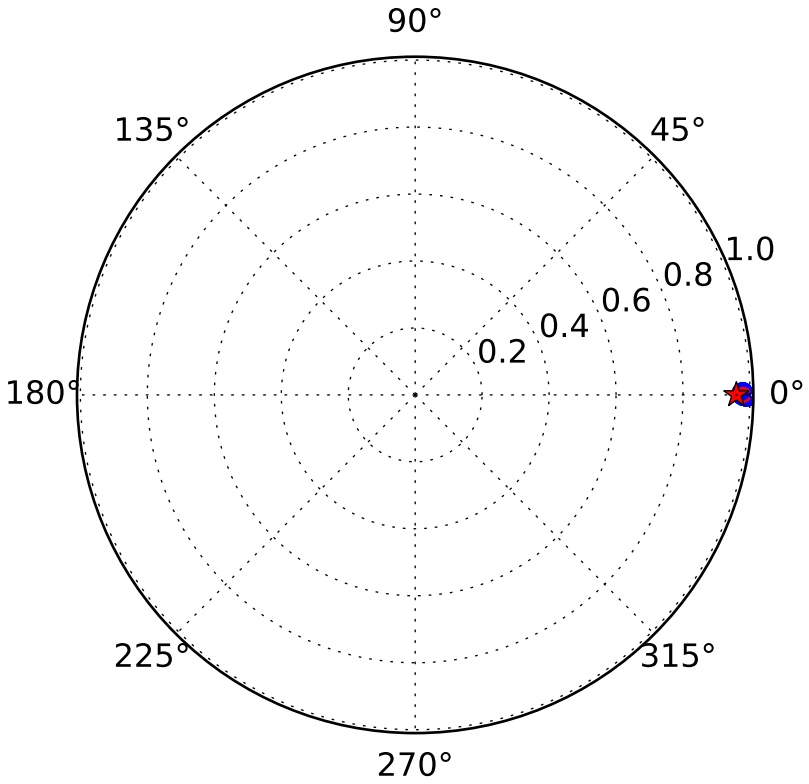


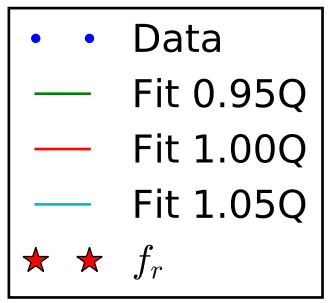
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.44045474964
Q_r = 9168.07708364
Q_c = 656835.628213
a = (-0.00688809025676-0.00503695963671j)
ϕ_0 = 1.00222514397
τ = 40.9382088872



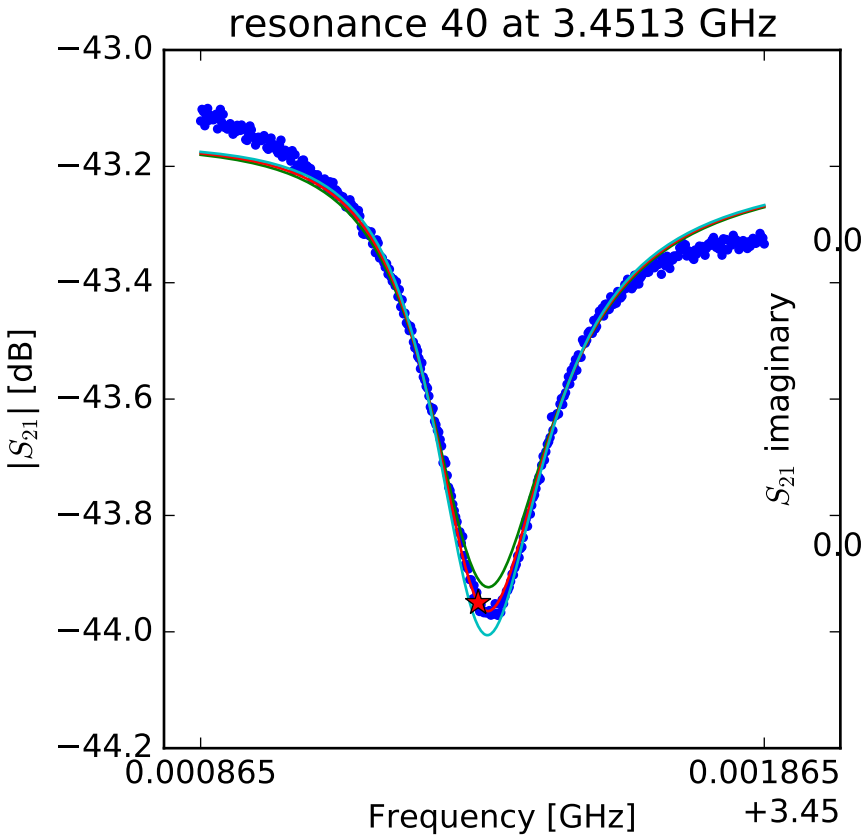


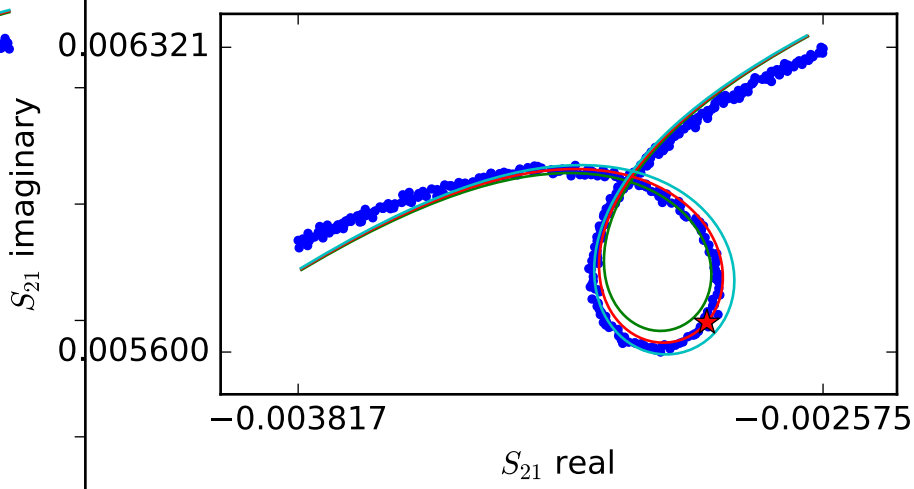


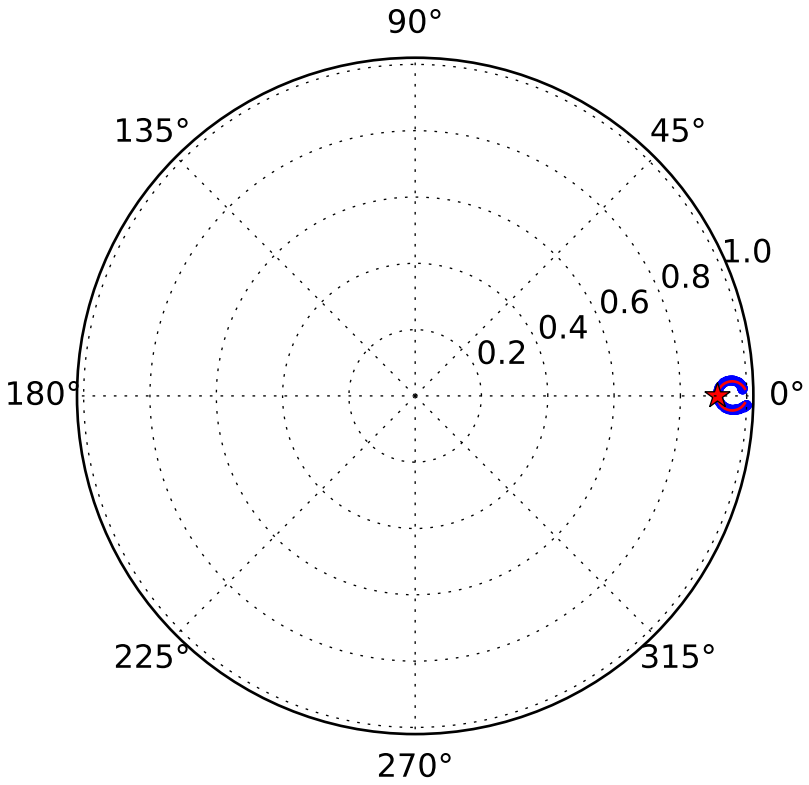


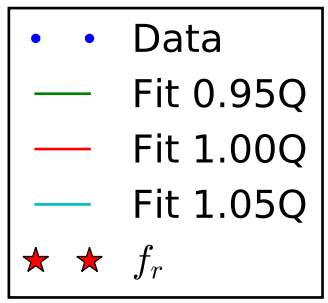
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.44640340978
Q_r = 12800.891898
Q_c = 314259.476944
a = (-0.00242987902022+0.0073523959635j)
ϕ_0 = 0.304689973277
τ = 39.3991154788



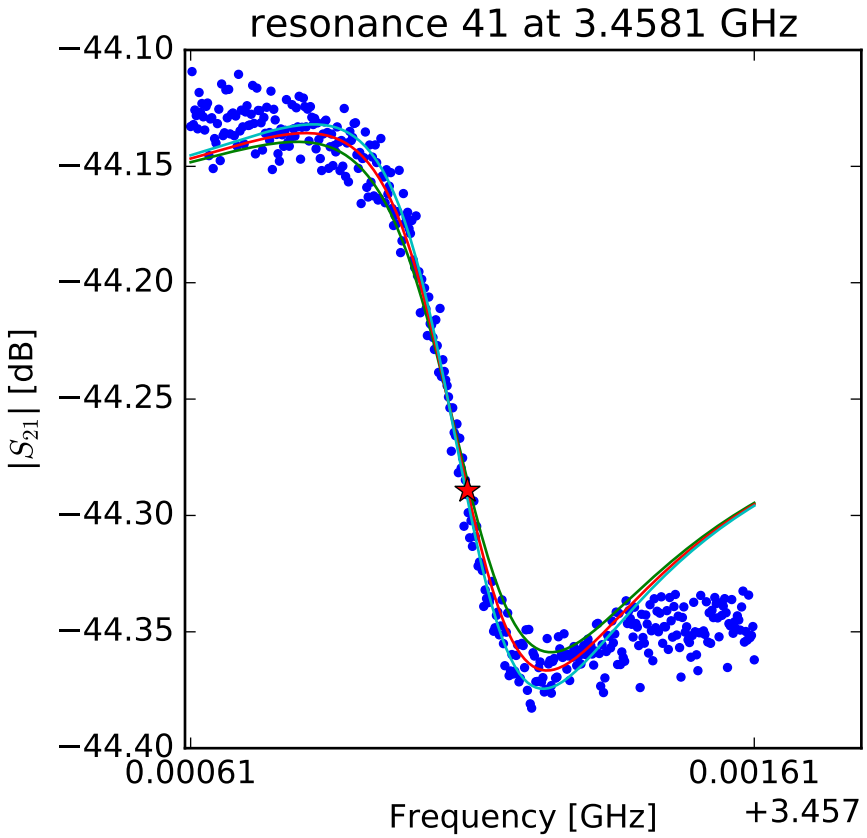


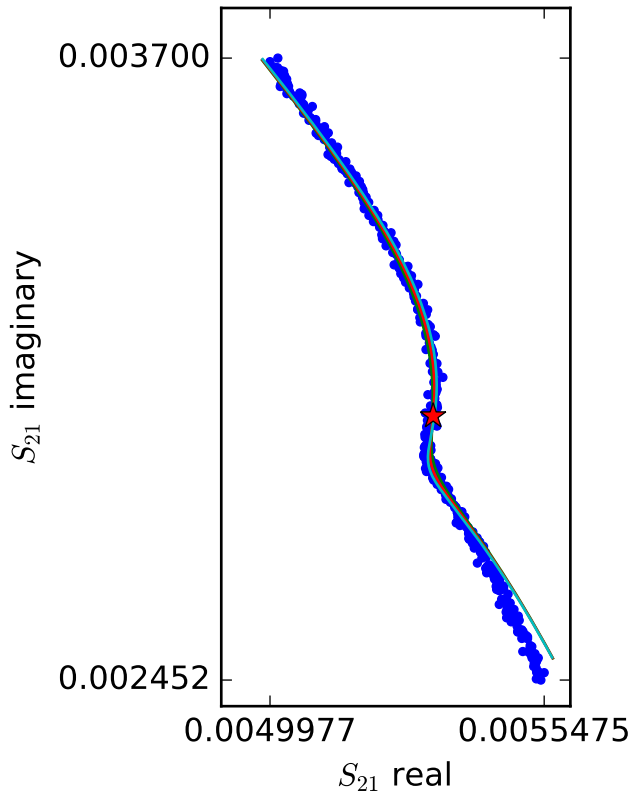


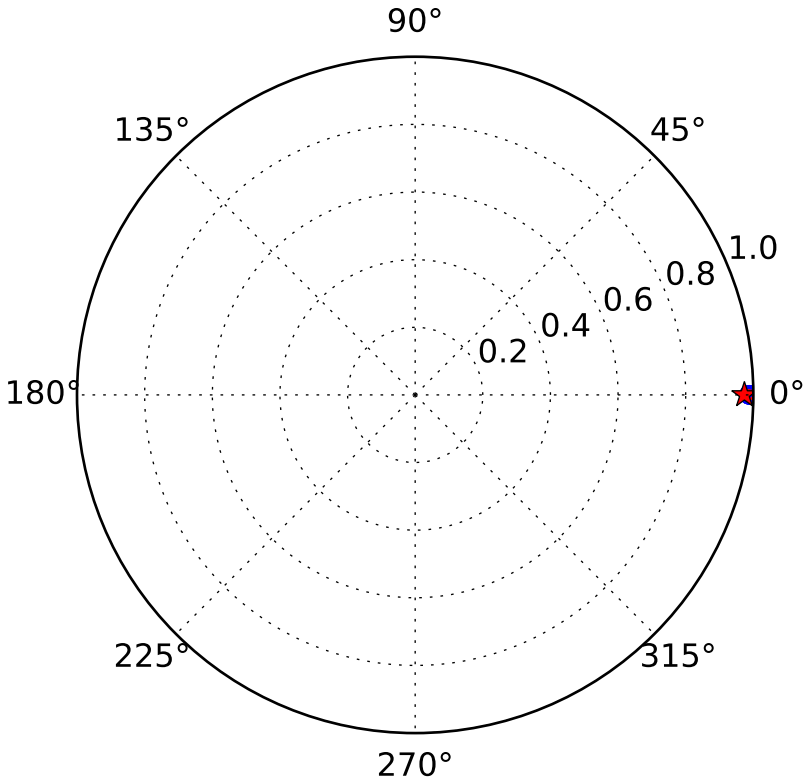


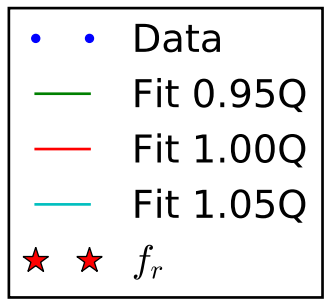
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.45135739489
Q_r = 13073.2856097
Q_c = 148405.166735
a = (-0.00646011502752-0.0025269484787j)
ϕ_0 = 0.247241519216
τ = 37.1539240958



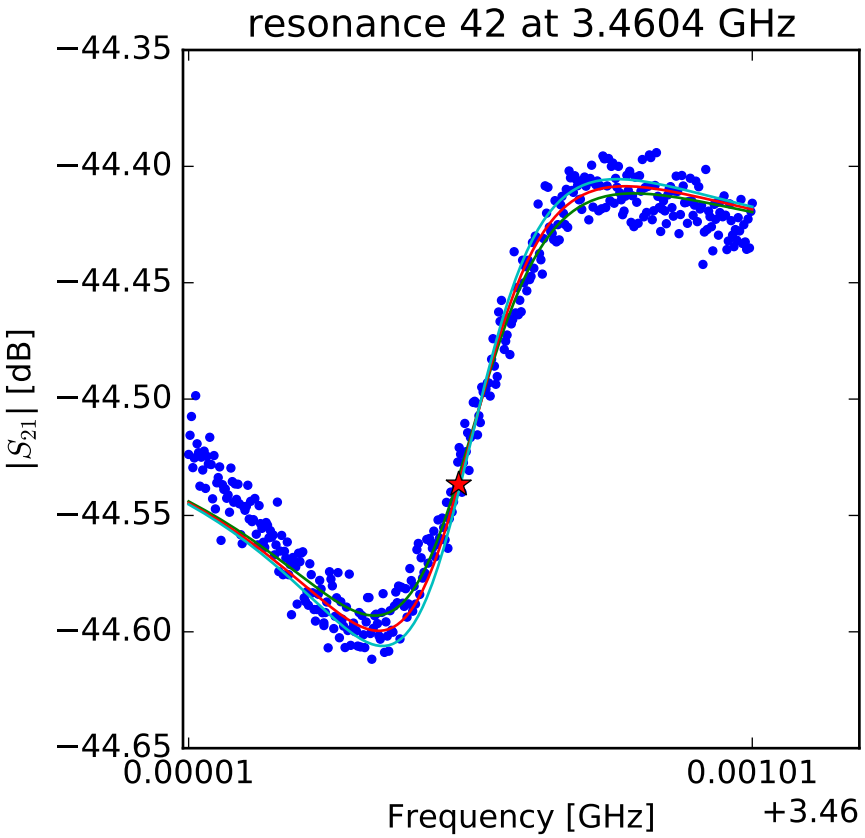


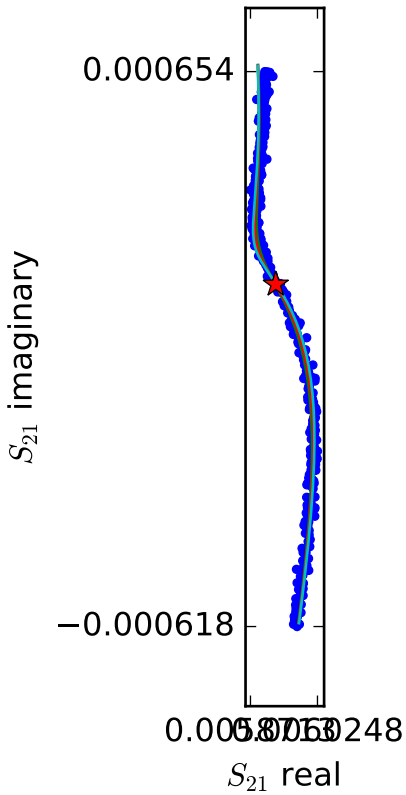


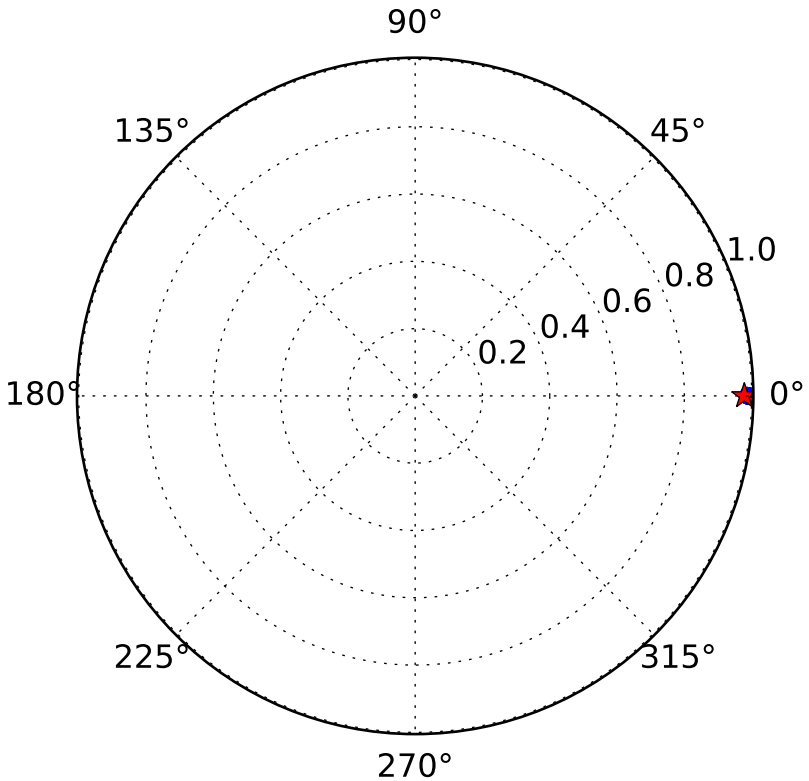


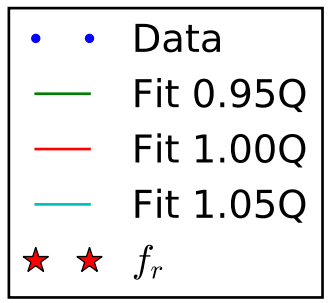
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.45810121449
Q_r = 8597.58207636
Q_c = 324884.313495
a = (0.00423782990741-0.00446868334067j)
ϕ_0 = 1.20964787333
τ = 35.5066414162



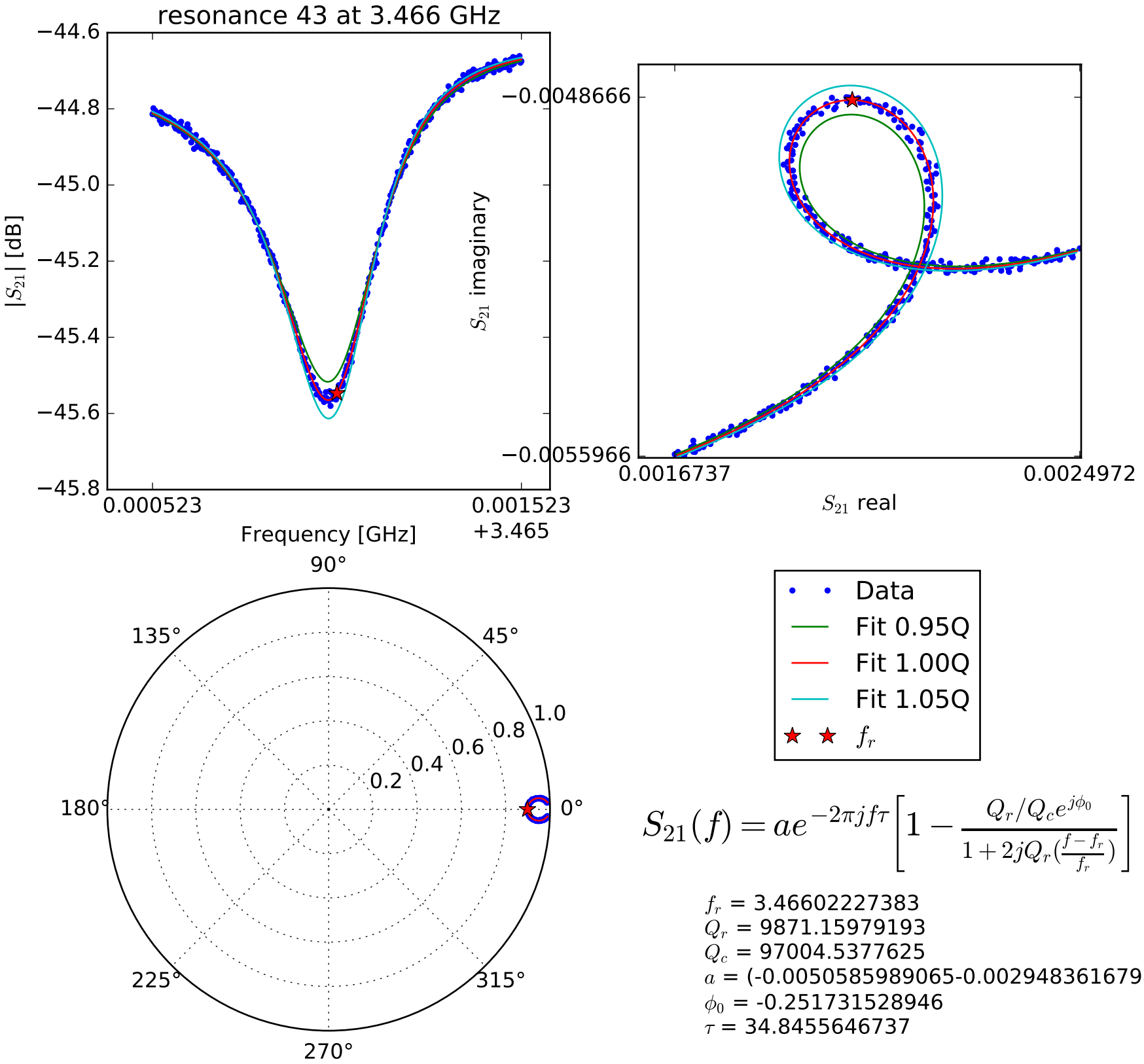






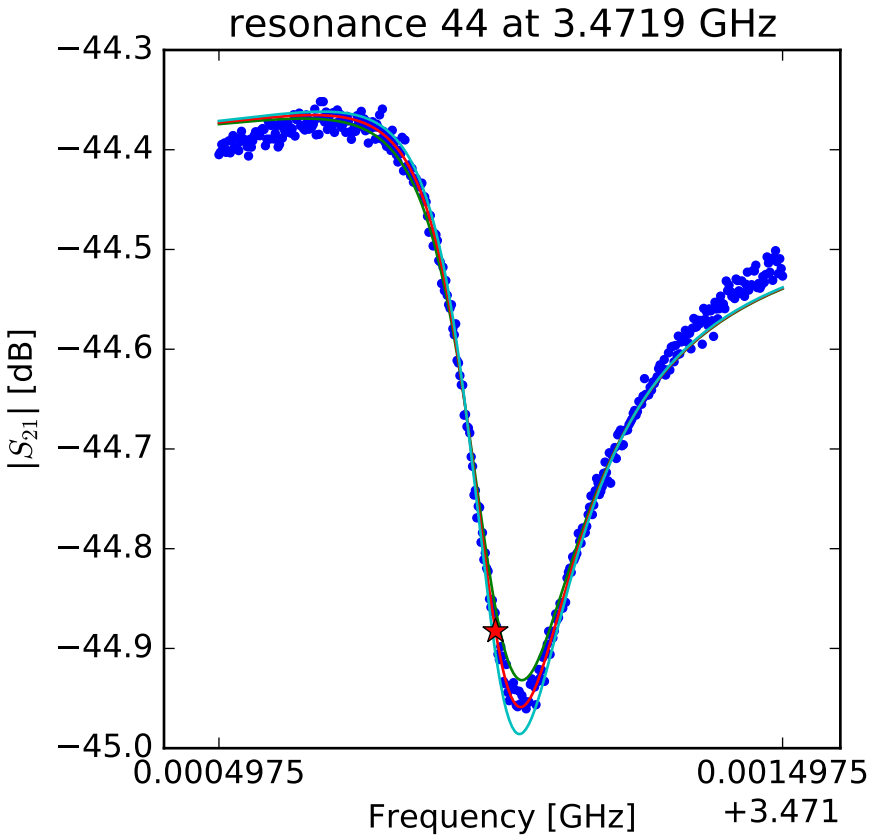
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

