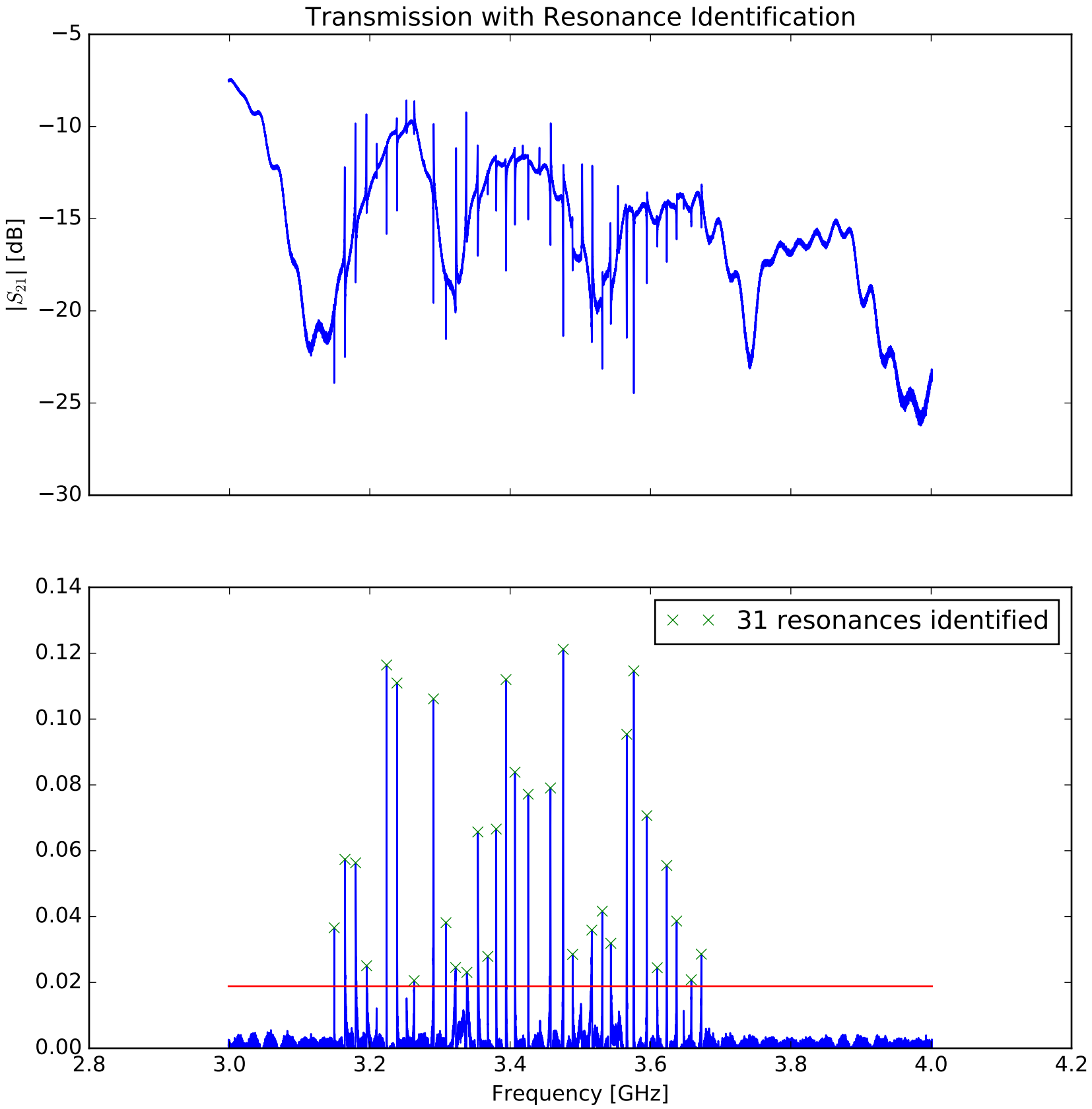
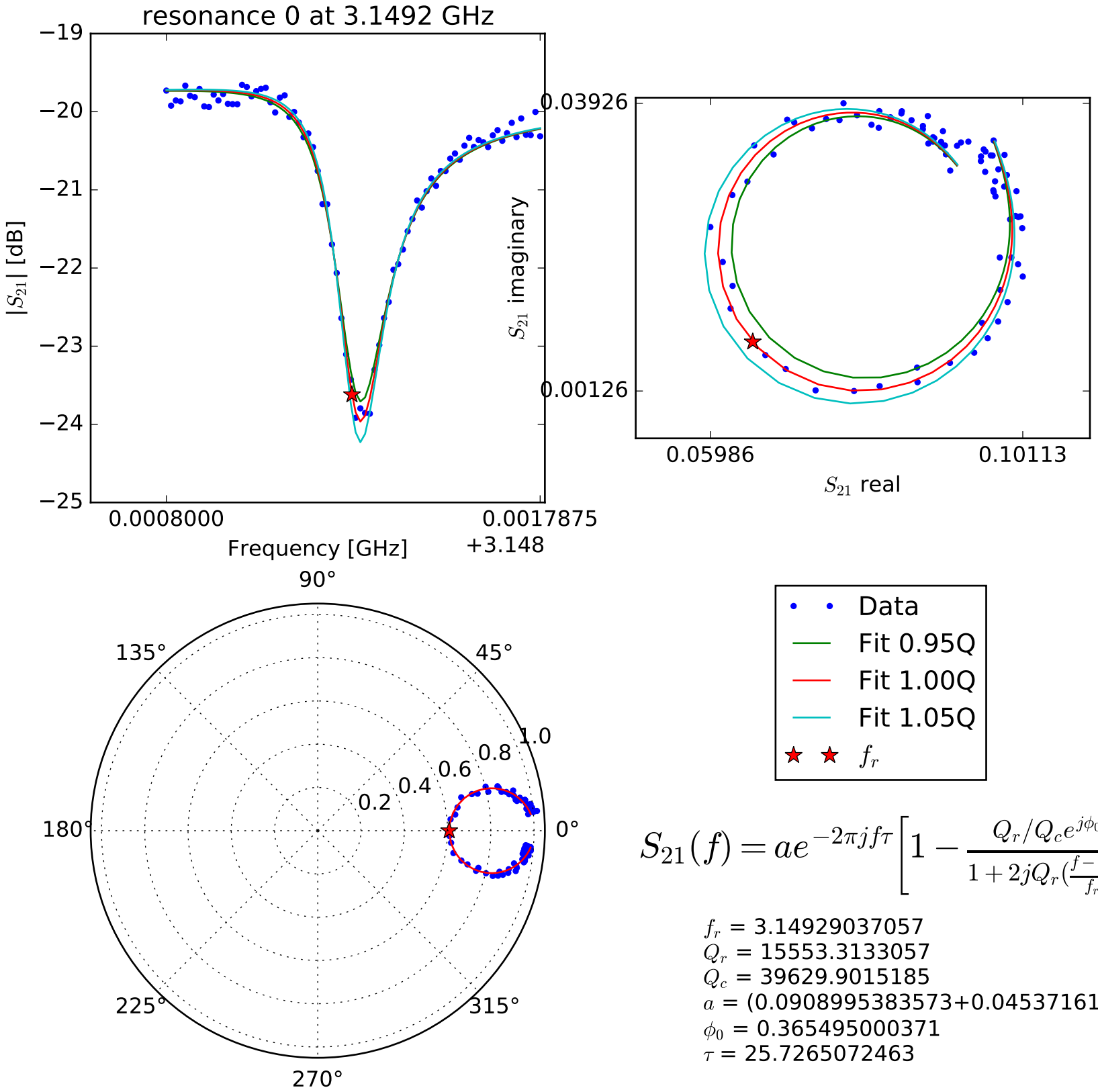
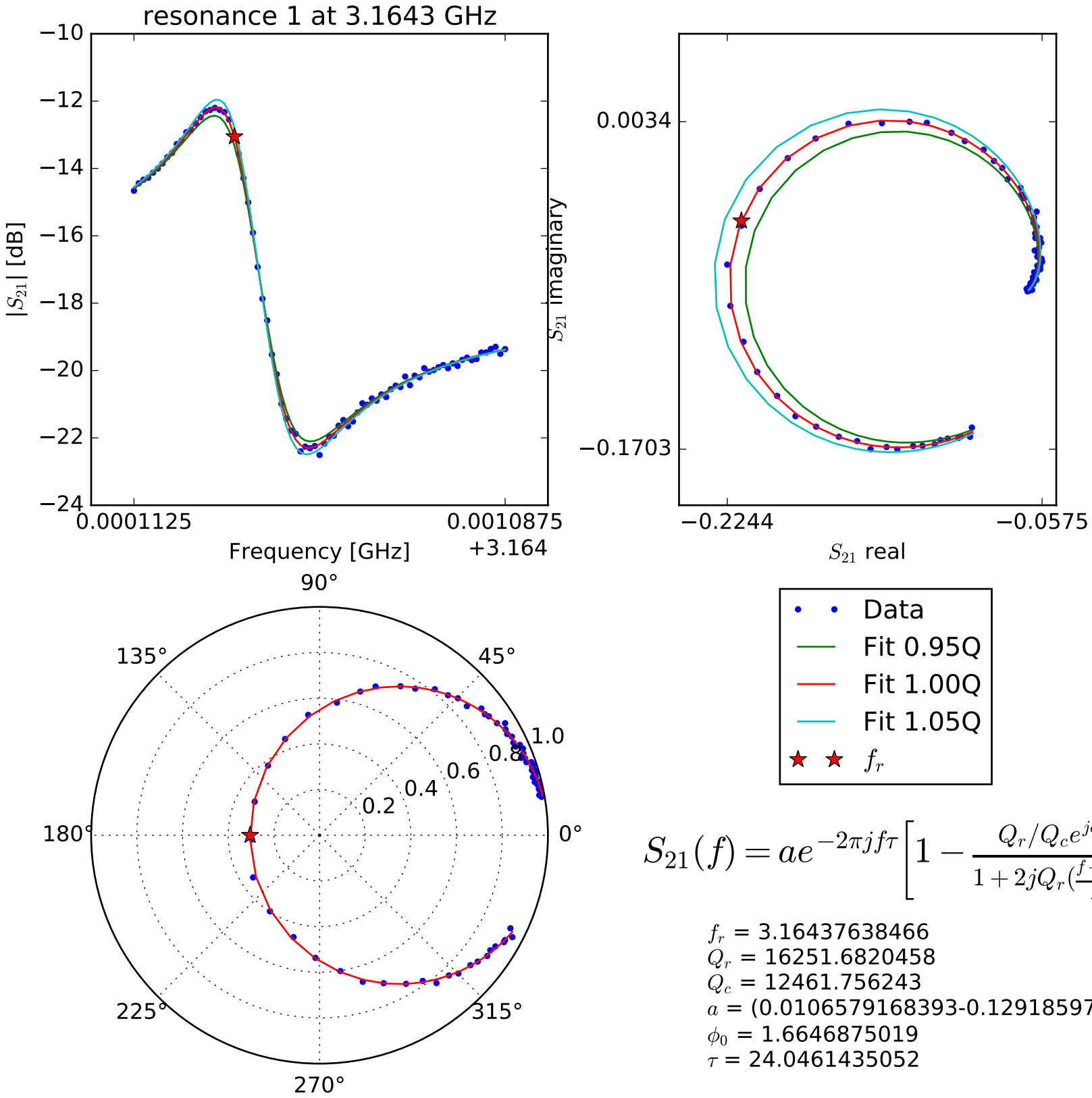

Transmission with Resonance Identification
$|S_{21}|$ [dB]