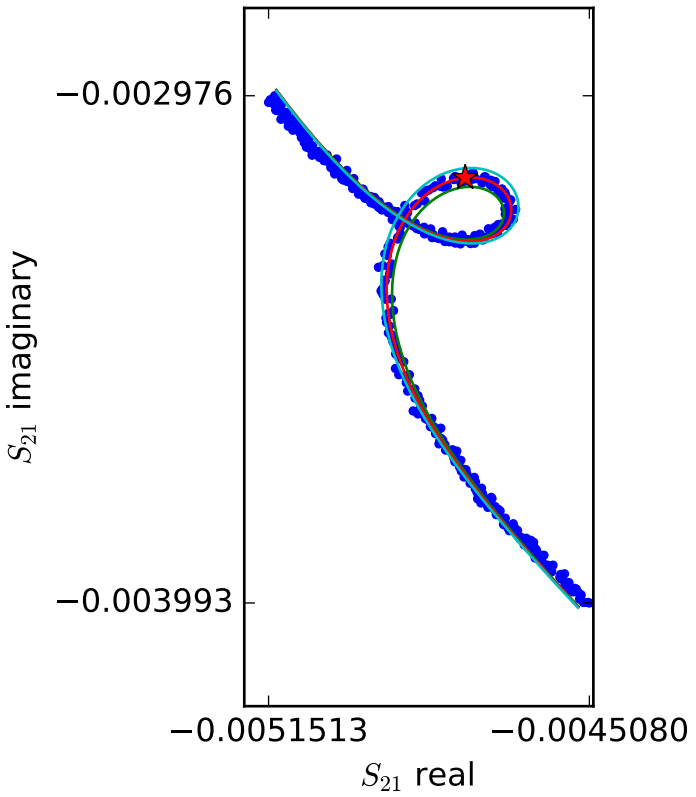
f_r = 3.46048913503
Q_r = 8460.36493992
Q_c = 386177.636369
a = (0.00550585474013-0.00232711955148j)
ϕ_0 = -1.20262062459
τ = 34.9474177844

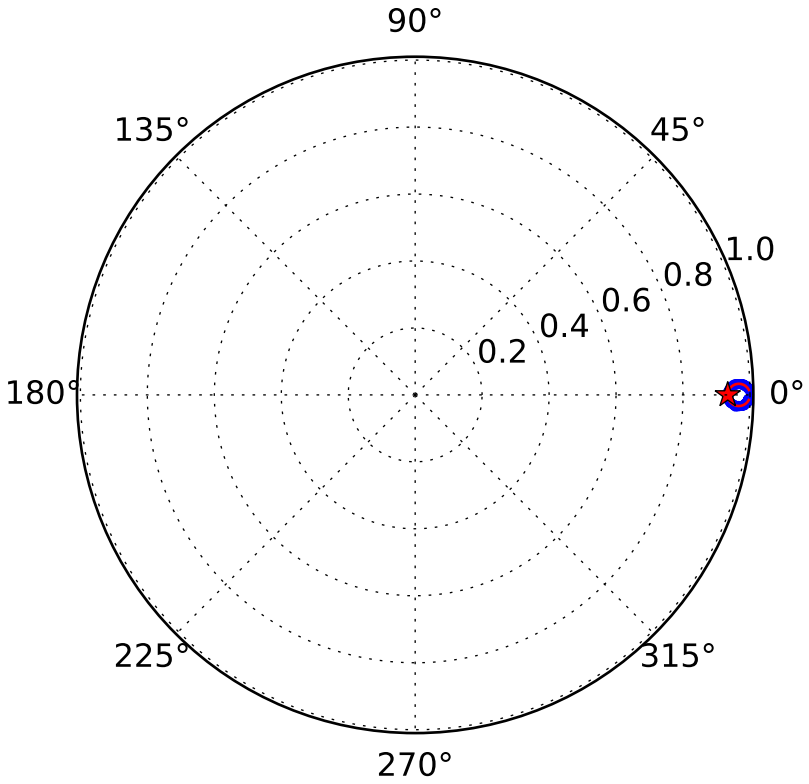


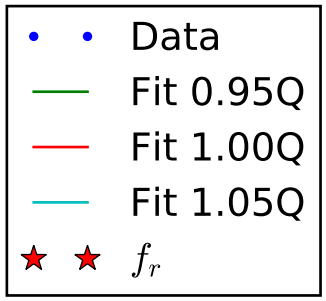
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.46602227383
Q_r = 9871.15979193
Q_c = 97004.5377625
a = (-0.0050585989065-0.00294836167983j)
ϕ_0 = -0.251731528946
τ = 34.8455646737



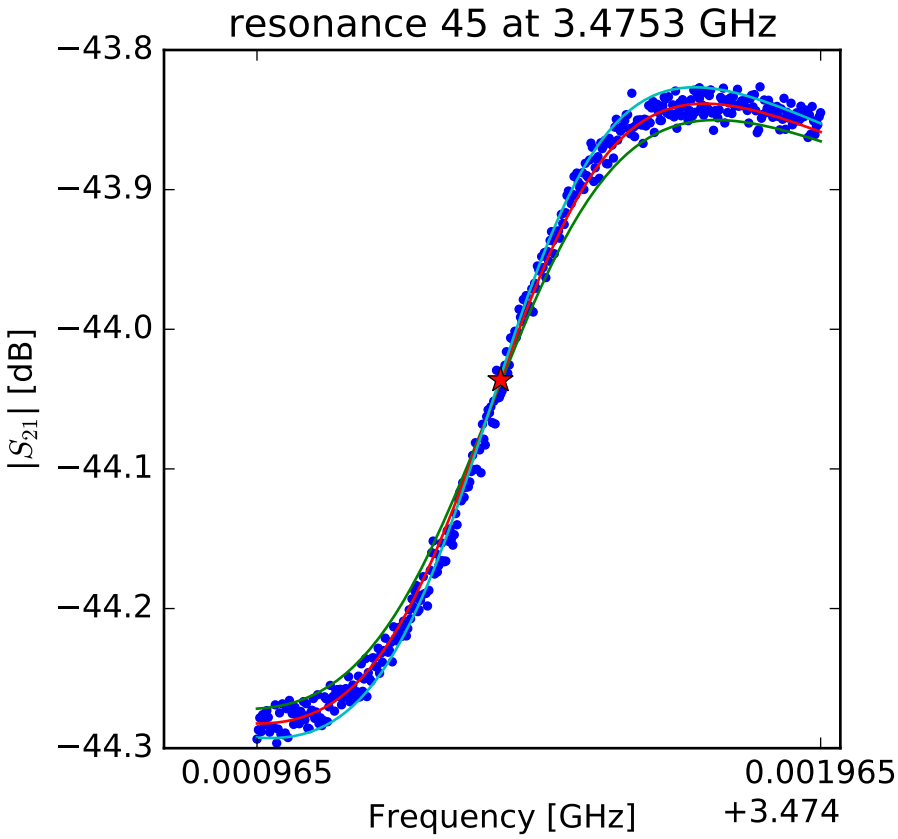


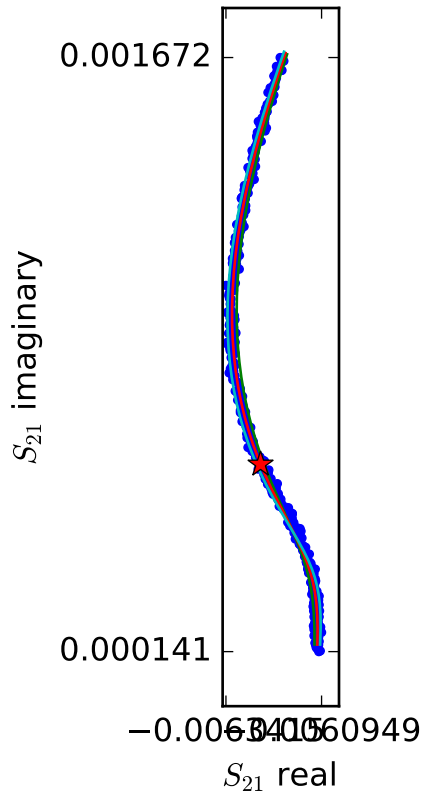


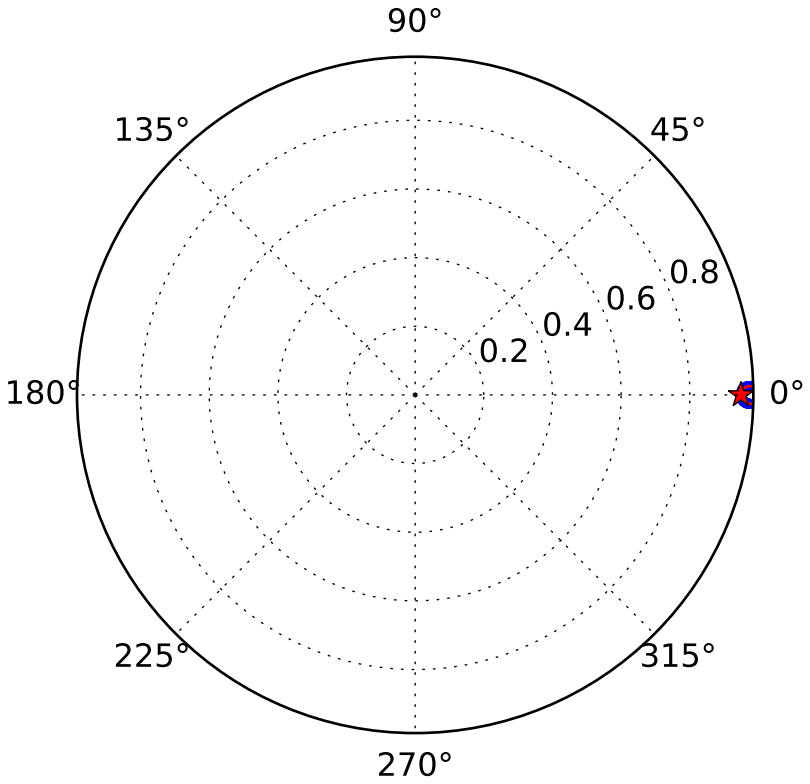


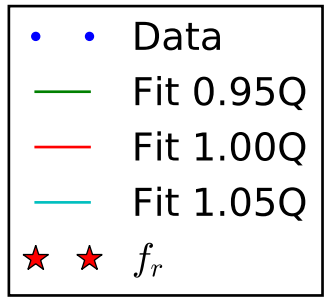
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.47198815685
Q_r = 14470.3045546
Q_c = 217373.429964
a = (0.00591925455873+0.000997966393818j
ϕ_0 = 0.688949348595
τ = 35.5492644022



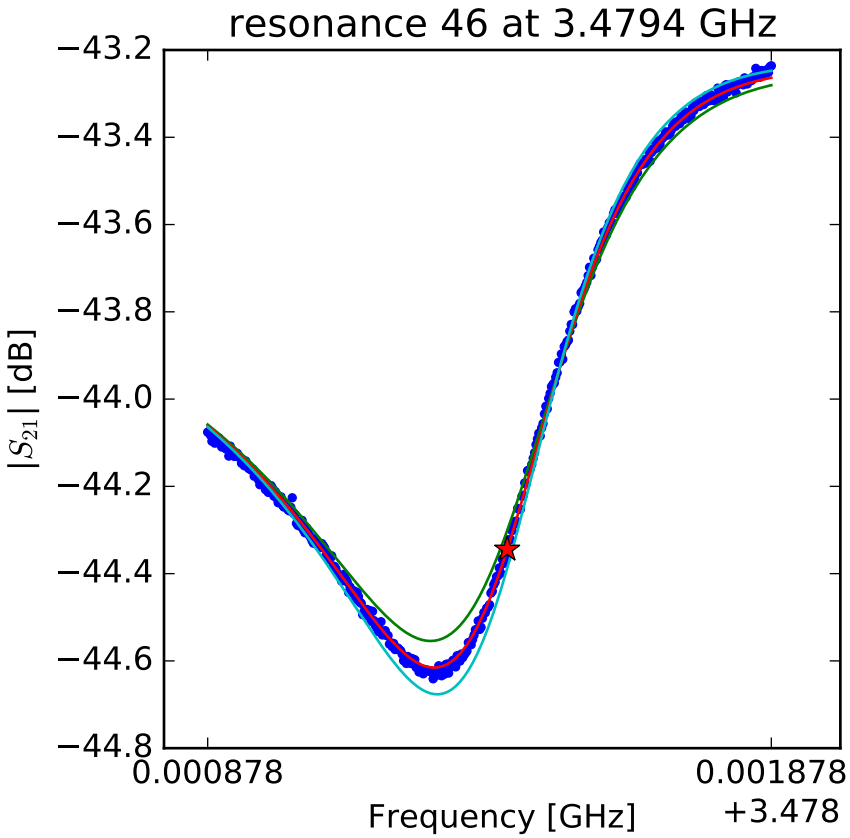


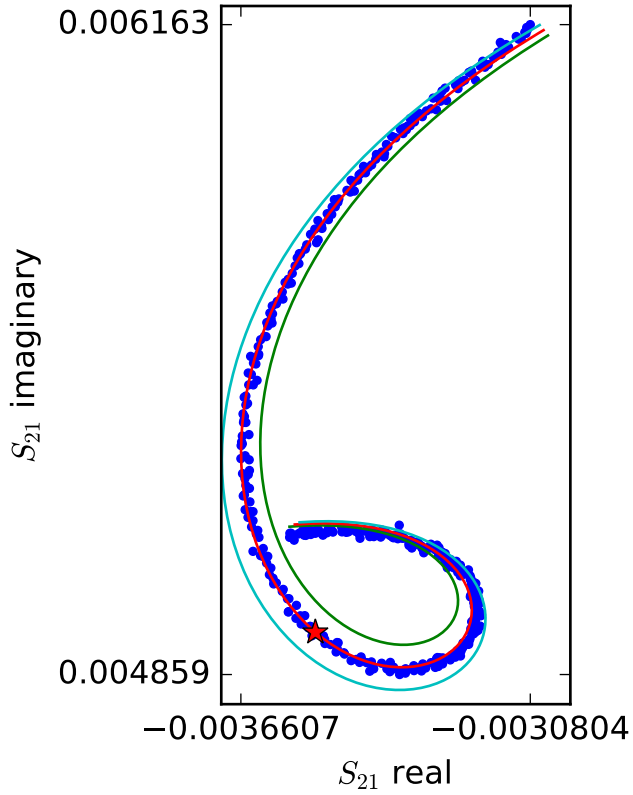


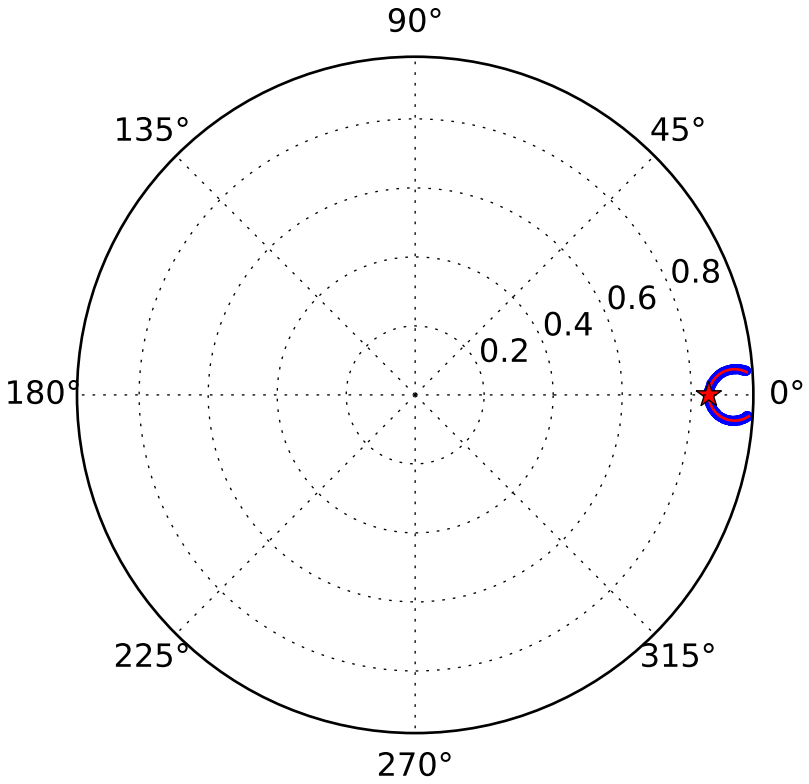


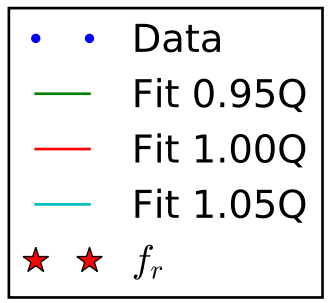
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.47539697904
Q_r = 4412.10102542
Q_c = 86189.892064
a = (-0.00138013221555+0.00610253549097j)
ϕ_0 = -1.62847069203
τ = 36.4877228373



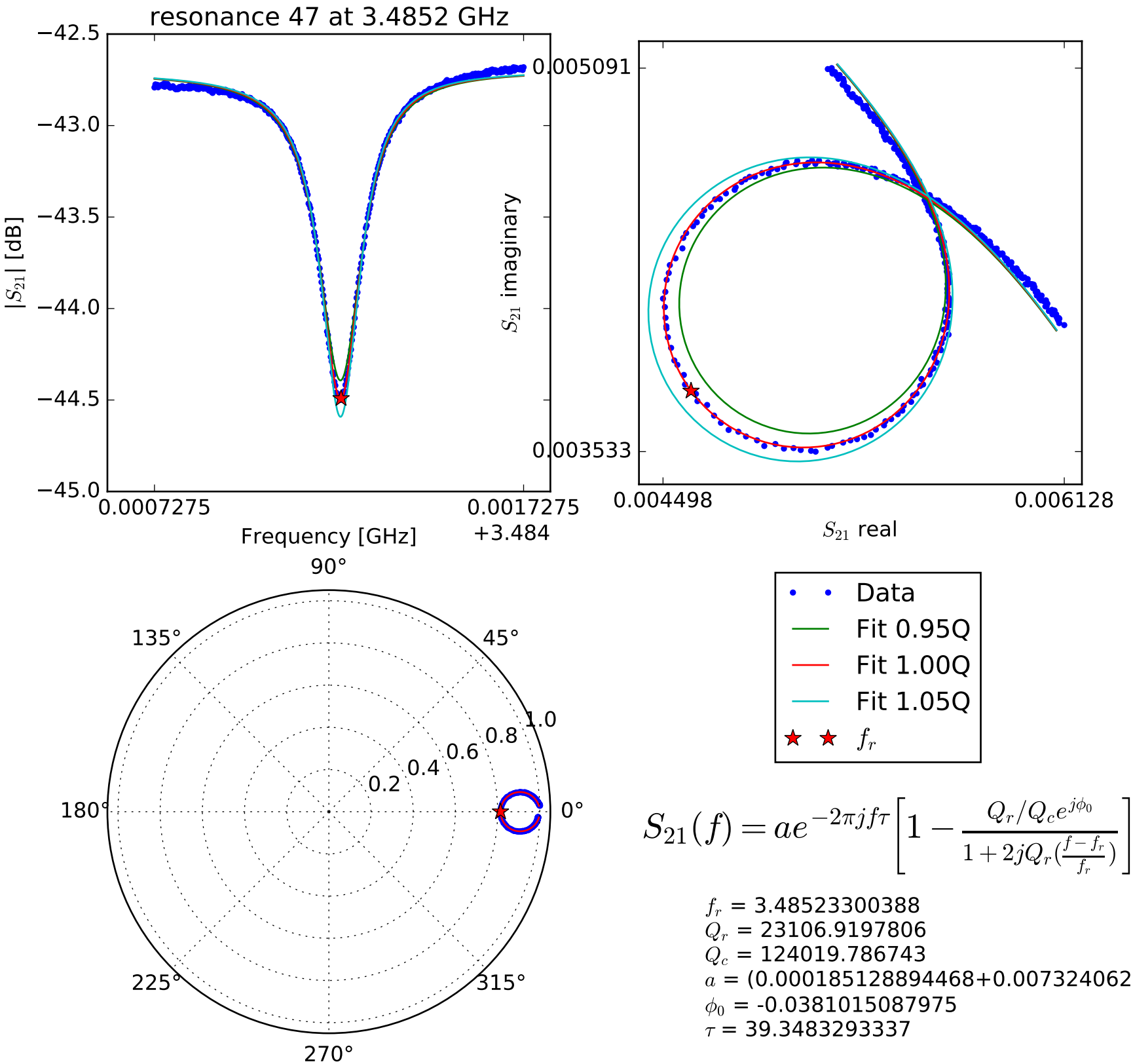






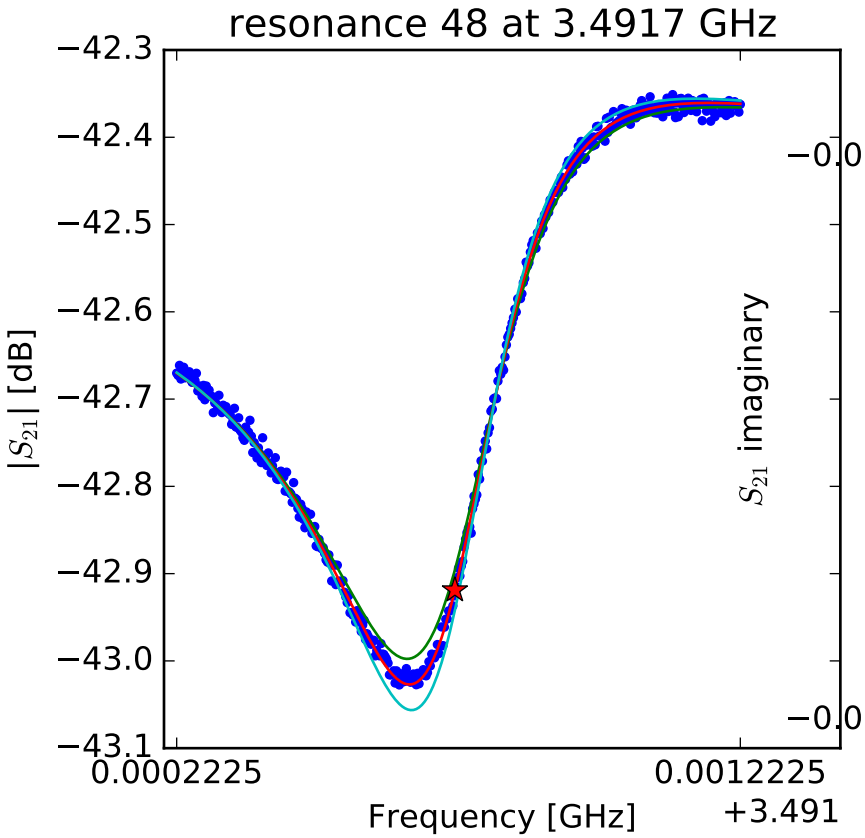
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

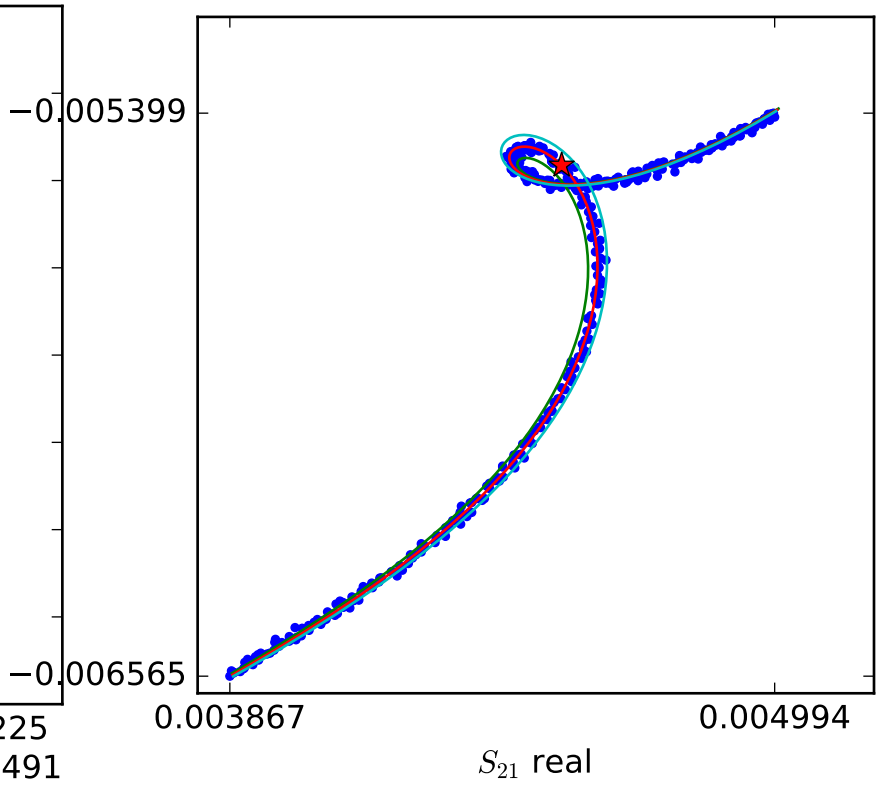
f_r = 3.47940898672
Q_r = 6151.75445106
Q_c = 41251.6101346
a = (0.00184682942488-0.00645710313132j)
ϕ_0 = -0.804148350433
τ = 37.4963193833

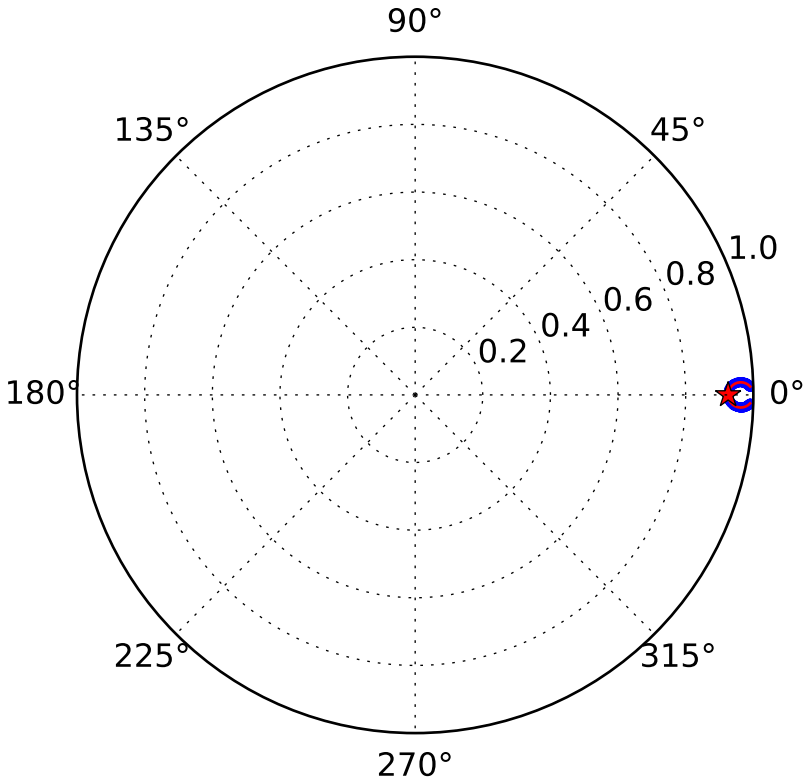


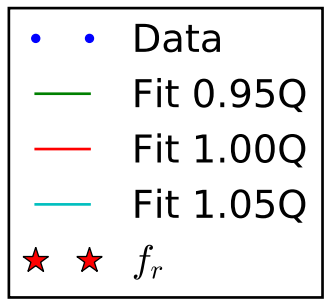
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.48523300388
Q_r = 23106.9197806
Q_c = 124019.786743
a = (0.000185128894468+0.00732406206806j
ϕ_0 = -0.0381015087975
τ = 39.3483293337



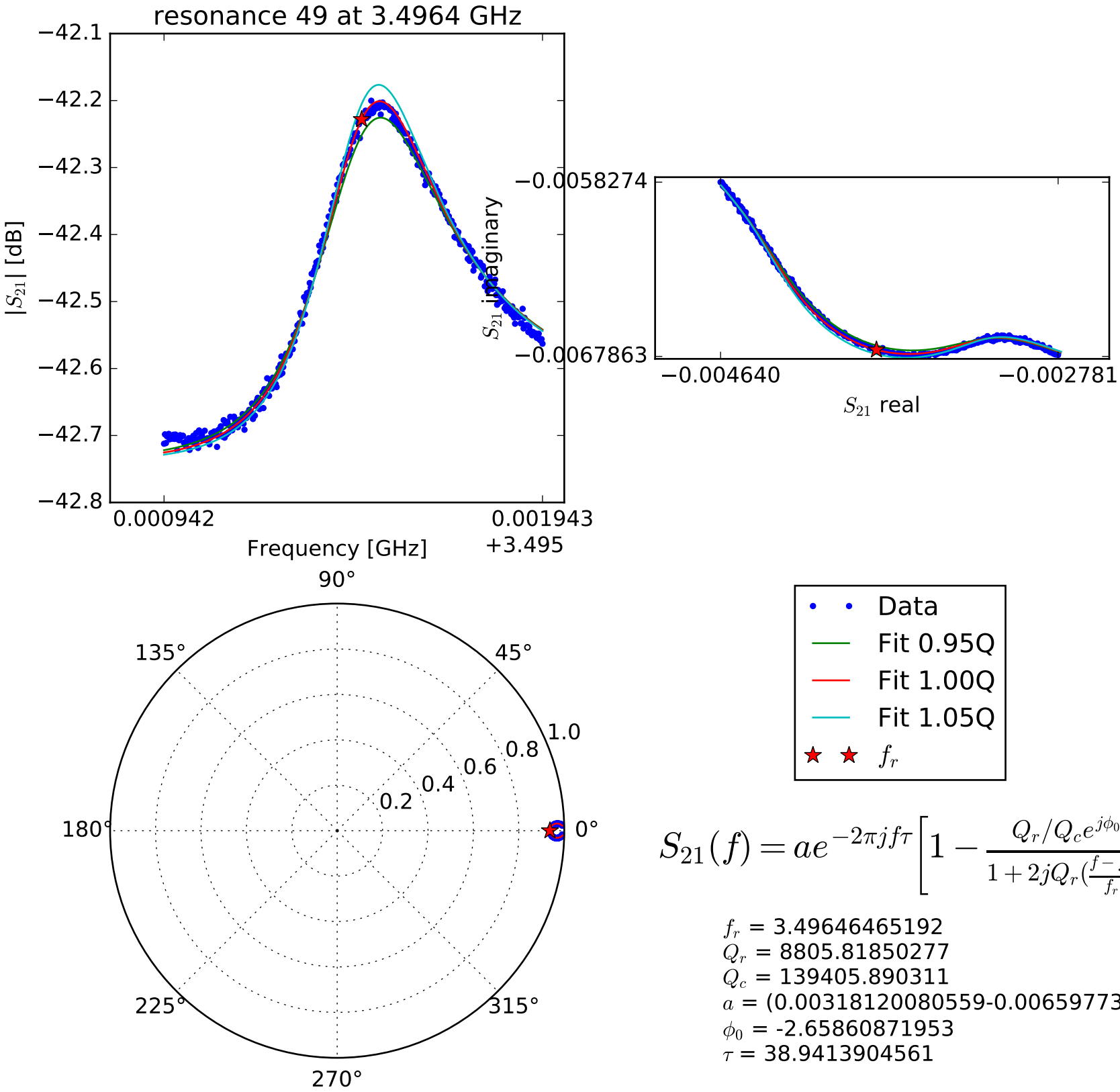






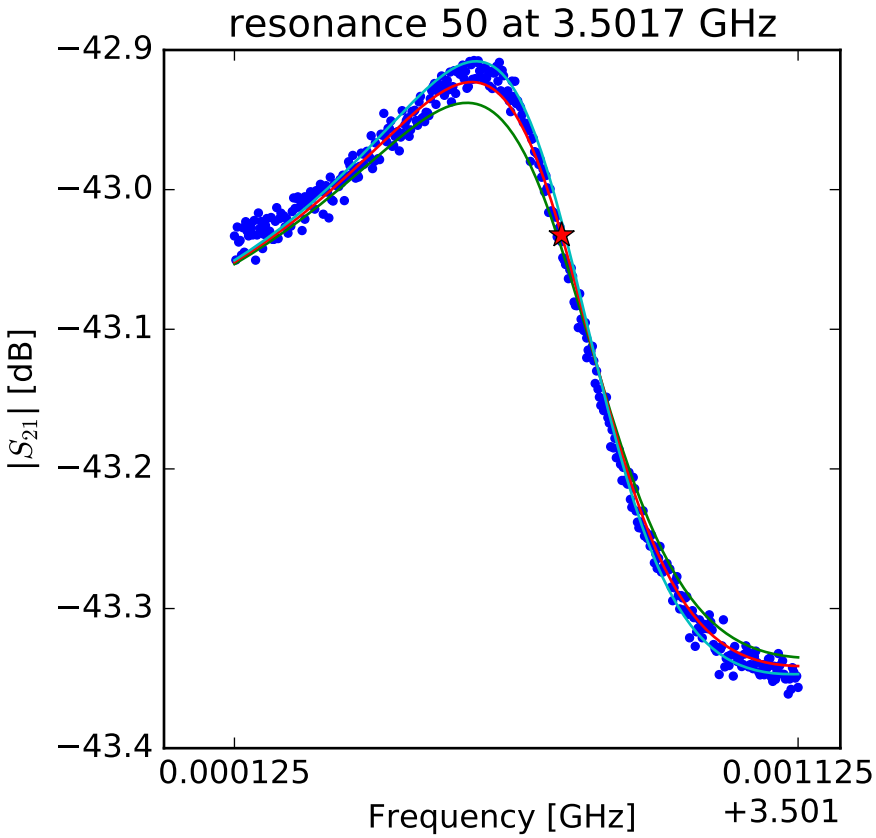
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

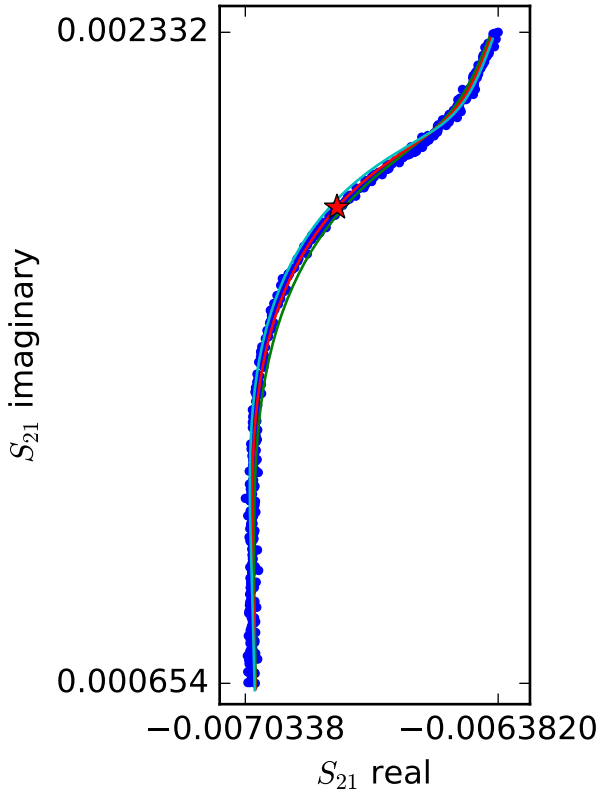
f_r = 3.49171610851
Q_r = 9170.56179716
Q_c = 122826.373722
a = (-0.0053216780748-0.00533774594149j)
ϕ_0 = -0.774393104294
τ = 39.7437959652

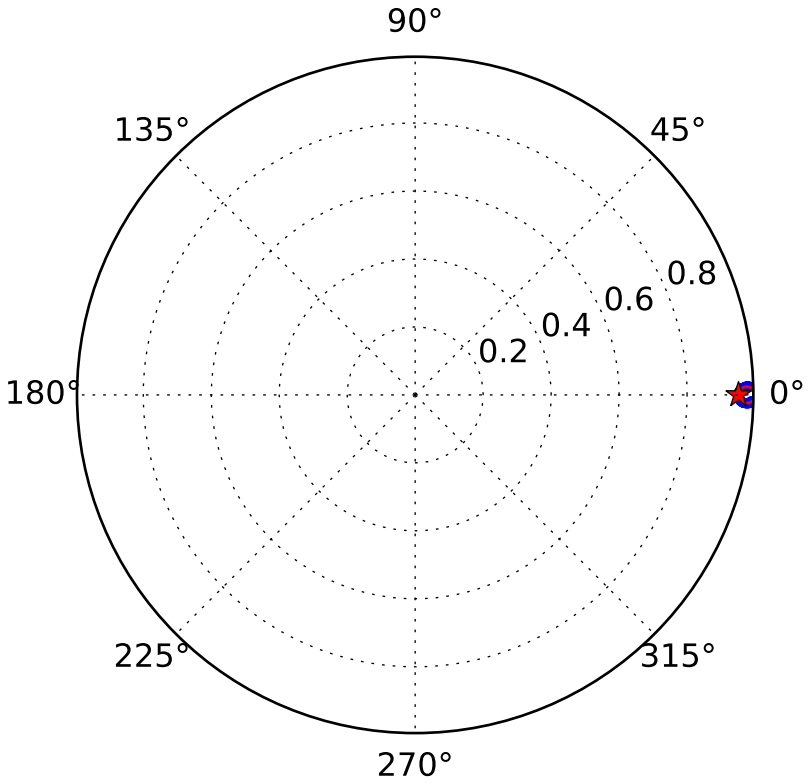


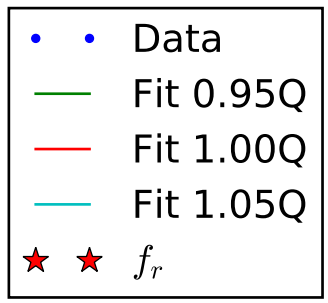
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.49646465192
Q_r = 8805.81850277
Q_c = 139405.890311
a = (0.00318120080559-0.0065977354551j)
ϕ_0 = -2.65860871953
τ = 38.9413904561



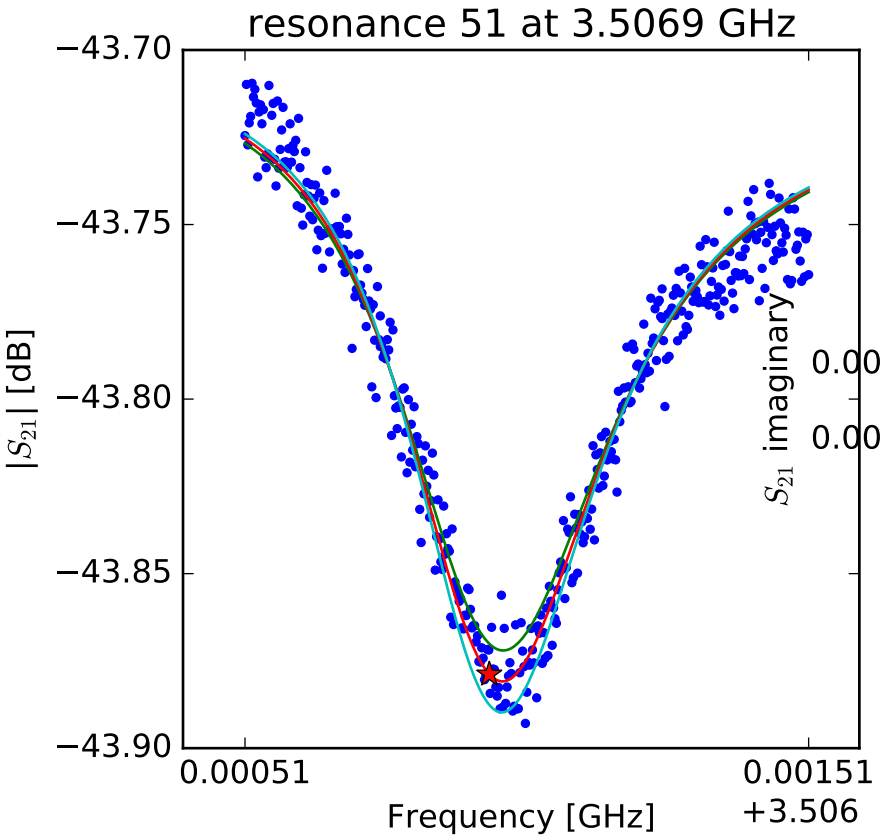


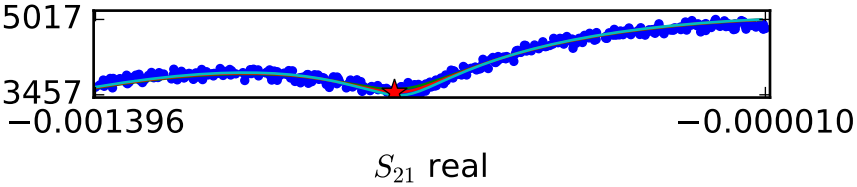


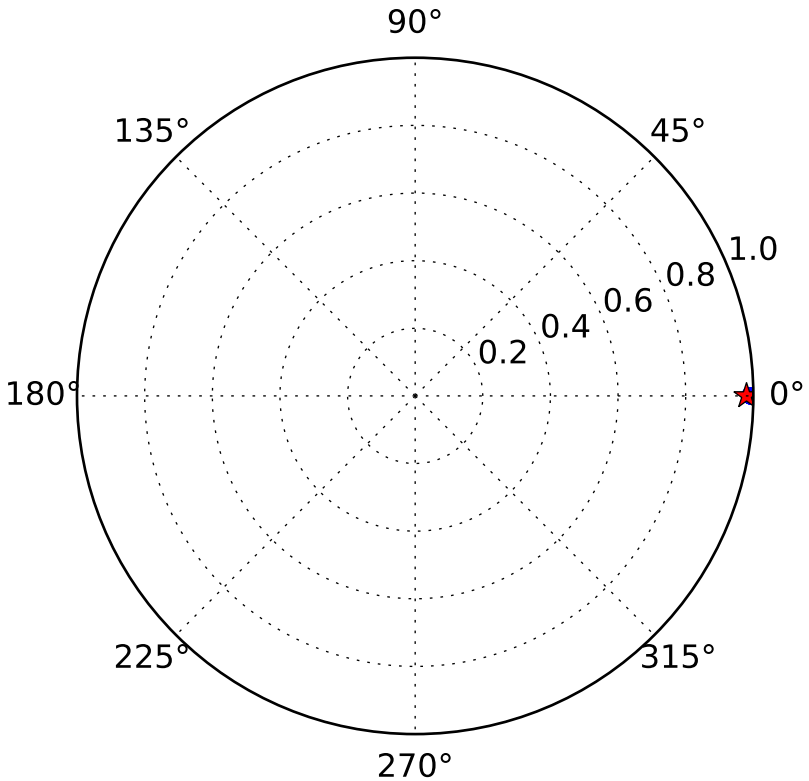


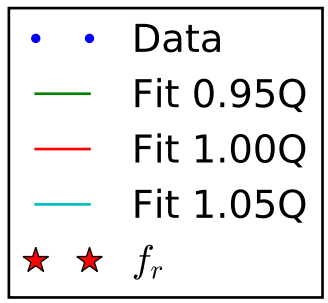
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.50170552482
Q_r = 6696.94539947
Q_c = 137597.38853
a = (-0.00172466557939-0.00668044535665j)
ϕ_0 = 2.02408058653
τ = 37.1950012091