−5
−10
−15
−20
−25
−30
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
31 resonances identified
2.8
3.0
3.2
3.4
3.6
3.8
4.0
4.2
Frequency [GHz]



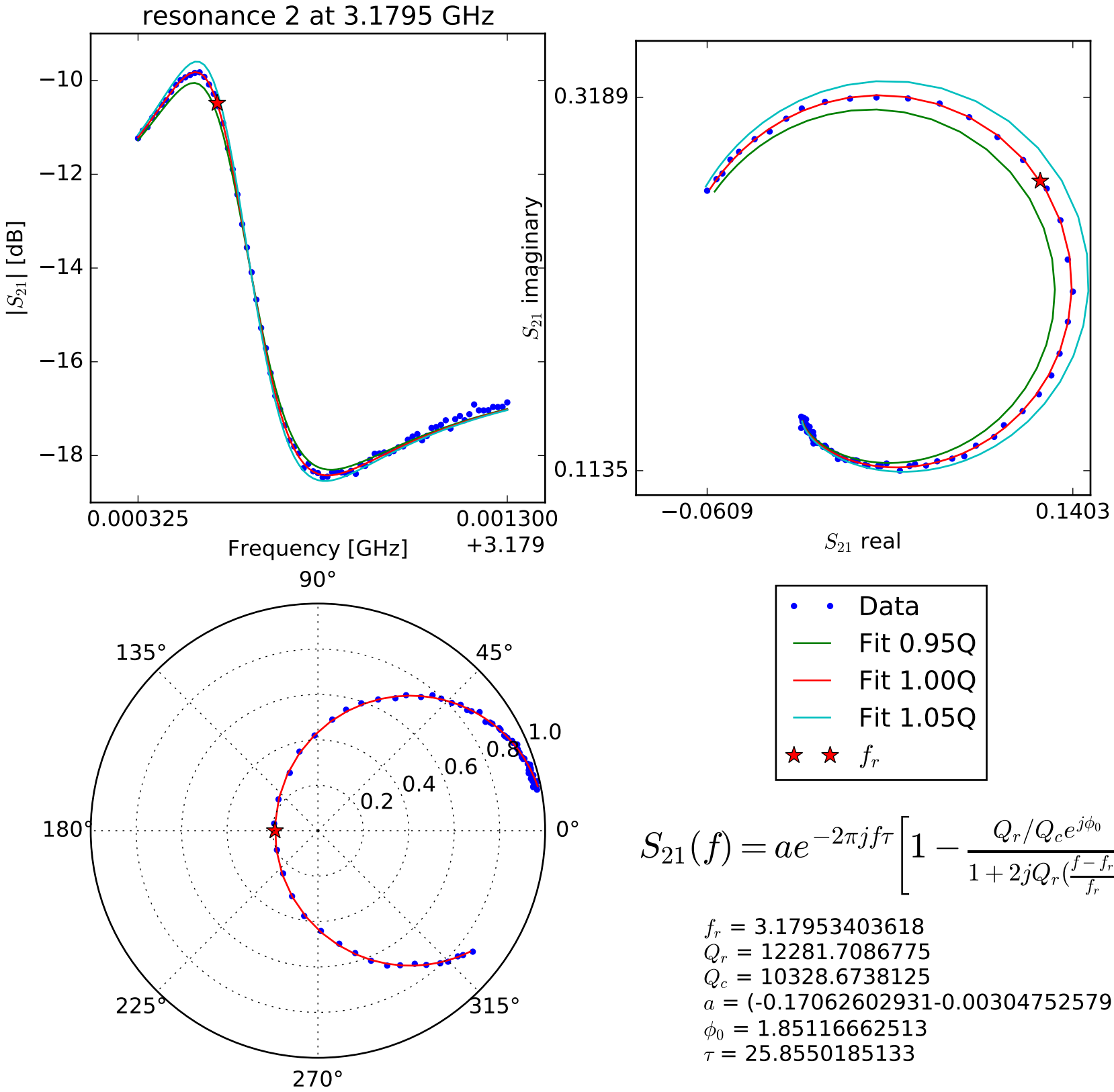
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.14929037057
Q_r = 15553.3133057
Q_c = 39629.9015185
a = (0.0908995383573+0.045371619709j)