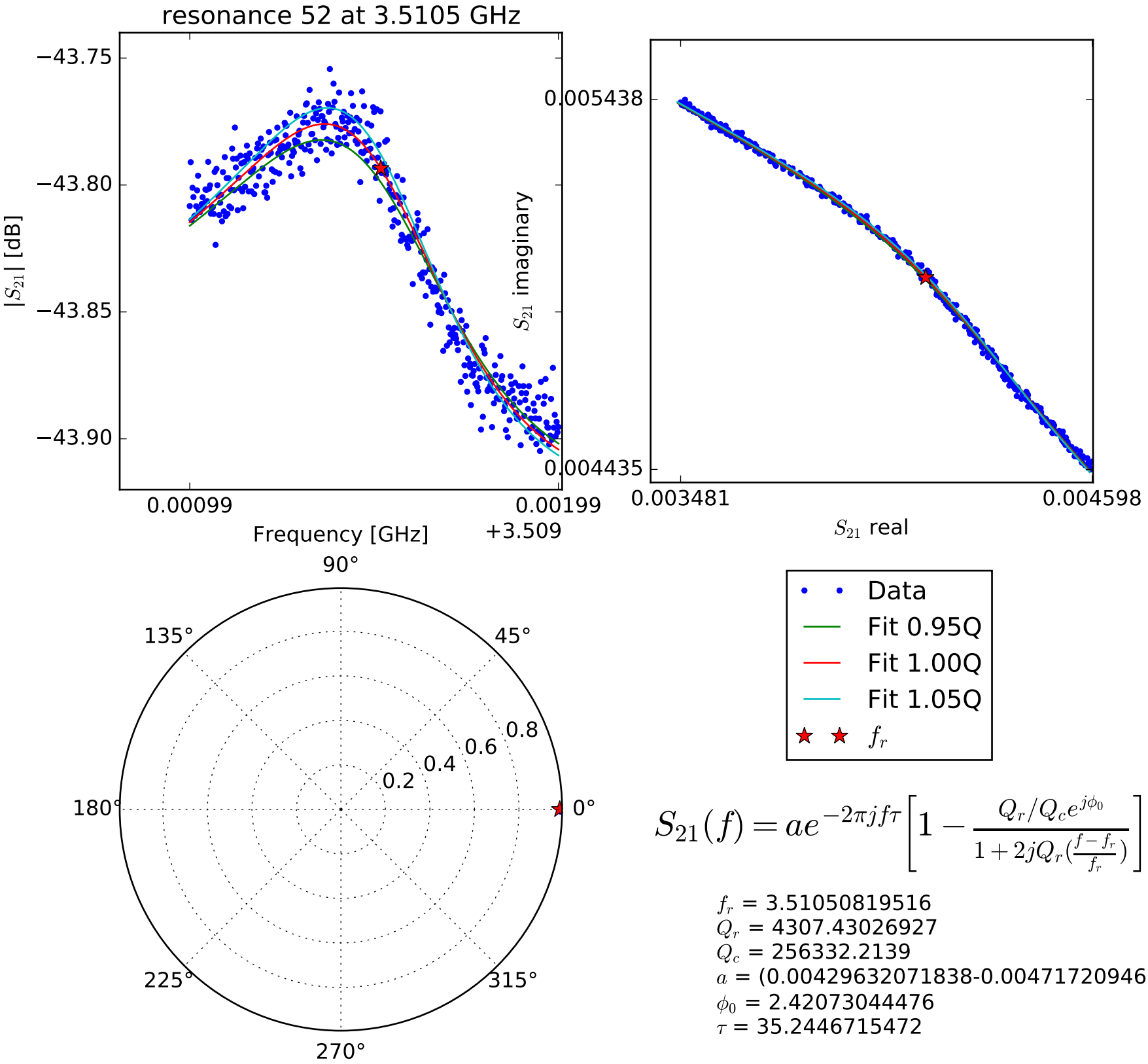






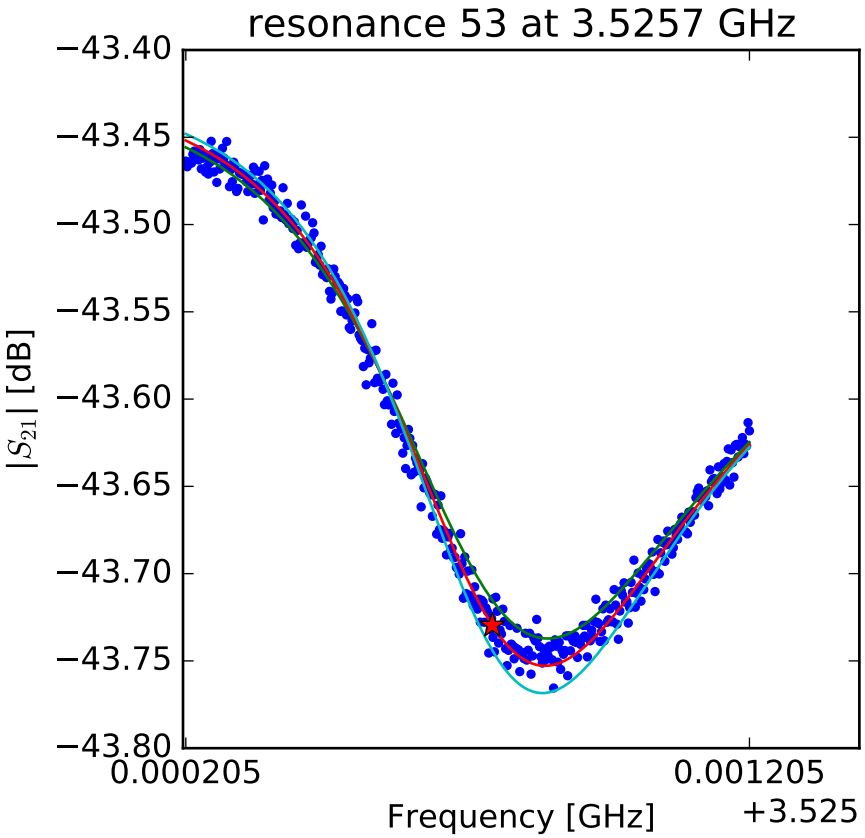
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

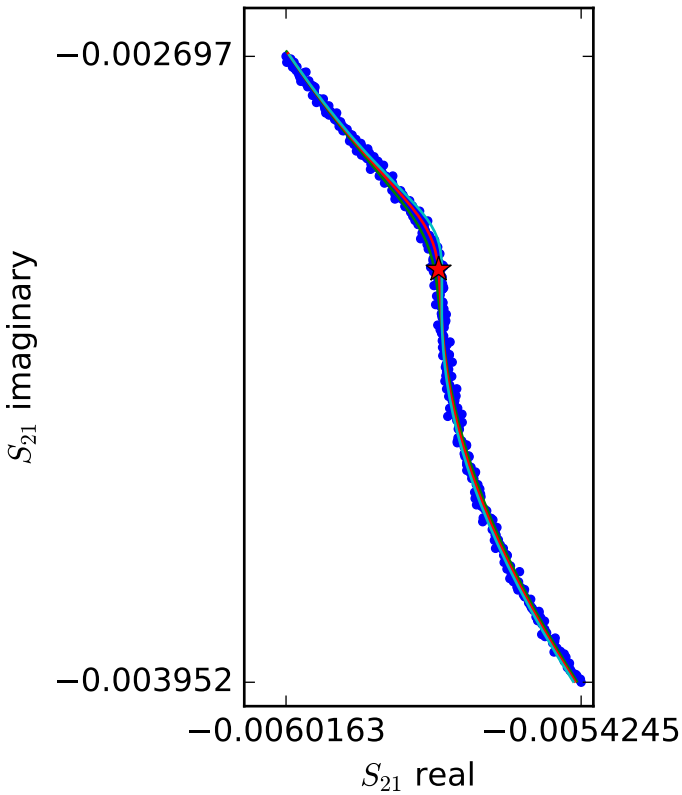
f_r = 3.50694348372
Q_r = 8000.59552705
Q_c = 395703.300612
a = (0.000581420371701-0.00650126344097j)
ϕ_0 = 0.209972057999
τ = 36.3547717315

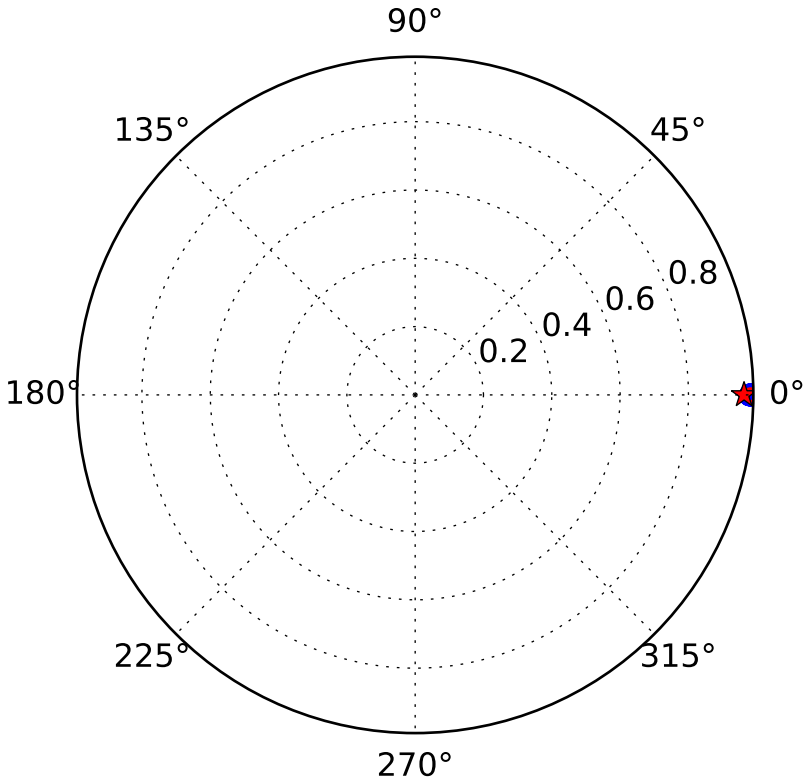


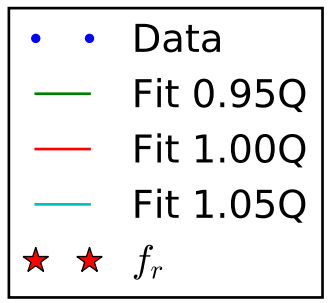
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.51050819516
Q_r = 4307.43026927
Q_c = 256332.2139
a = (0.00429632071838-0.00471720946716j)
ϕ_0 = 2.42073044476
τ = 35.2446715472



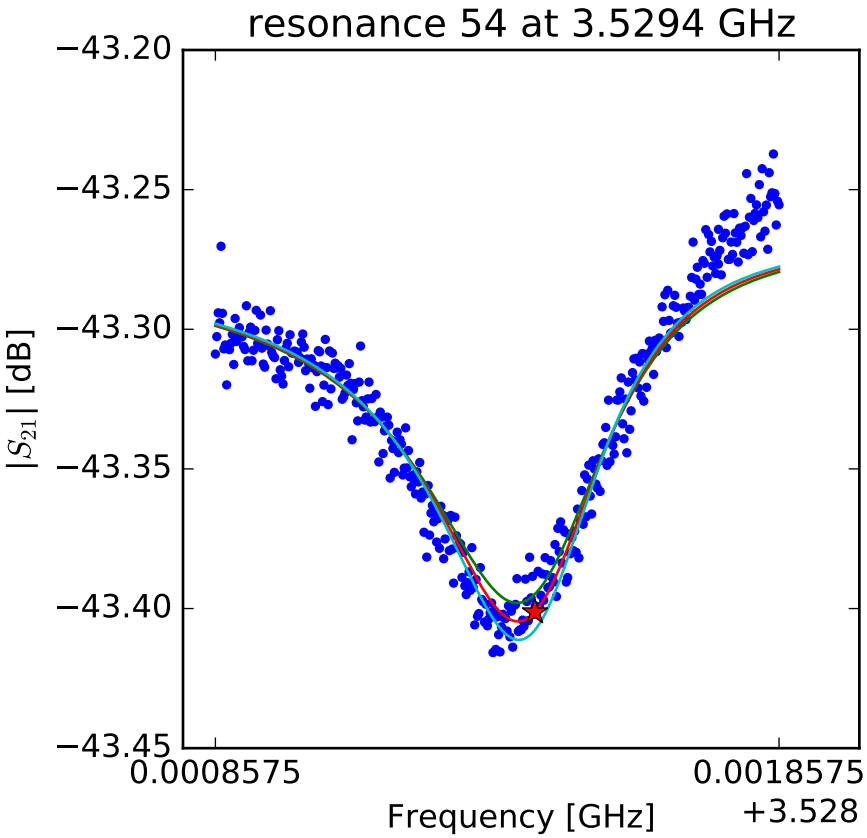


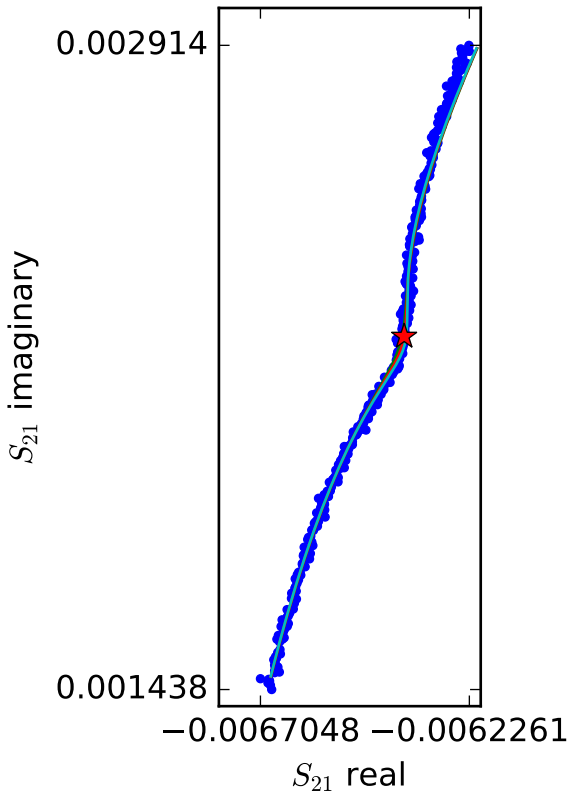


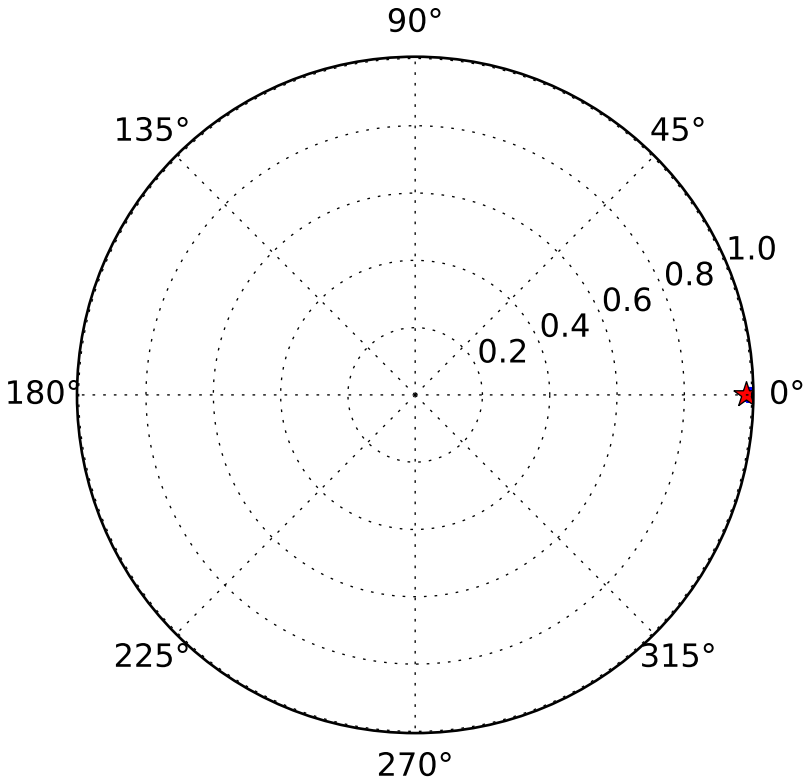


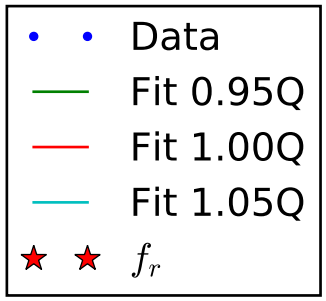
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.52574885768
Q_r = 5114.99118386
Q_c = 137324.84734
a = (-0.00115413260506+0.00662570694058j)
ϕ_0 = 0.518365541156
τ = 37.6359023011



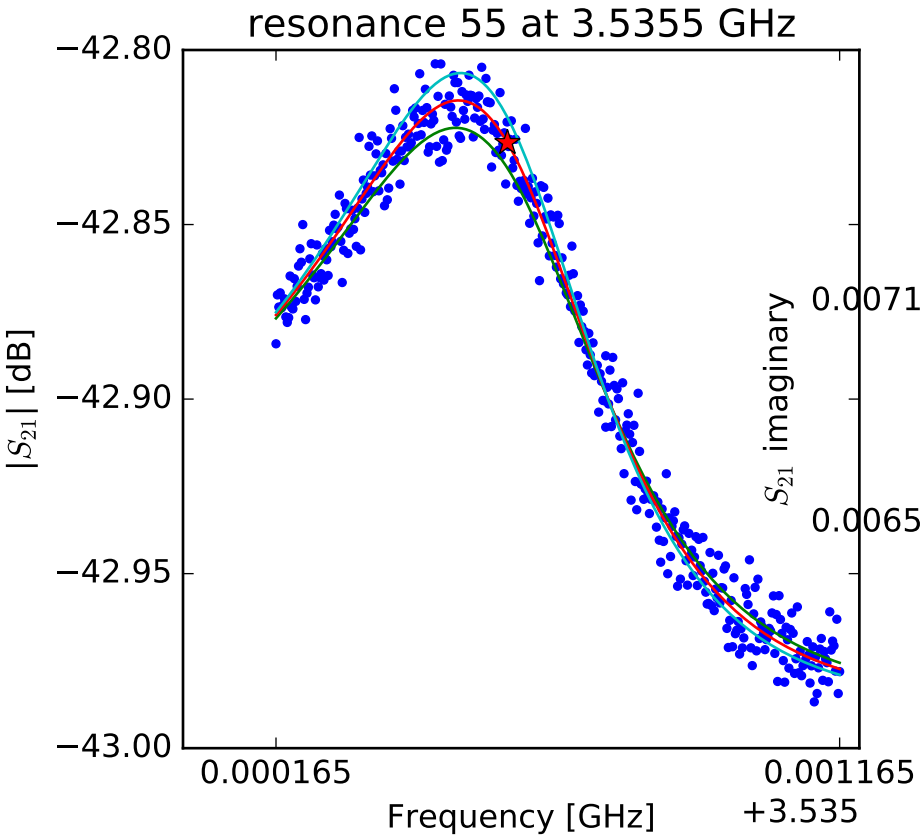


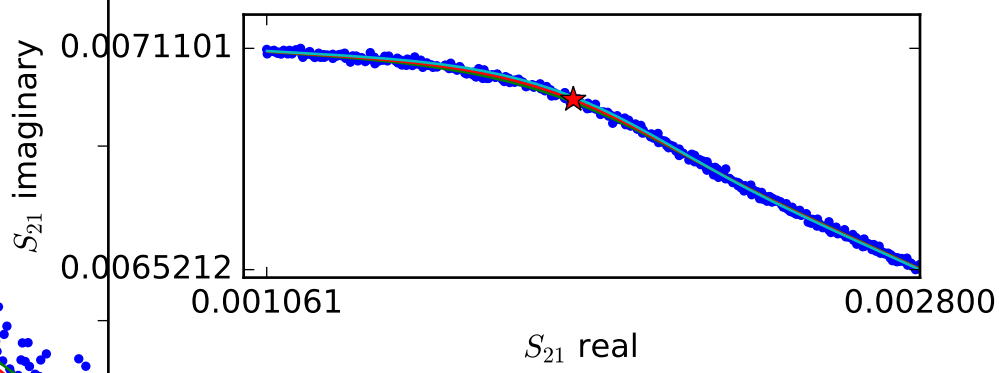


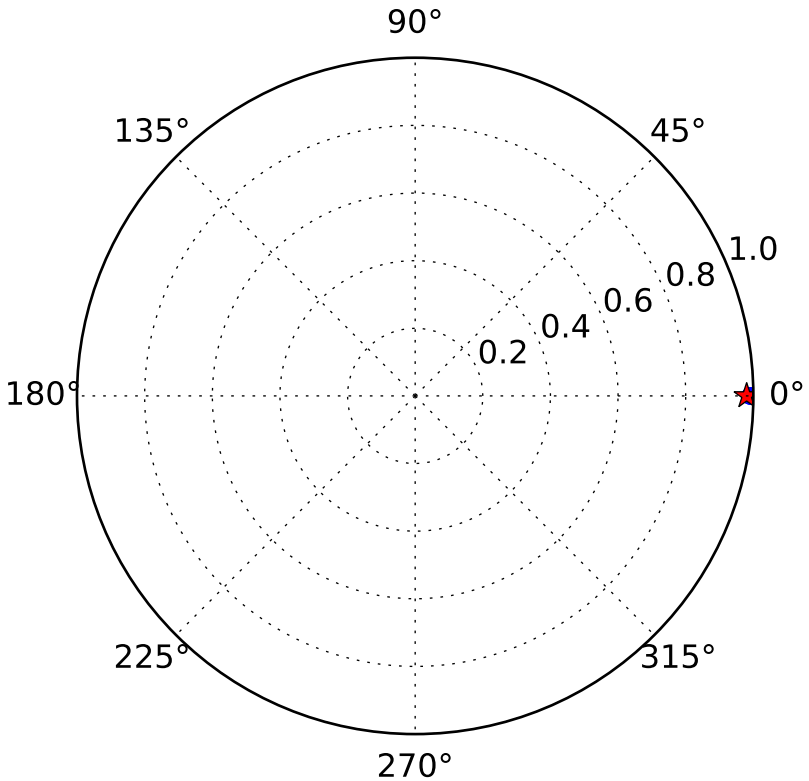


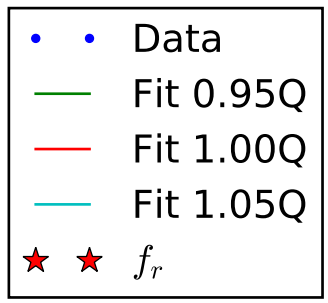
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.52942435736
Q_r = 9313.23594828
Q_c = 605597.0116
a = (-0.00540120525101-0.0042295279149j)
ϕ_0 = -0.311898351827
τ = 36.8786576695



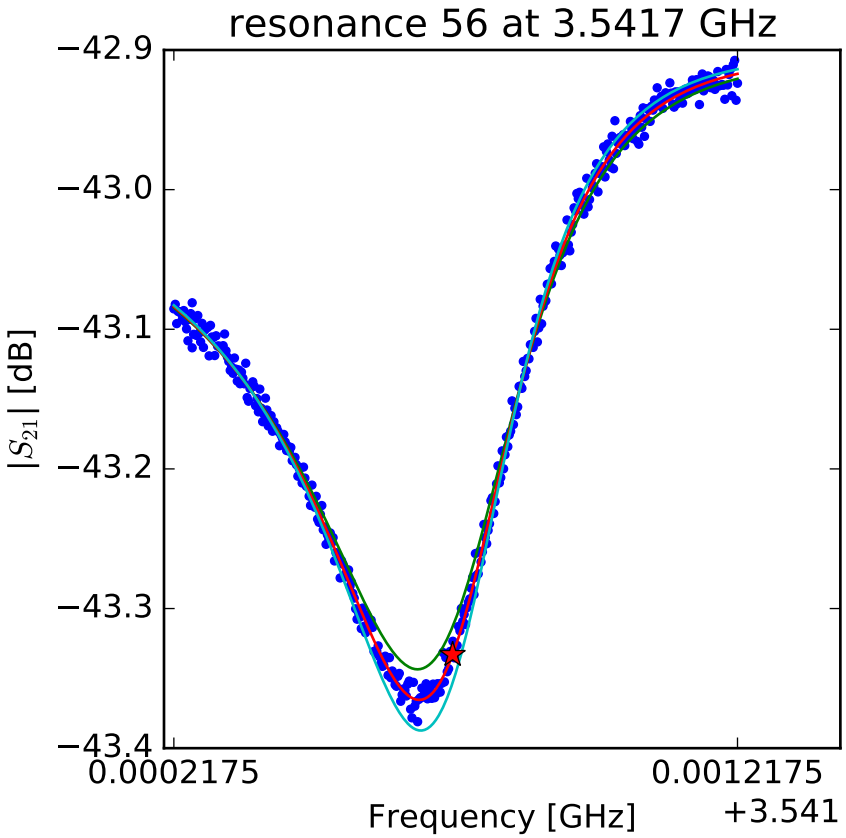


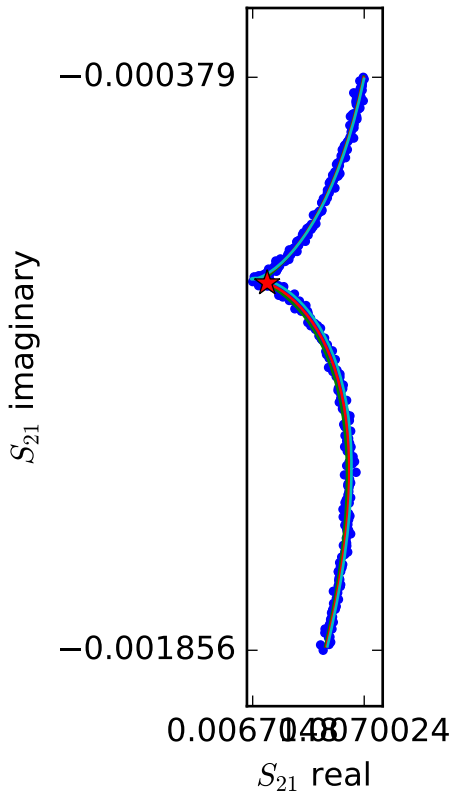


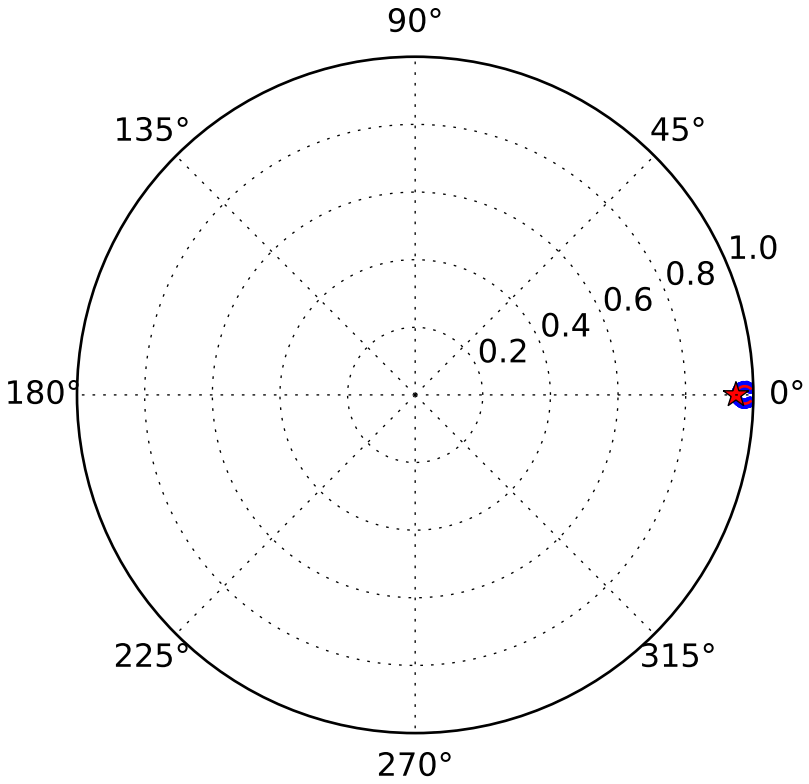


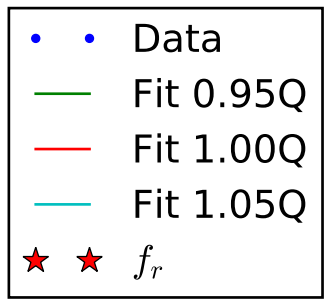
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.53557557787
Q_r = 5653.56938998
Q_c = 285030.267955
a = (0.0034274879376-0.00621987385947j)
ϕ_0 = 2.59239865651
τ = 38.6416260196



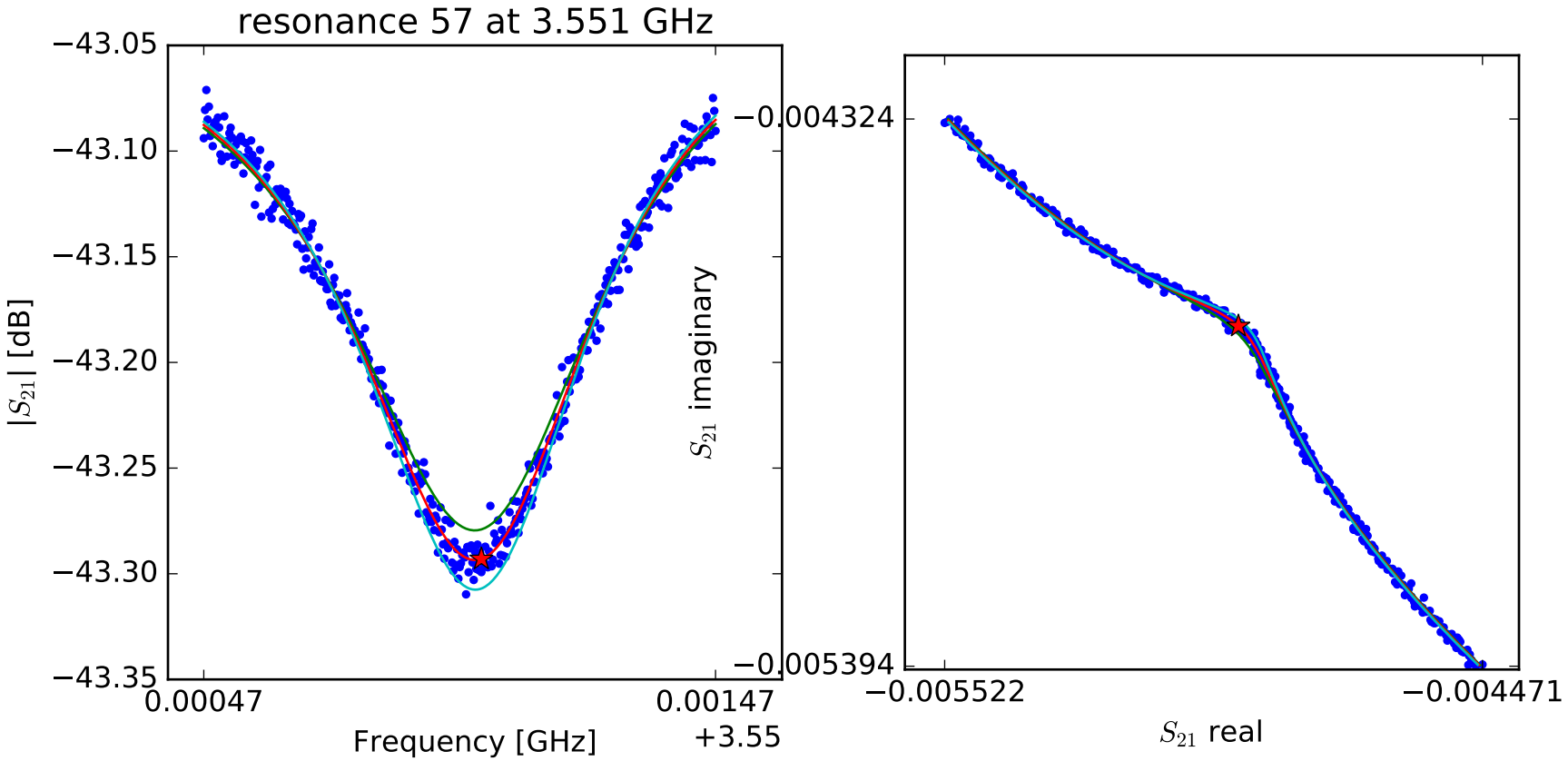


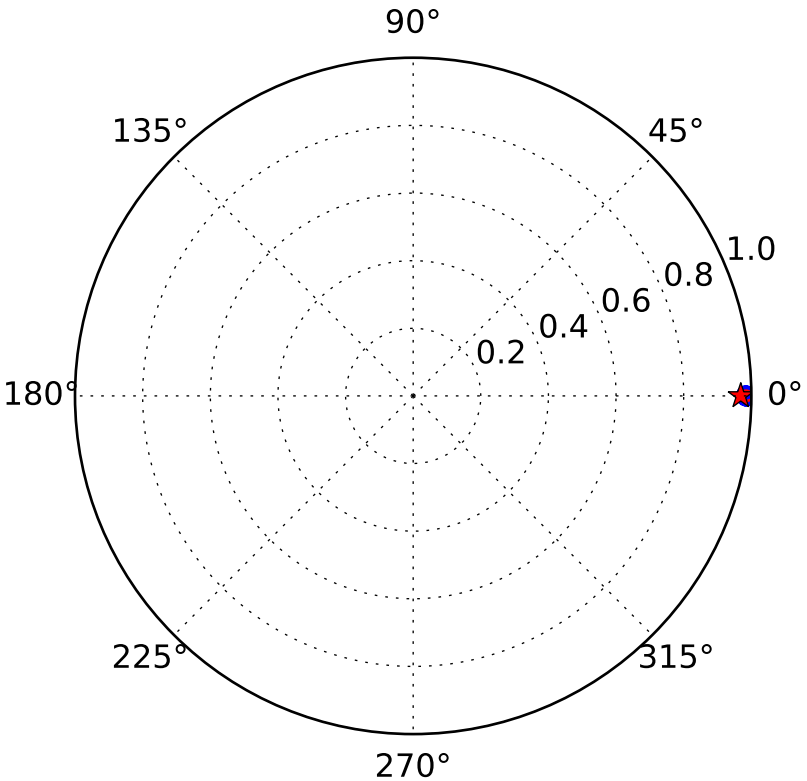


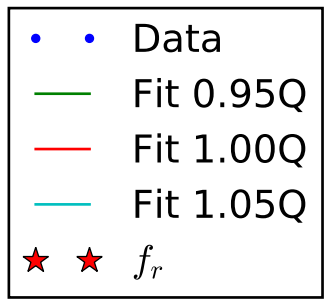


$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.54171209955
Q_r = 8034.57183494
Q_c = 155933.458236
a = (-0.00437385364219+0.0056321581067j)
ϕ_0 = -0.512369323613
τ = 38.2246196835

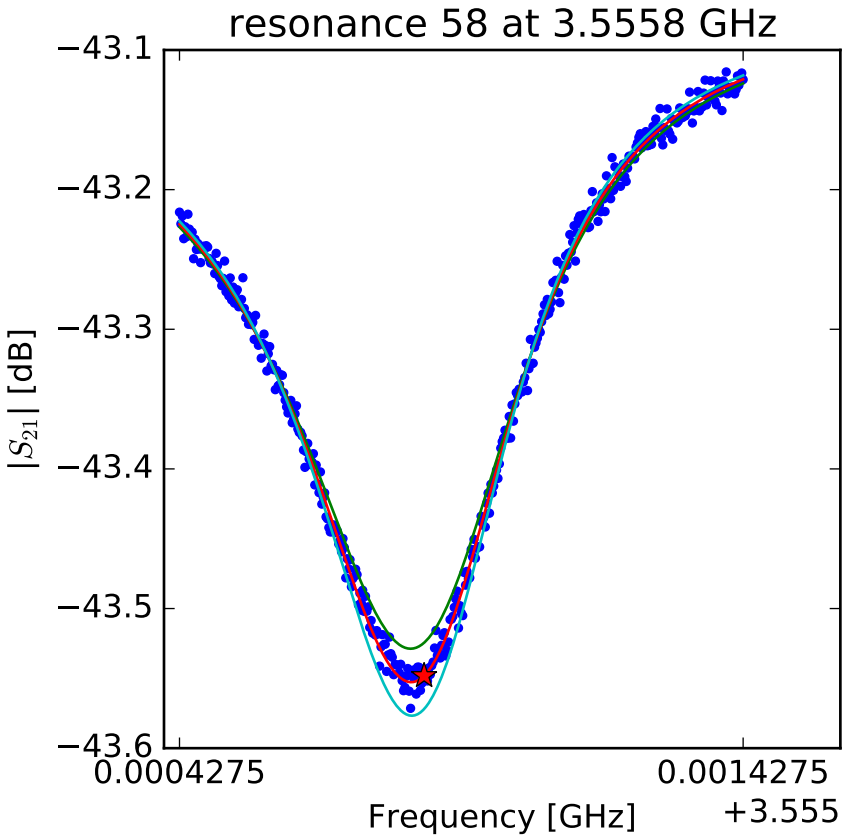


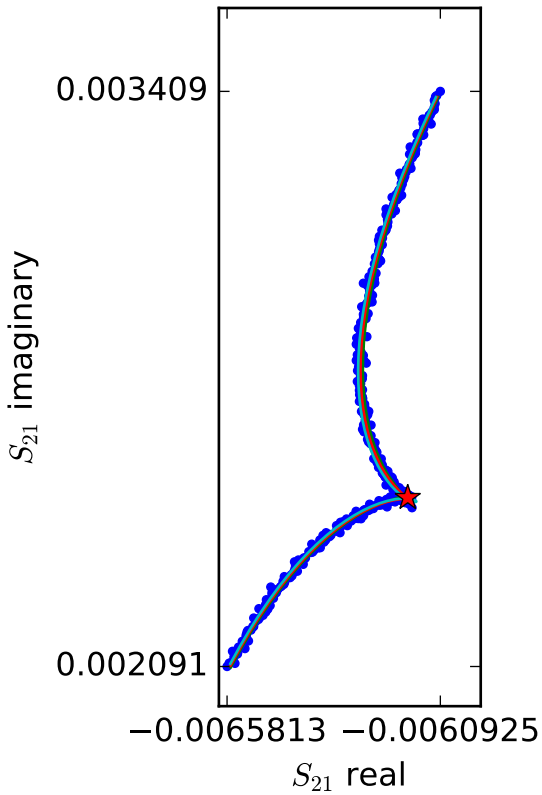


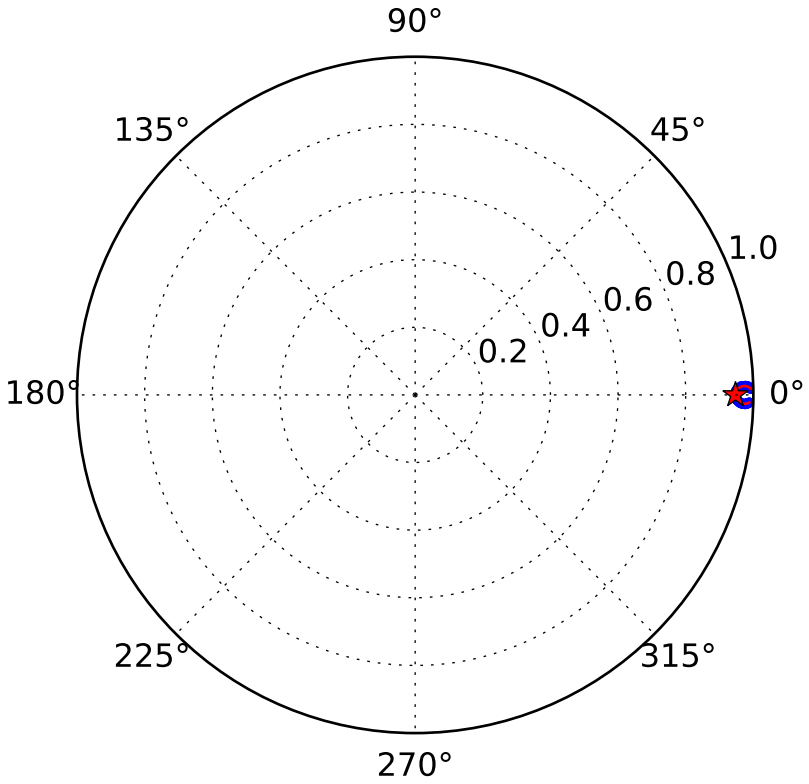


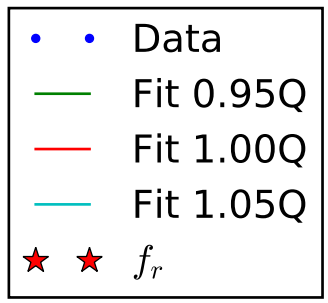
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.55101248902
Q_r = 6071.0405065
Q_c = 193794.872544
a = (0.00381934564188+0.00594384983542j)
ϕ_0 = -0.0830650329449
τ = 38.1688699247



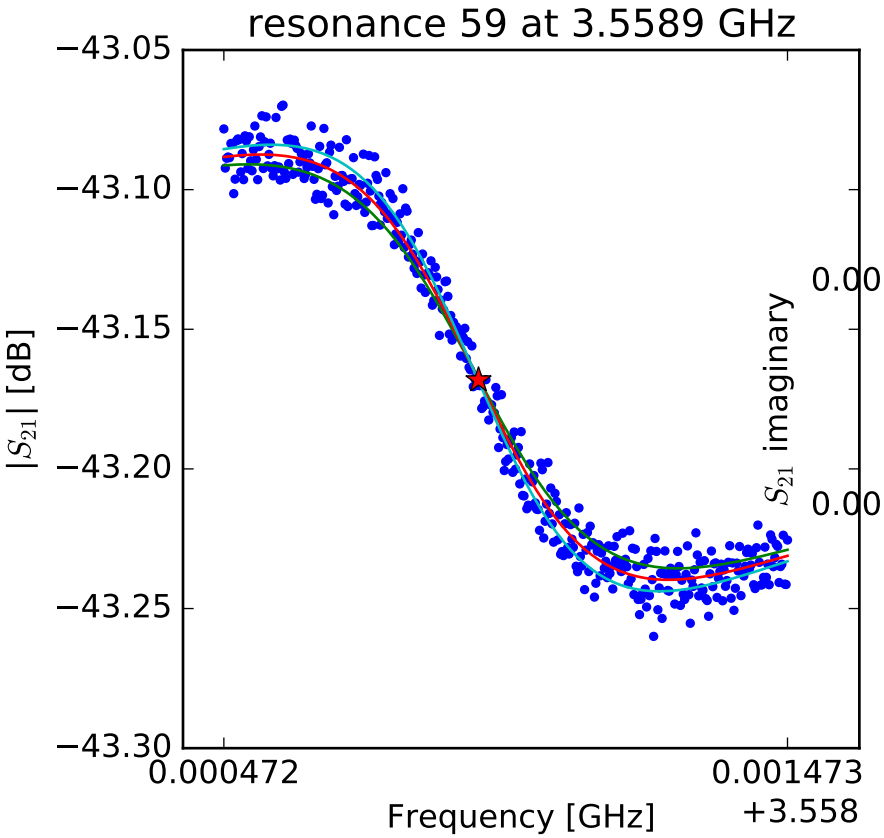


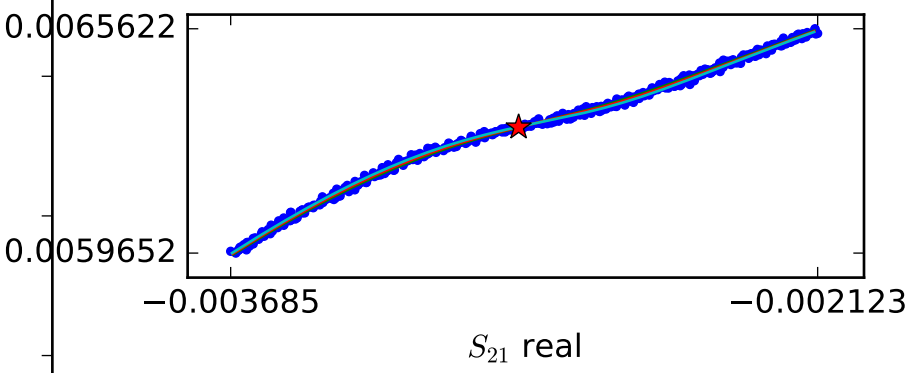


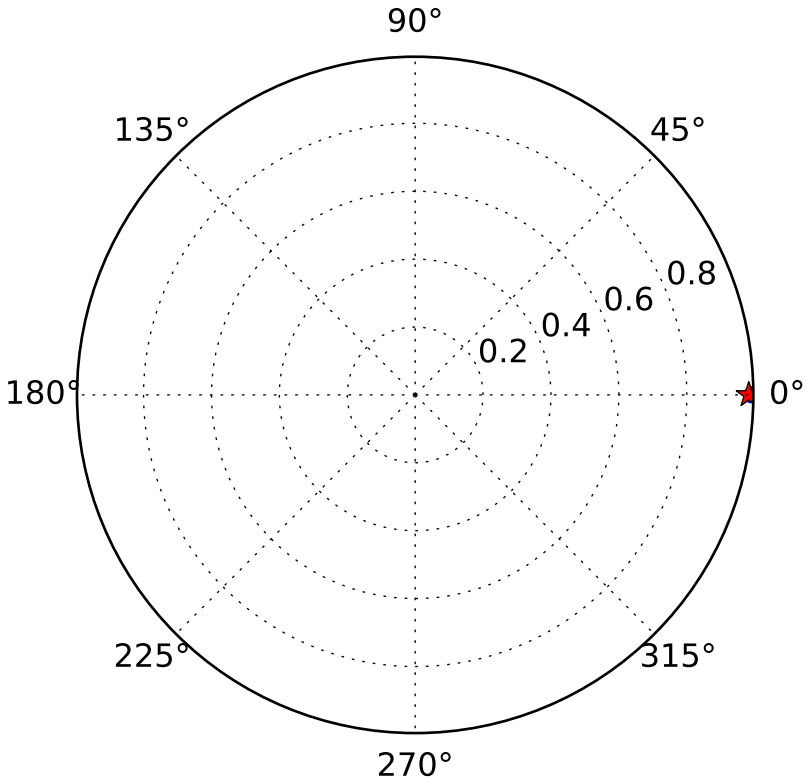


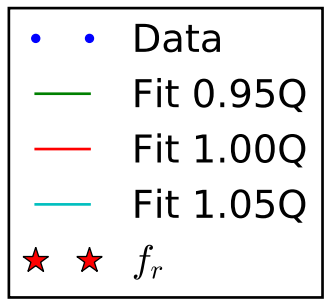
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.55586151329
Q_r = 7485.65721031
Q_c = 141667.494753
a = (0.00621193338637+0.00324857094229j)
ϕ_0 = -0.186733767355
τ = 38.1452251308



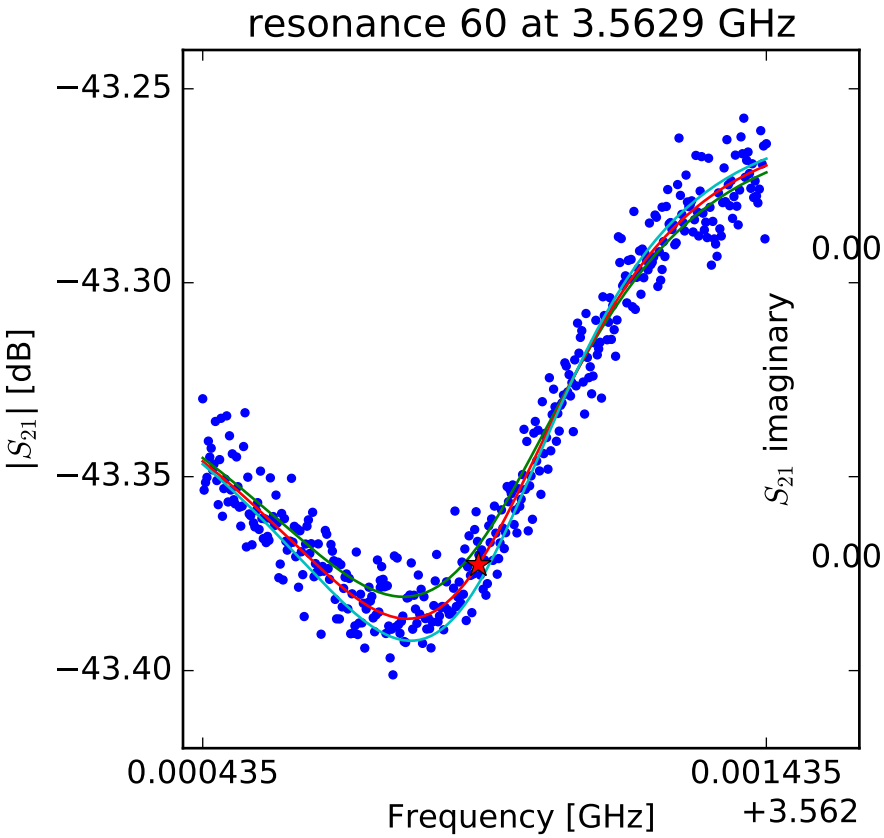


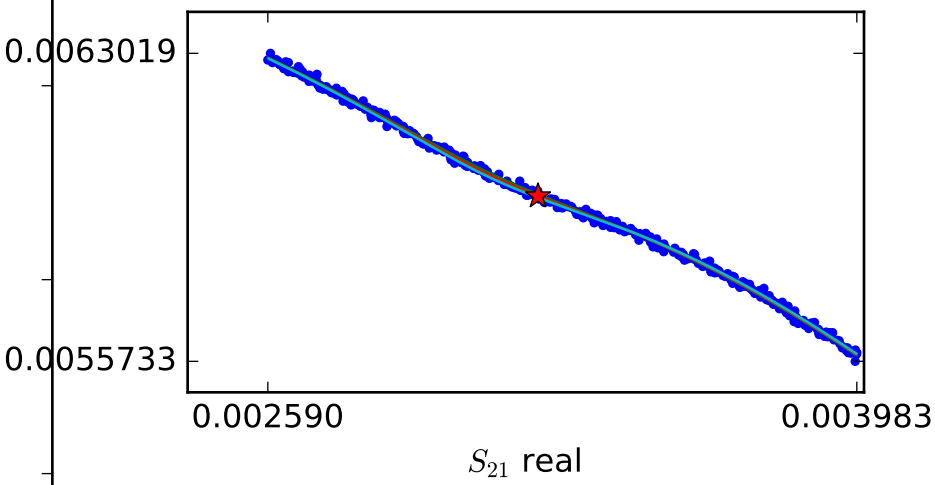


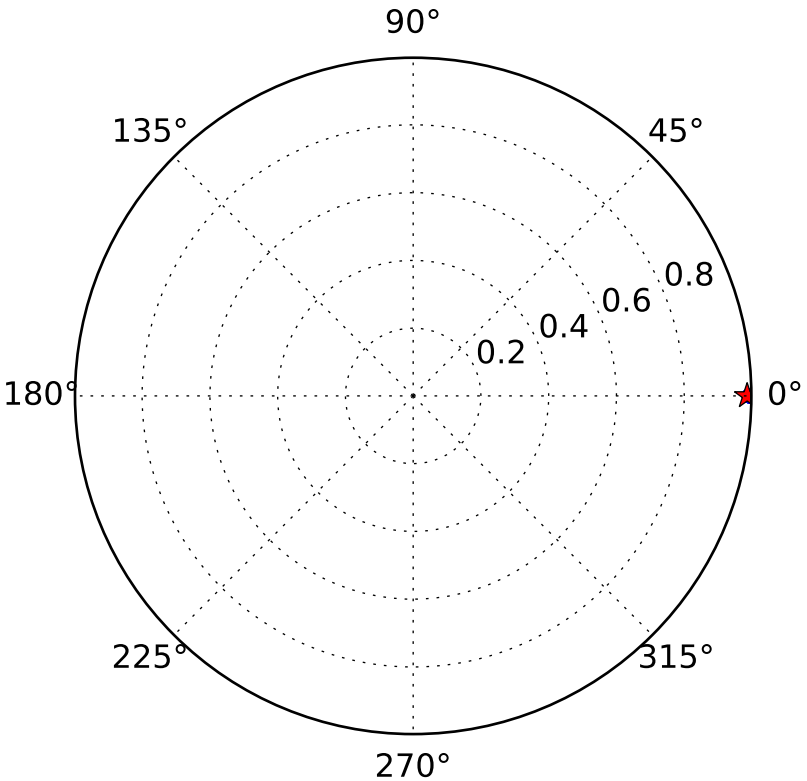


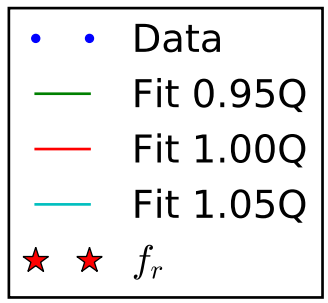
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.55892429716
Q_r = 4932.49104345
Q_c = 281499.213177
a = (0.00585227093785-0.00375273543264j)
ϕ_0 = 1.49287897907
τ = 38.378847051