ϕ_0 = 0.365495000371
τ = 25.7265072463



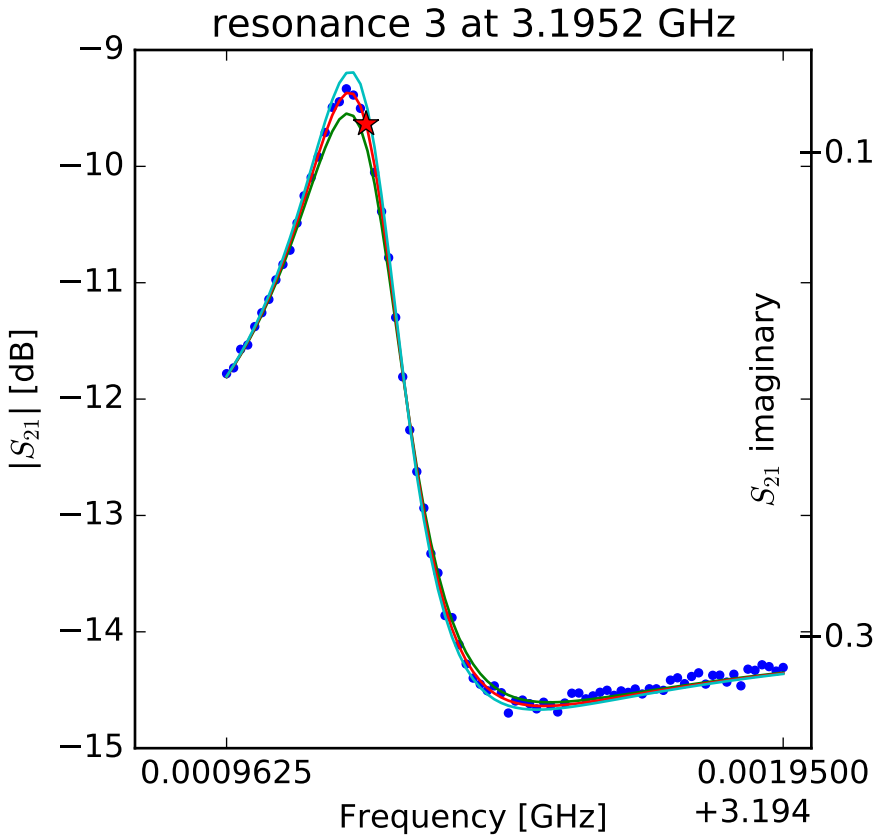
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

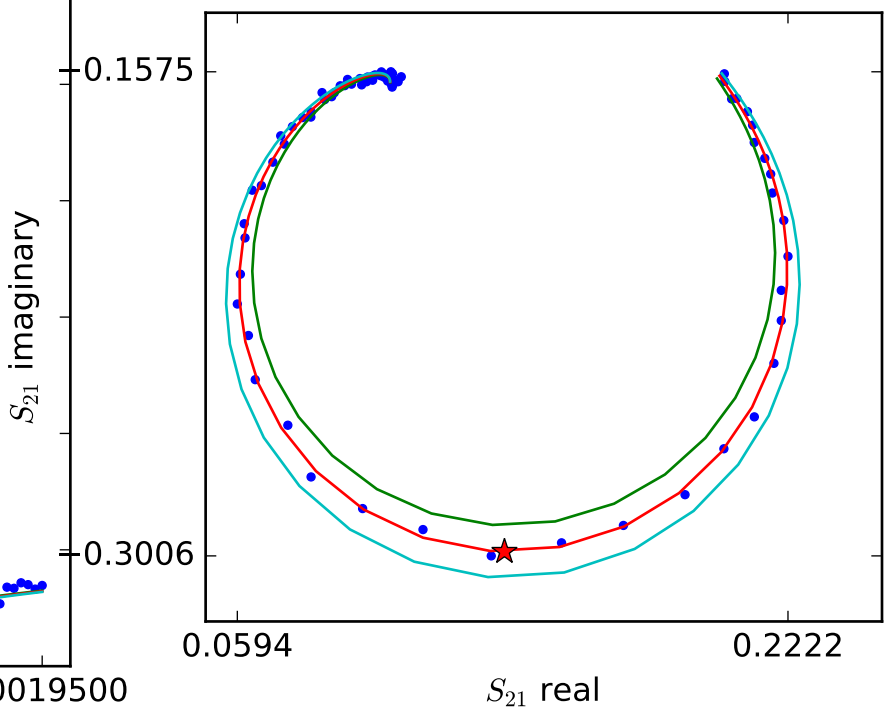
f_r = 3.16437638466
Q_r = 16251.6820458
Q_c = 12461.756243
a = (0.0106579168393-0.129185973583j)
ϕ_0 = 1.6646875019
τ = 24.0461435052

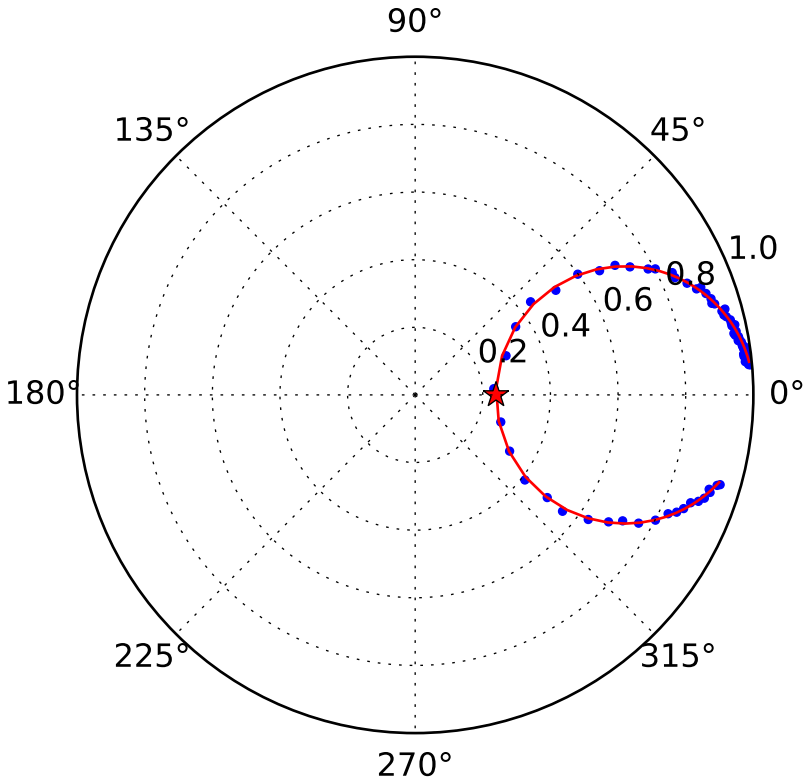