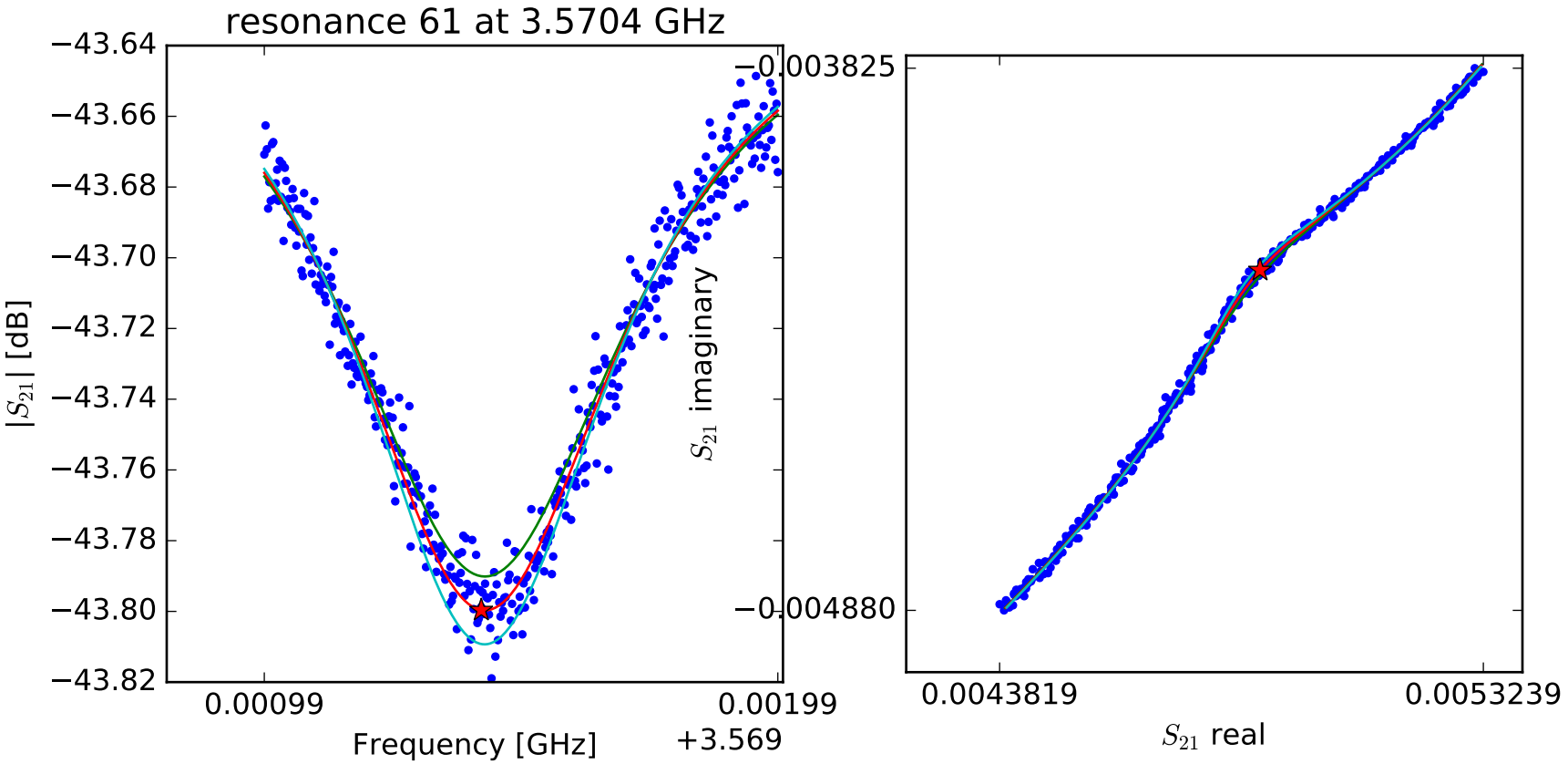


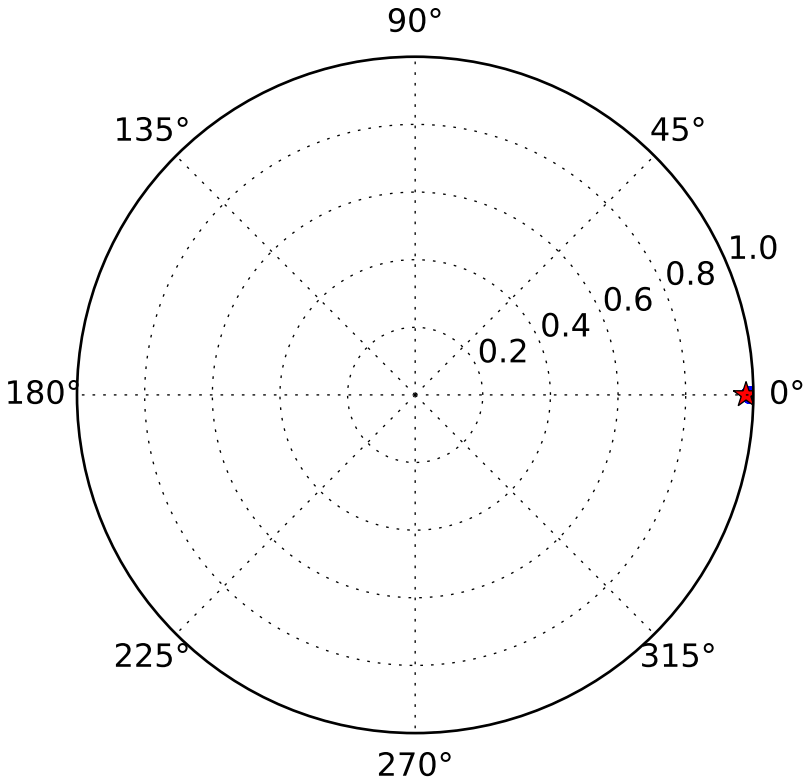


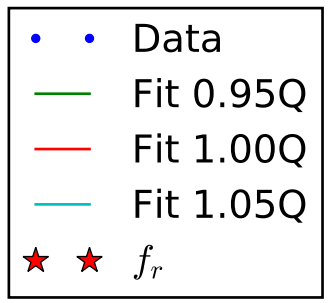


$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.56292410494
Q_r = 4943.60823341
Q_c = 342025.832307
a = (-0.00666546413768-0.00162061464979j)
ϕ_0 = -0.66828179885
τ = 37.9936168376

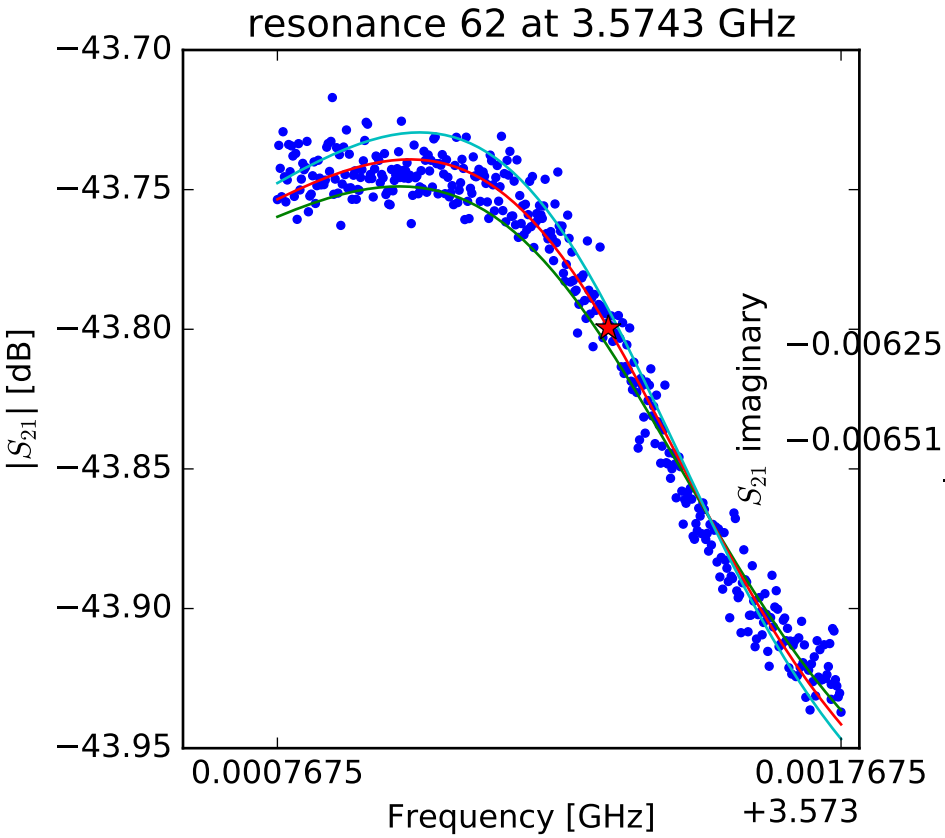


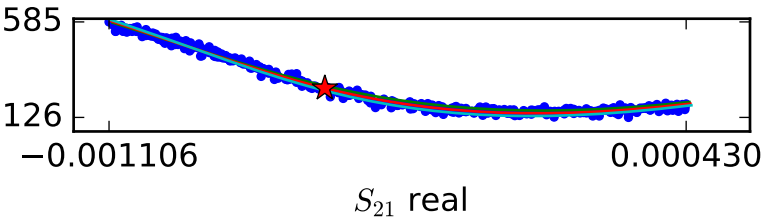


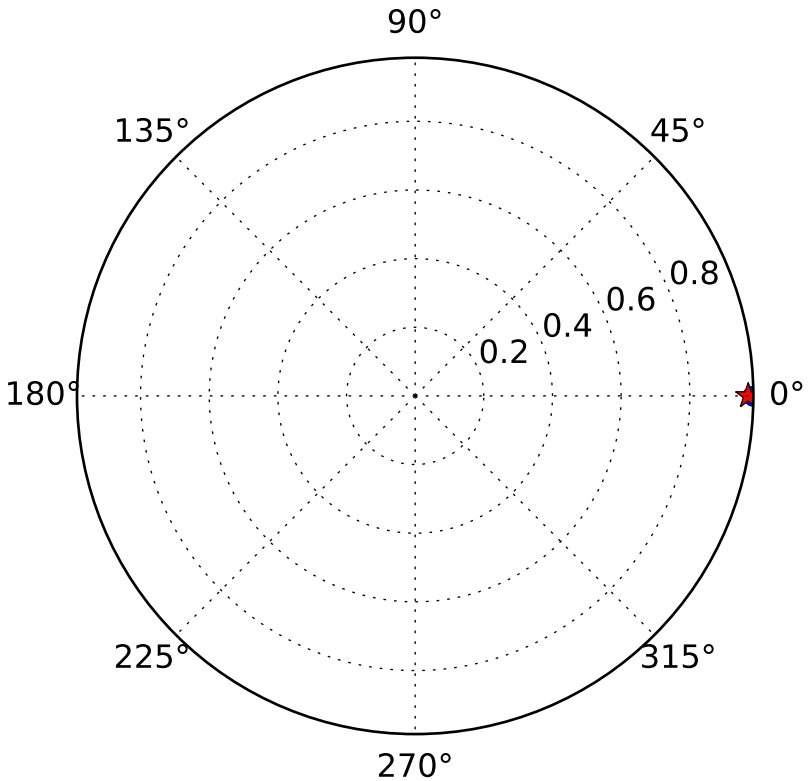


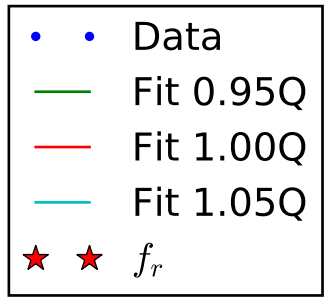
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.57041250546
Q_r = 5476.1164534
Q_c = 253344.27621
a = (0.00464258811821+0.00469015542989j)
ϕ_0 = 0.0413595395902
τ = 37.317523461



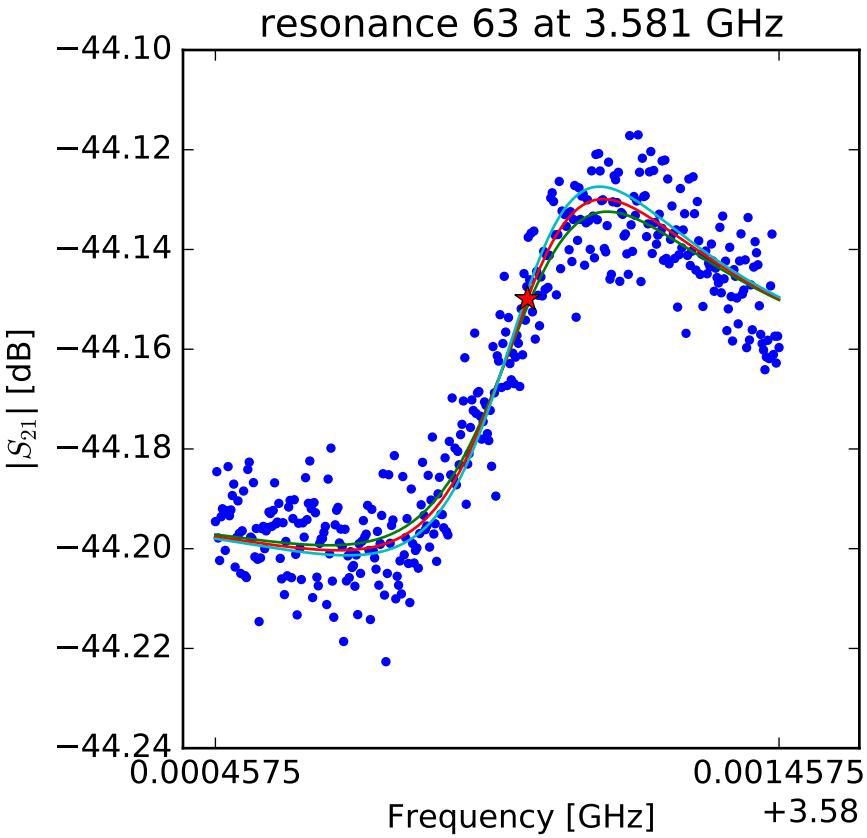


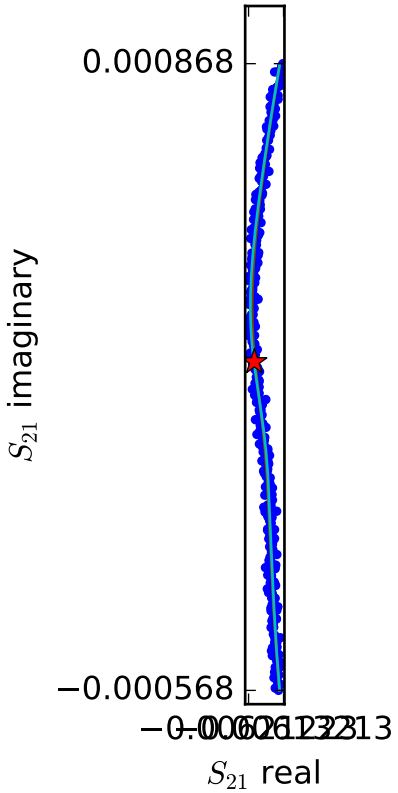


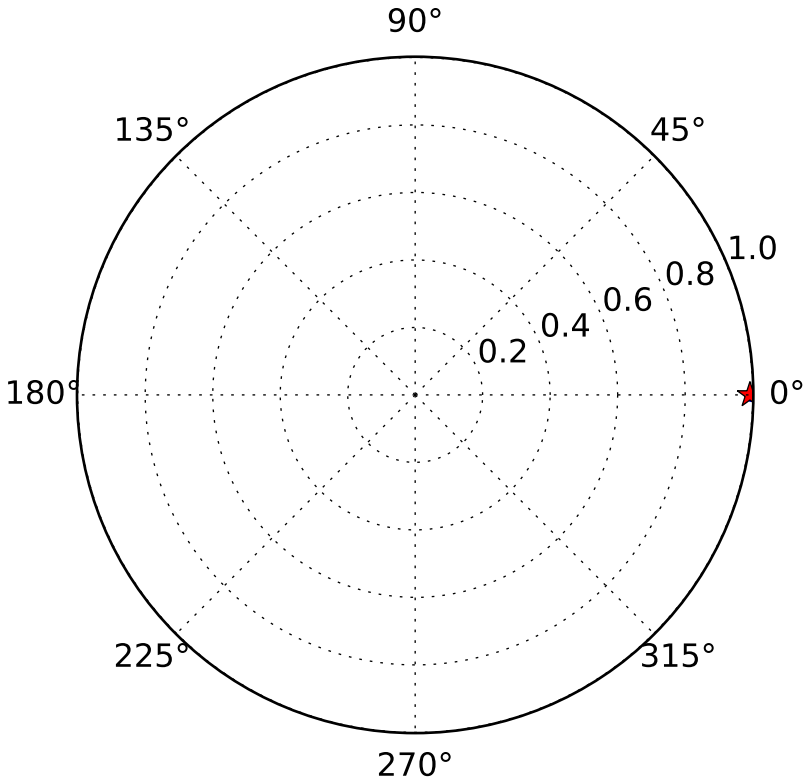


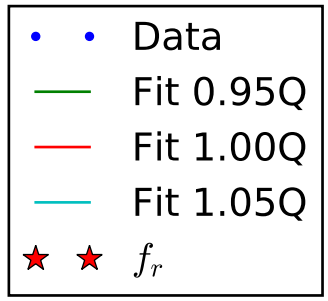
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.57435456376
Q_r = 2849.13835462
Q_c = 95186.9459606
a = (0.000479690647763-0.00633958622483j)
ϕ_0 = 2.10607997924
τ = 35.5367939367



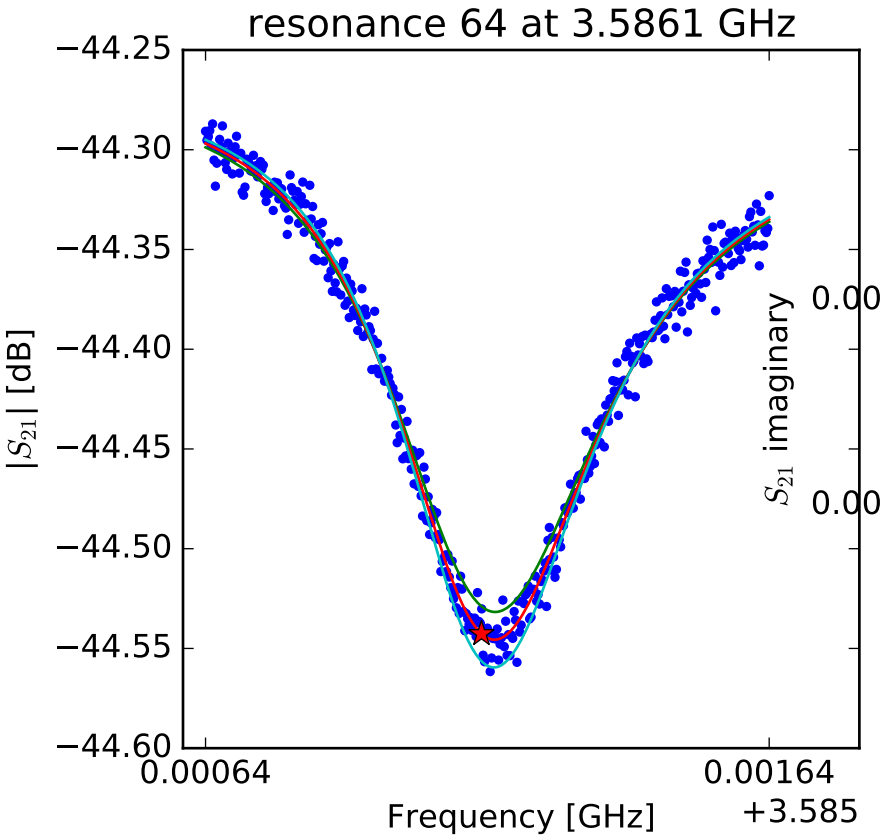


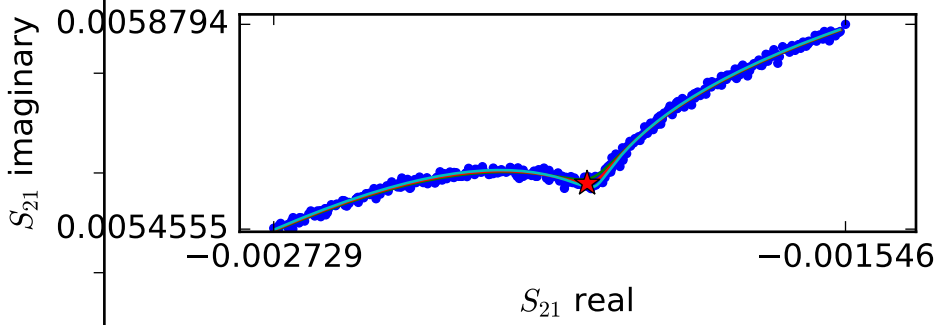


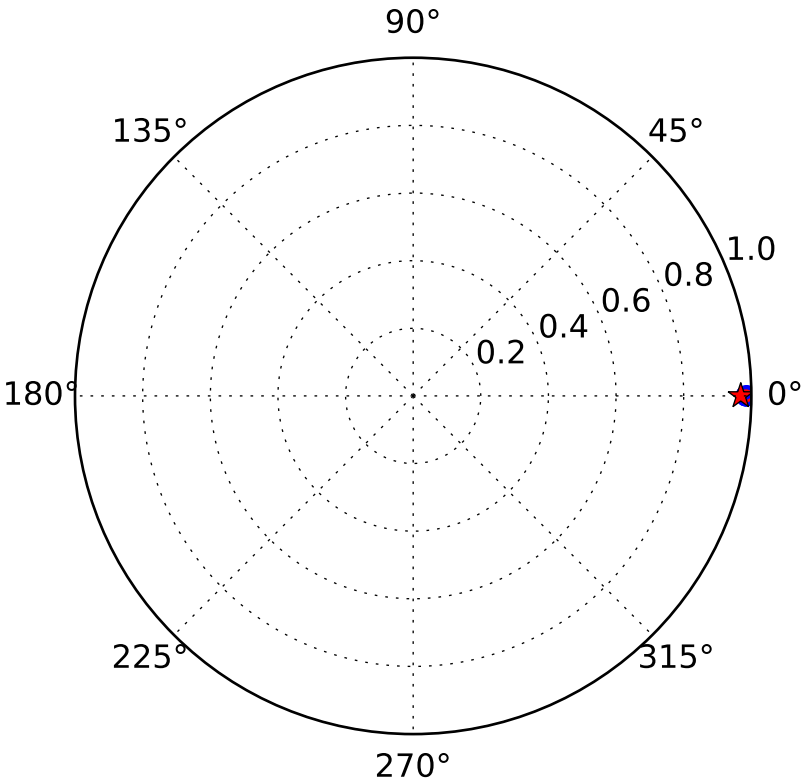


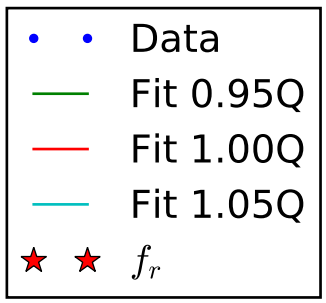
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.58101118677
Q_r = 8423.82163734
Q_c = 1037092.15422
a = (-0.00583357693176+0.00204031812131j)
ϕ_0 = -2.01040903903
τ = 36.5685409288



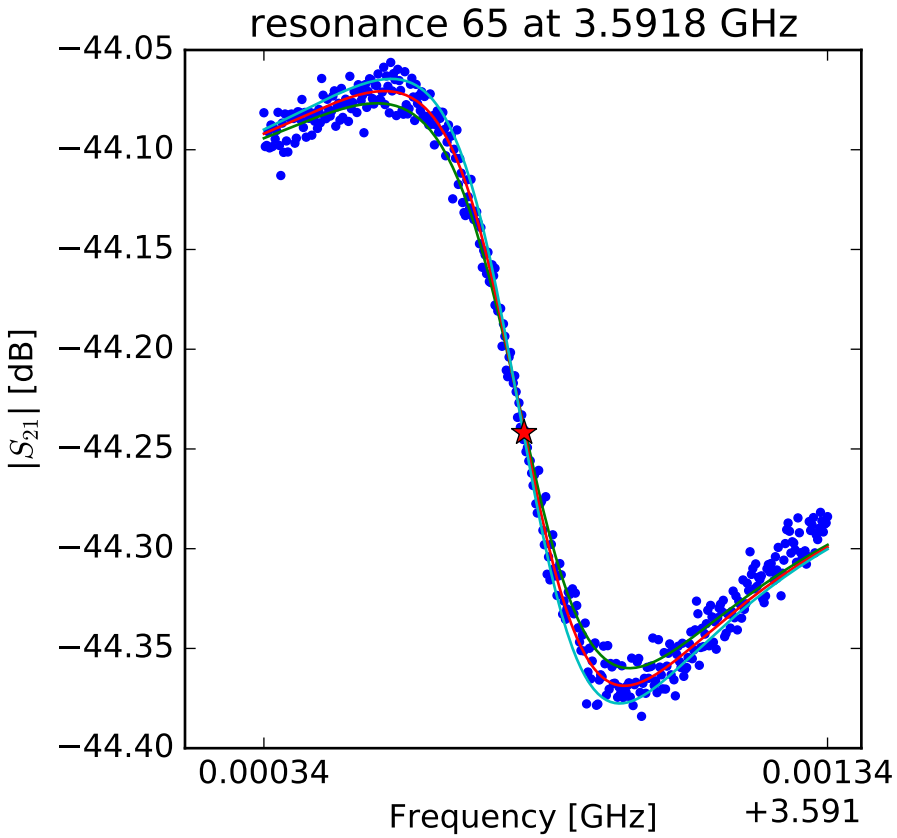


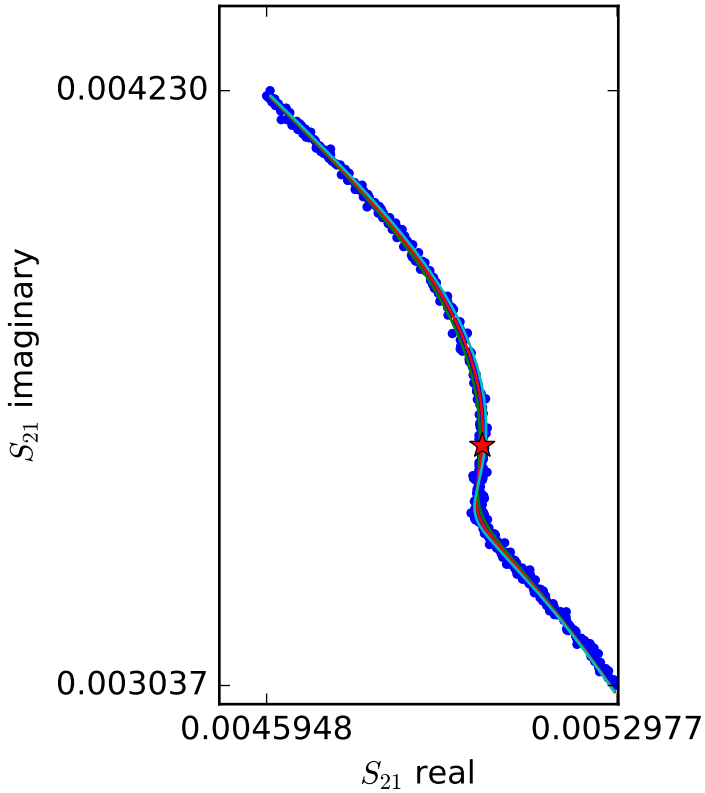


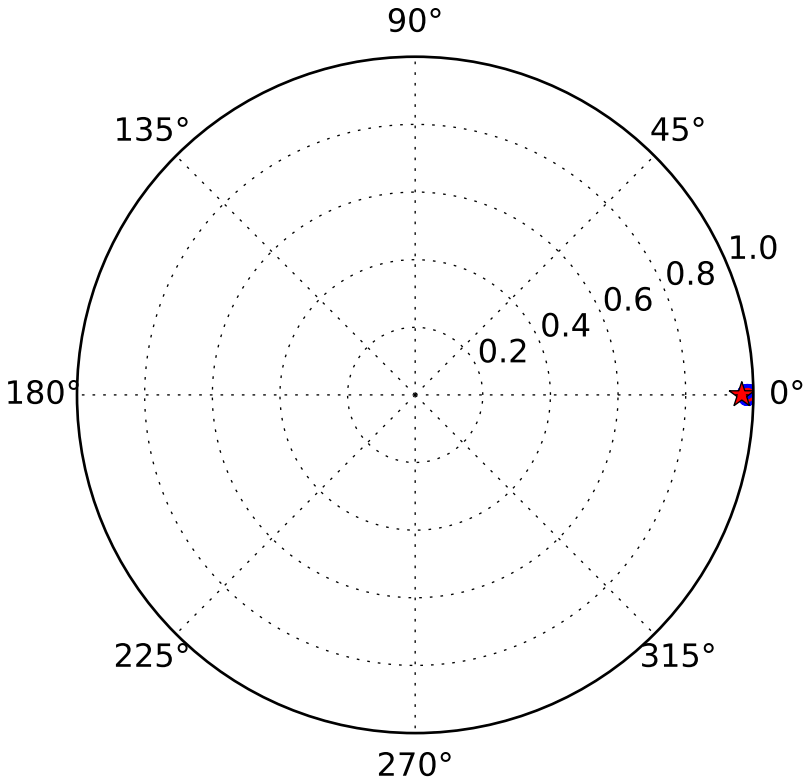


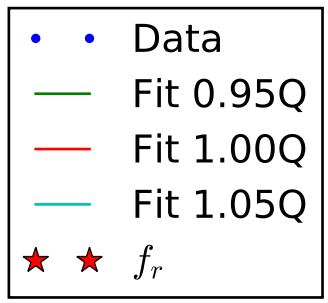
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.58612957035
Q_r = 7989.75323292
Q_c = 254855.785718
a = (0.000599371332589+0.00608570964302j)
ϕ_0 = 0.201519856313
τ = 36.2302191514



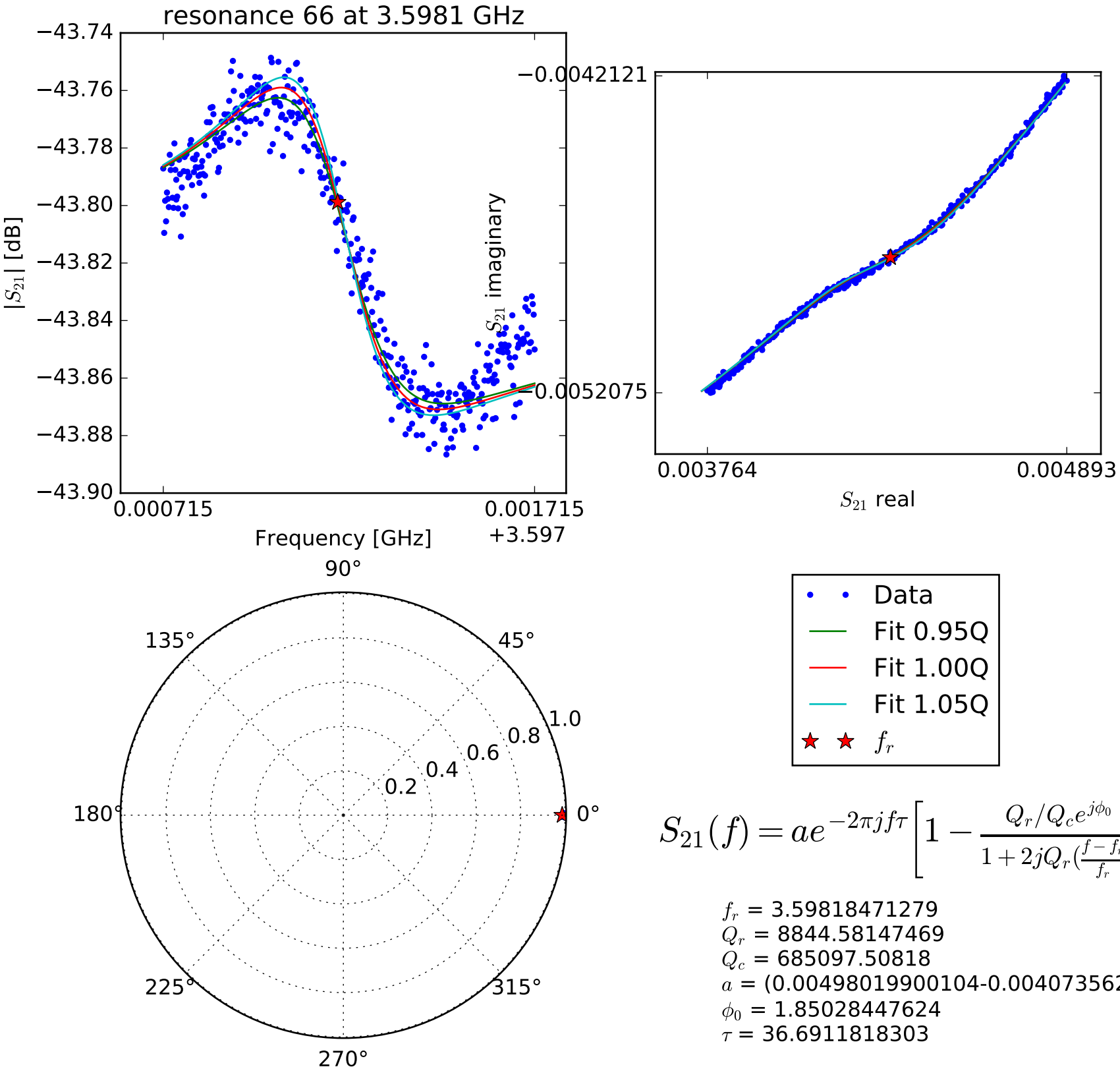






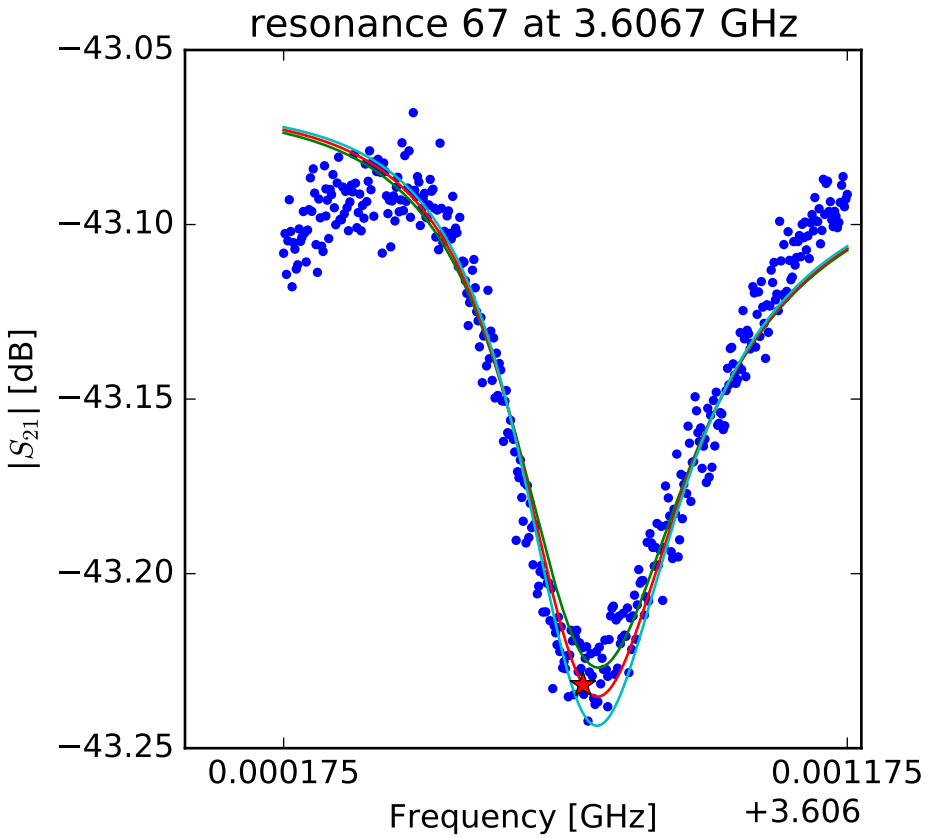
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

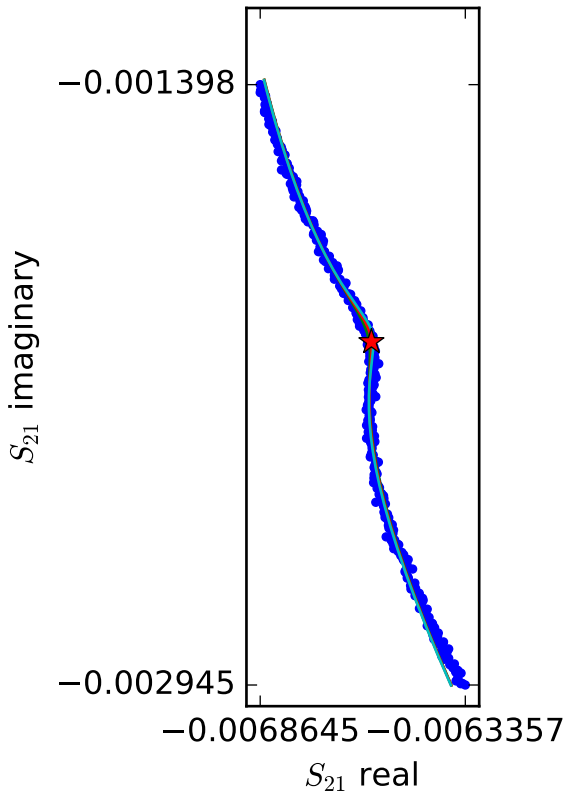
f_r = 3.59180172377
Q_r = 8552.75972651
Q_c = 249927.882188
a = (-0.00606444099285-0.00114339301762j)
ϕ_0 = 1.38747166263
τ = 36.3124393396

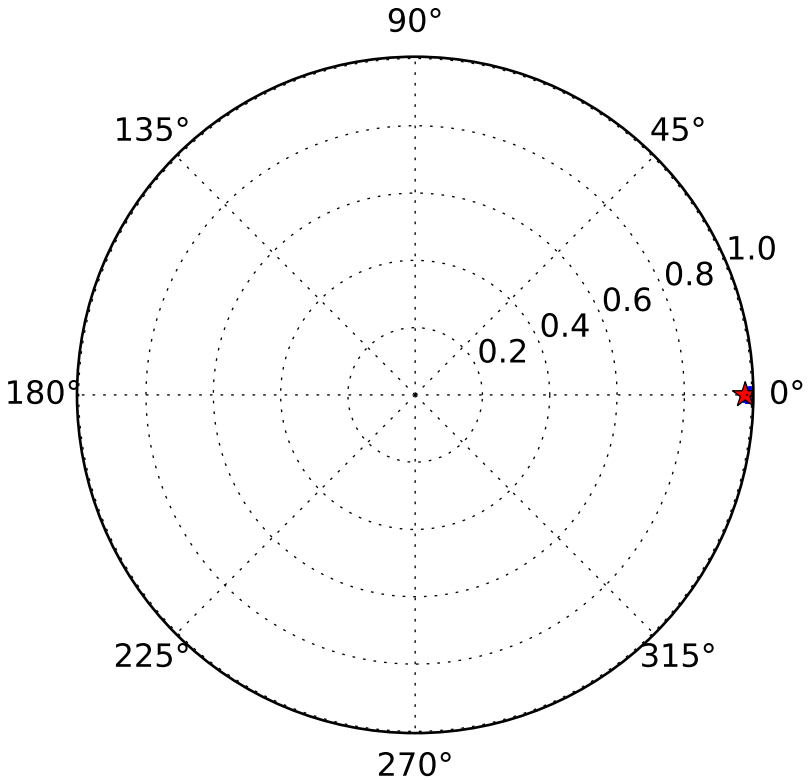


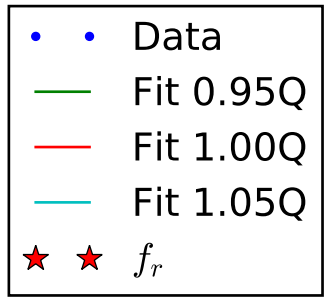
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.59818471279
Q_r = 8844.58147469
Q_c = 685097.50818
a = (0.00498019900104-0.00407356295868j)
ϕ_0 = 1.85028447624
τ = 36.6911818303



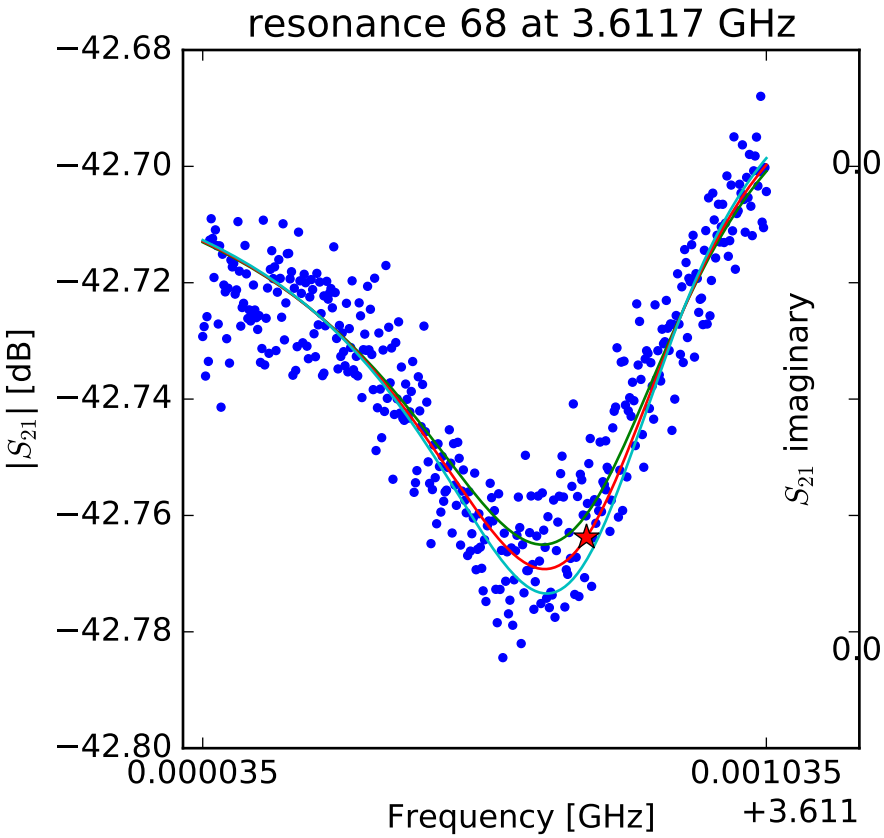


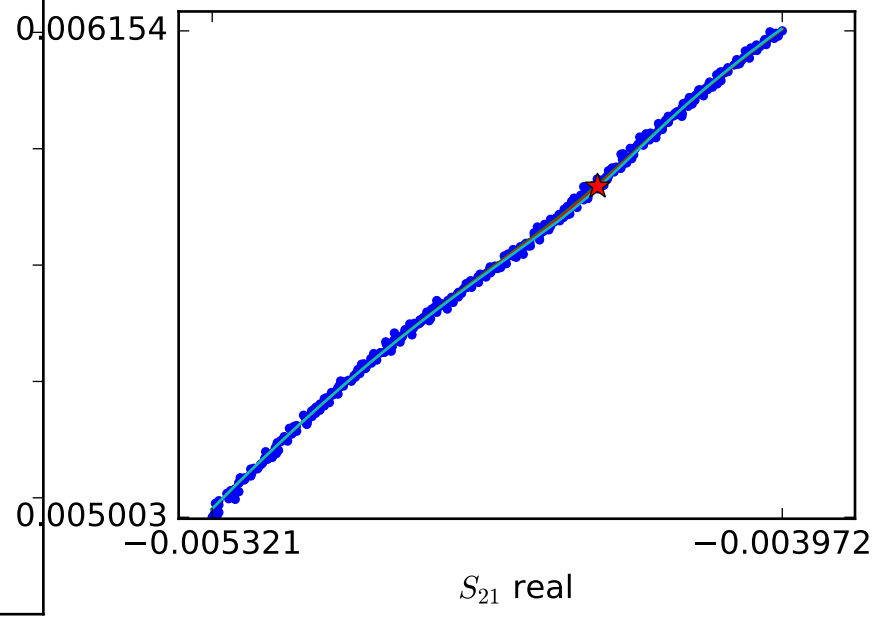


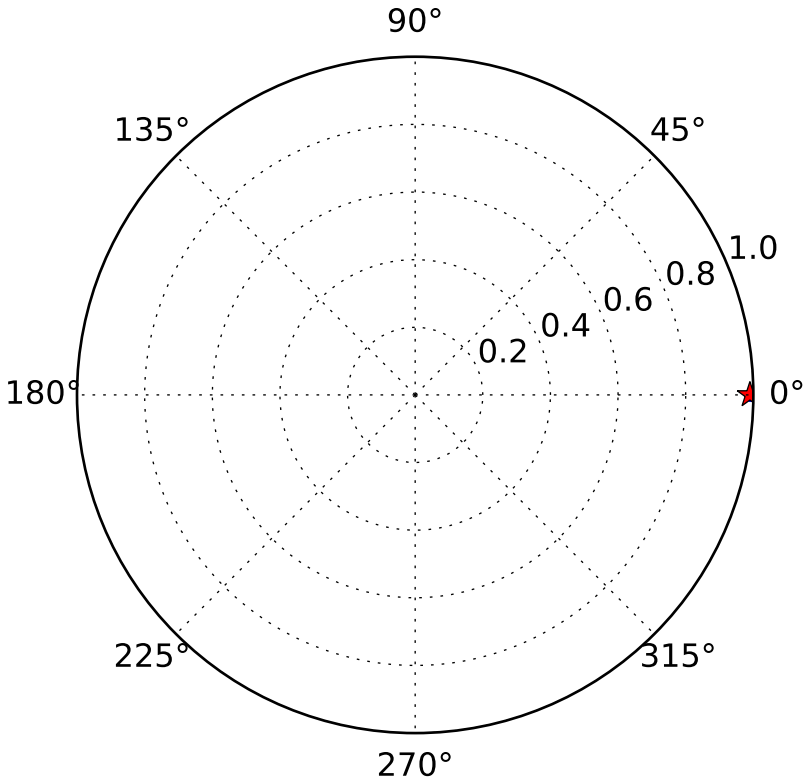


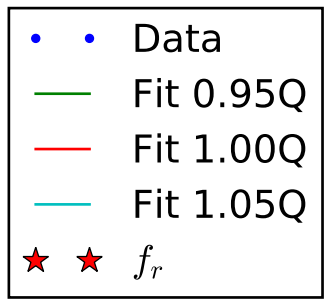
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.60670625832
Q_r = 9896.28541201
Q_c = 515768.402037
a = (-0.00550599176687+0.00435866886923j)
ϕ_0 = 0.279581619941
τ = 39.0506582804



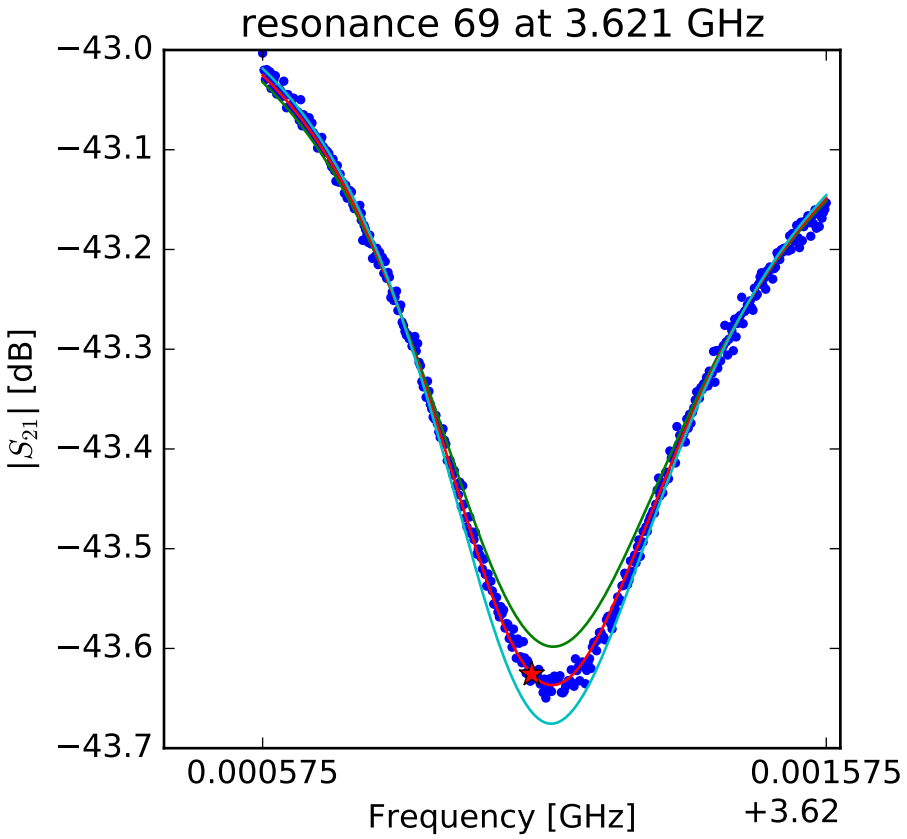


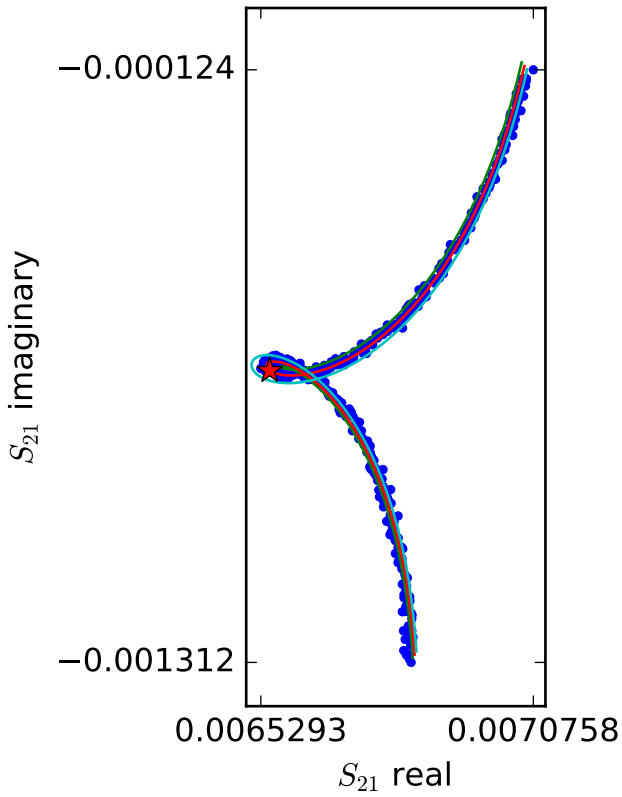


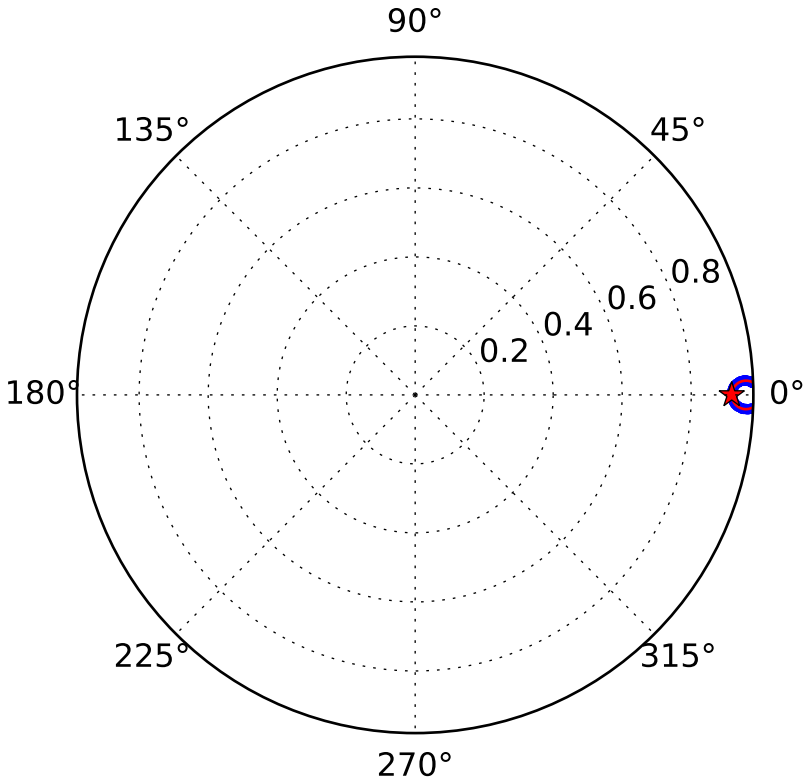


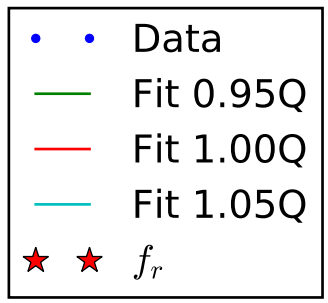
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.61171592839
Q_r = 6215.09383389
Q_c = 609432.534602
a = (-0.00659624113154+0.00322039463748j)
ϕ_0 = -0.49658811682
τ = 39.8909740781



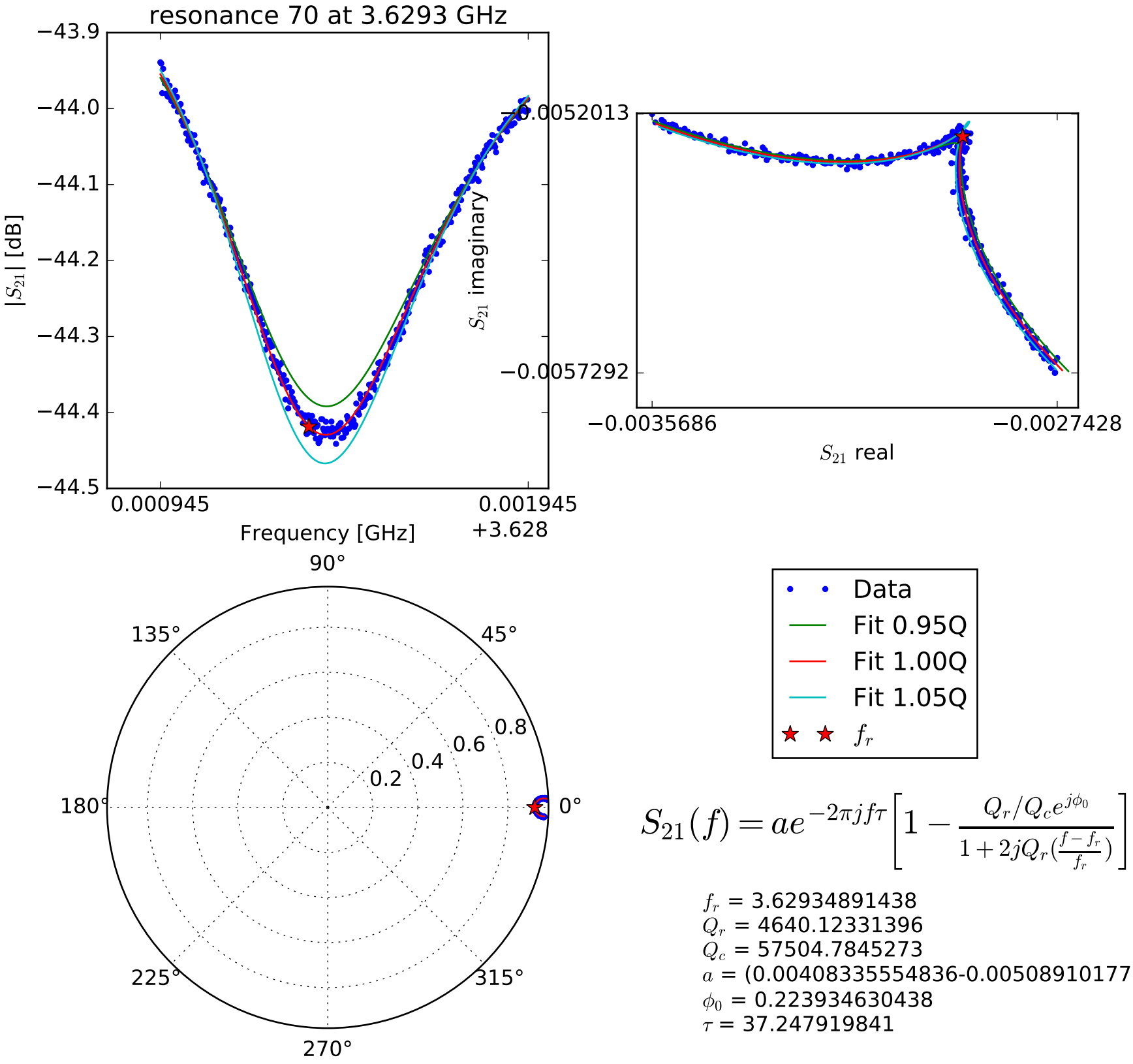






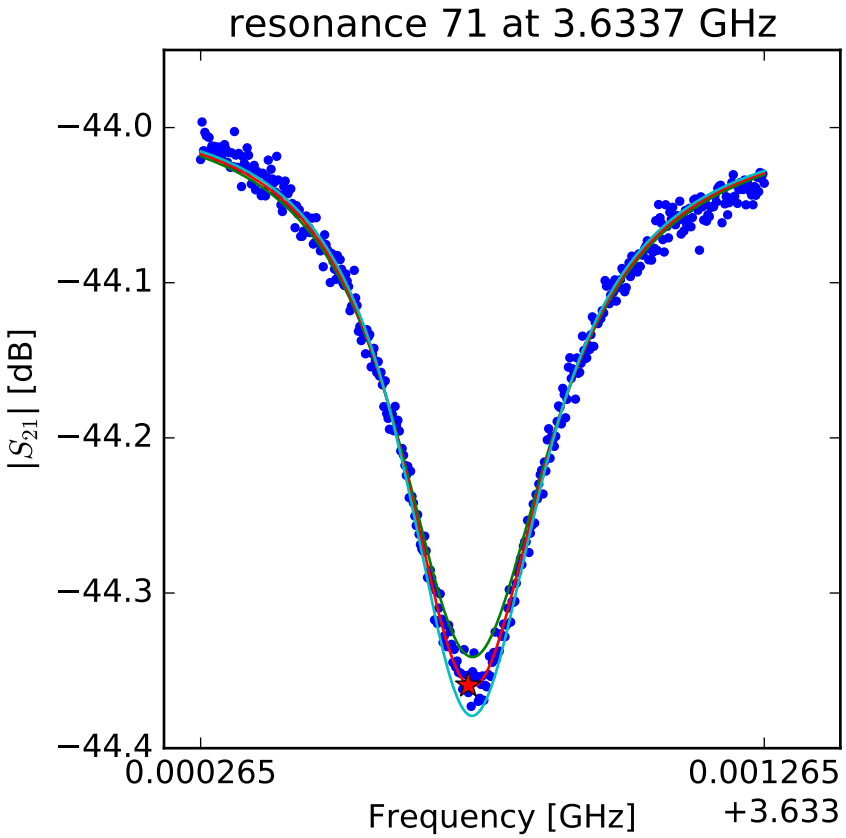
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

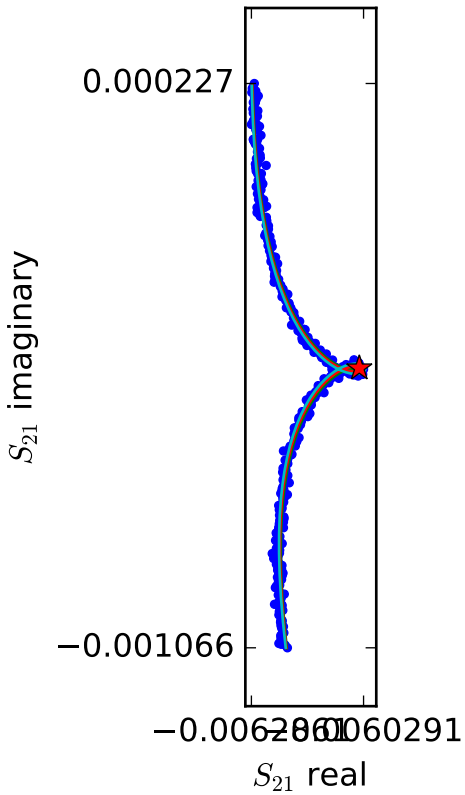
f_r = 3.62105246217
Q_r = 5837.42044614
Q_c = 70569.0417217
a = (-0.00571294692614+0.00432257559114j)
ϕ_0 = 0.22282549128
τ = 39.0525556844

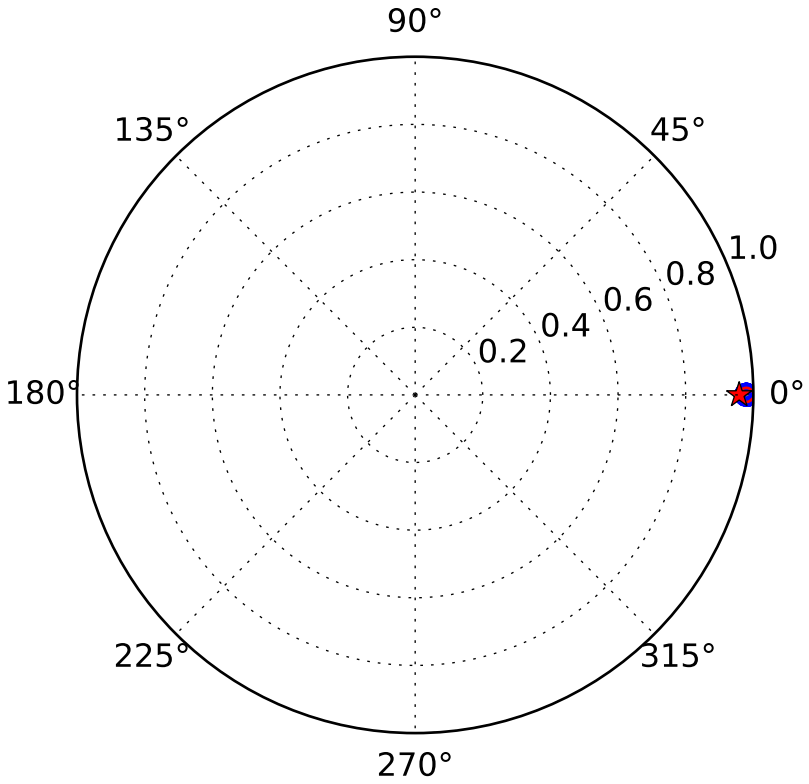


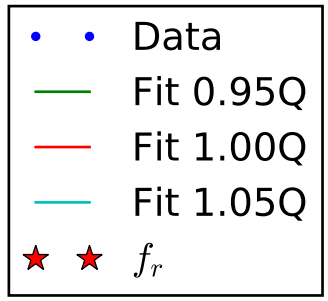
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.62934891438
Q_r = 4640.12331396
Q_c = 57504.7845273
a = (0.00408335554836-0.00508910177964j)
ϕ_0 = 0.223934630438
τ = 37.247919841



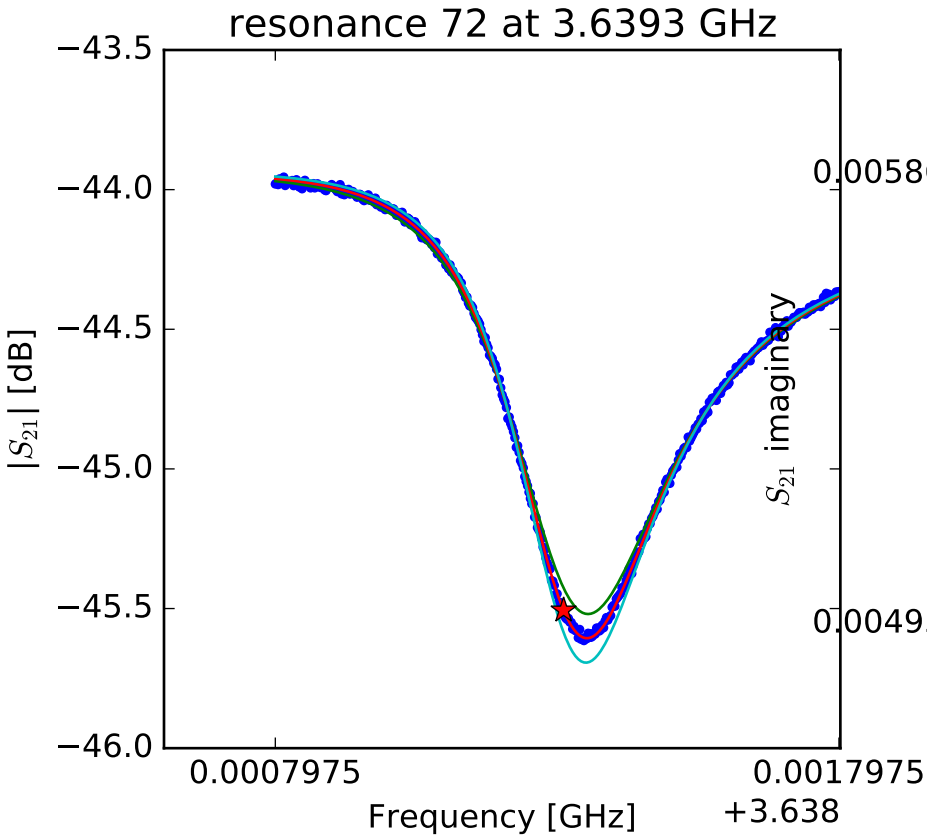


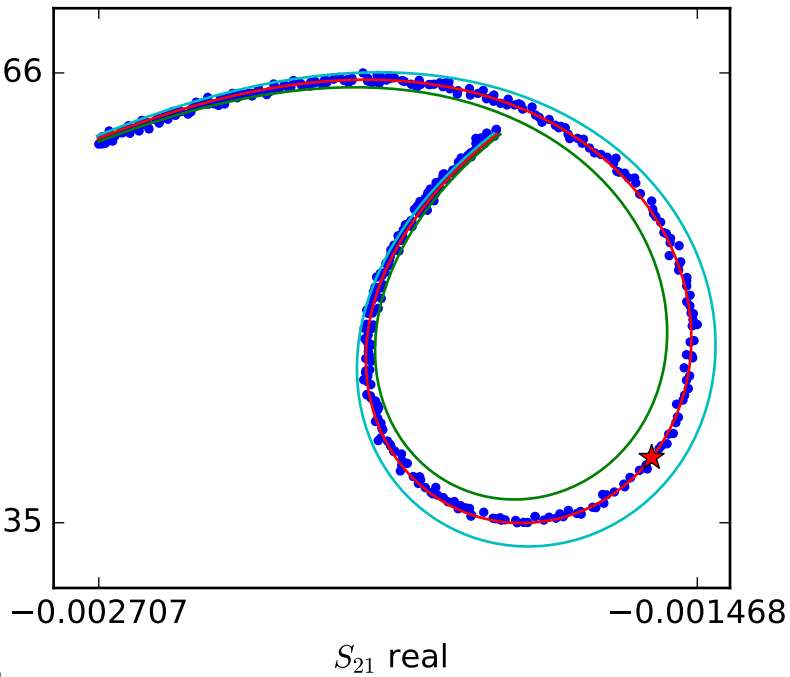


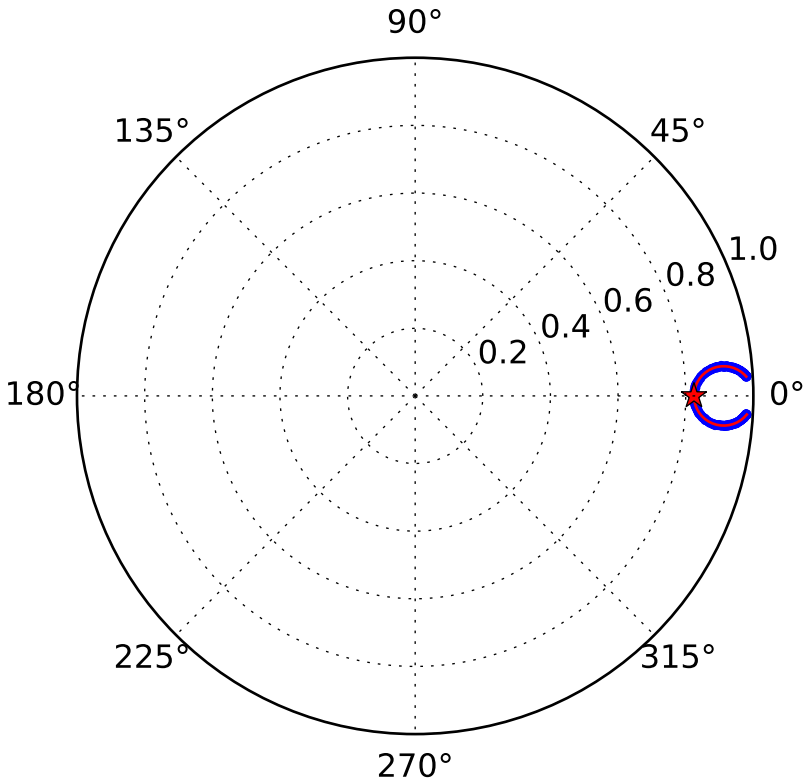


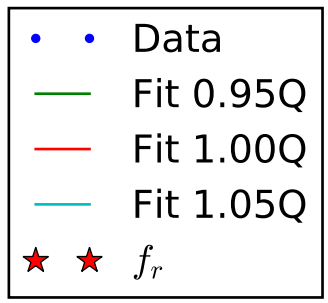
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.63373981104
Q_r = 11242.5609341
Q_c = 268576.135799
a = (-0.0053572232274-0.00334771552681j)
ϕ_0 = 0.0858826041257
τ = 36.6226290156









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

f_r = 3.63930896922
Q_r = 10092.9757746
Q_c = 57454.244282
a = (-0.00605022097901-0.00175734831134j)
ϕ_0 = 0.412797199168
τ = 36.3349423601