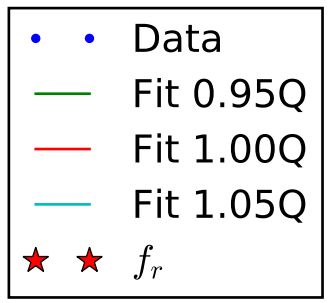
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.17953403618
Q_r = 12281.7086775
Q_c = 10328.6738125
a = (-0.17062602931-0.00304752579749j)
ϕ_0 = 1.85116662513
τ = 25.8550185133



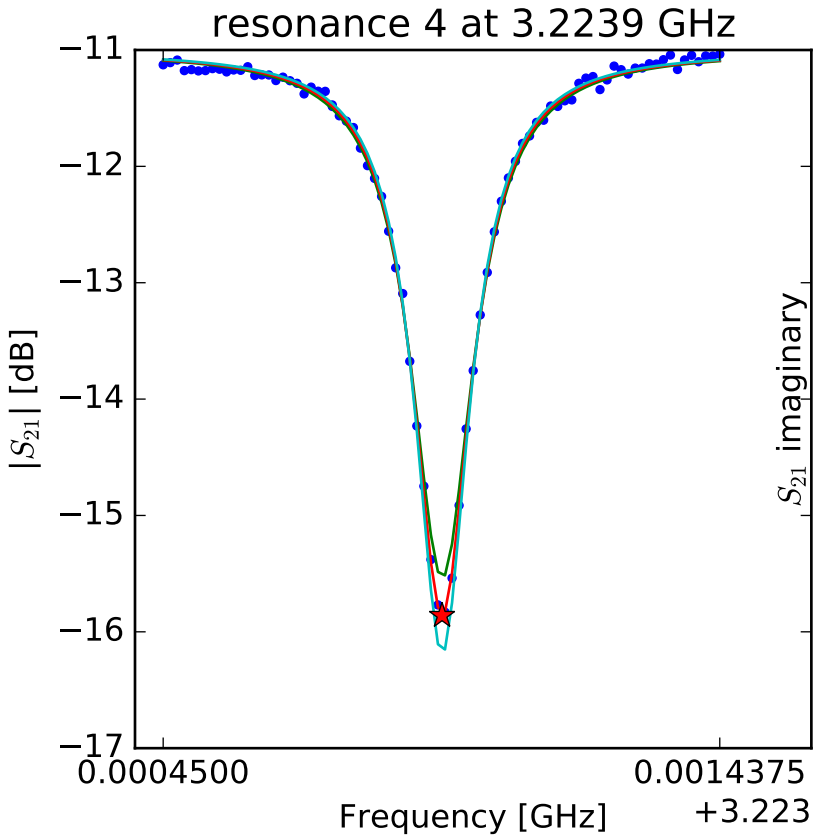


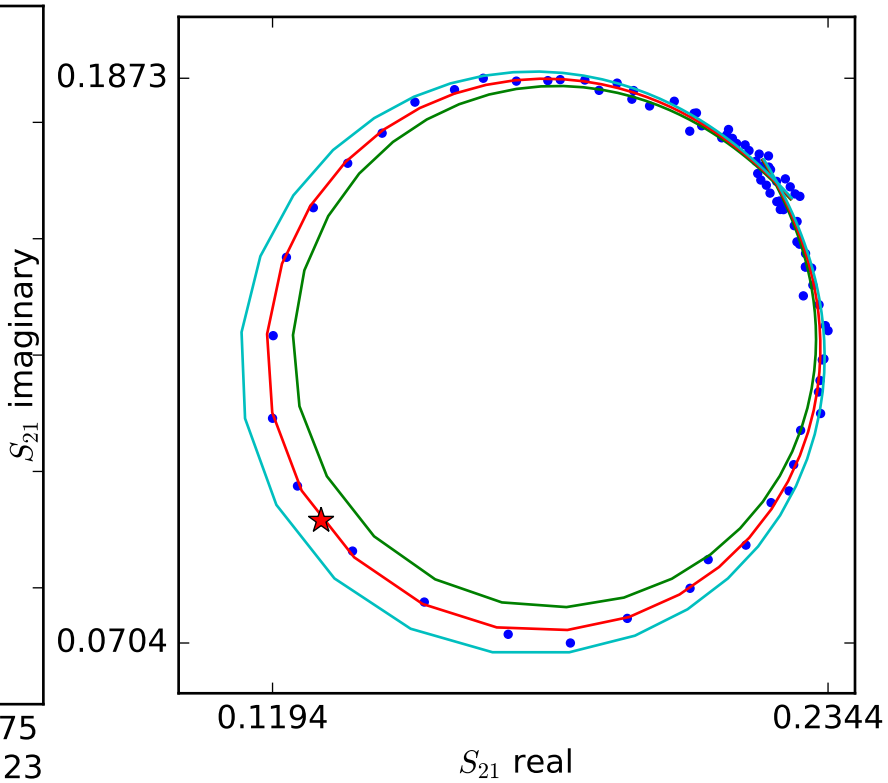


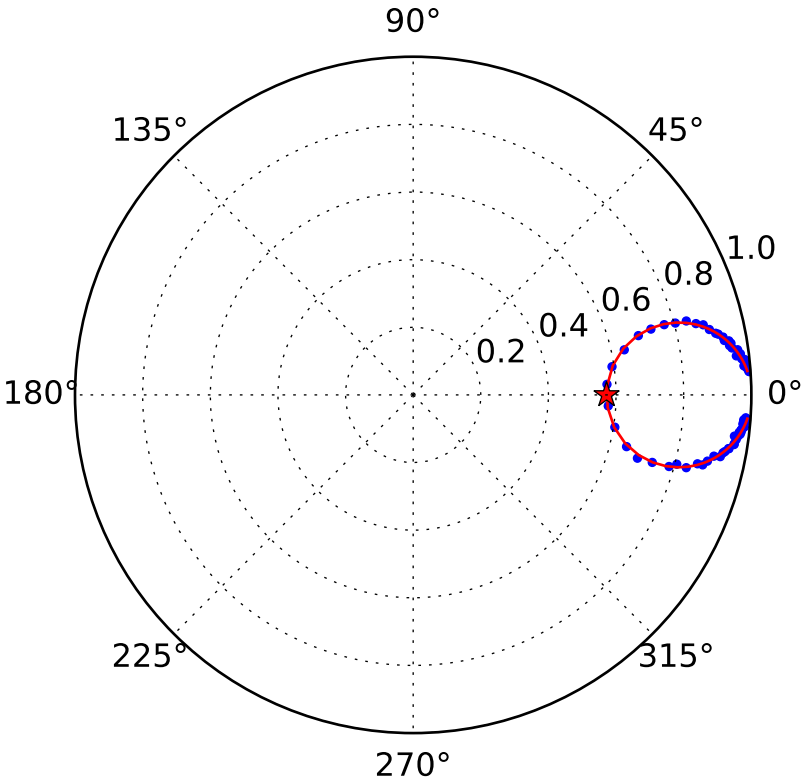


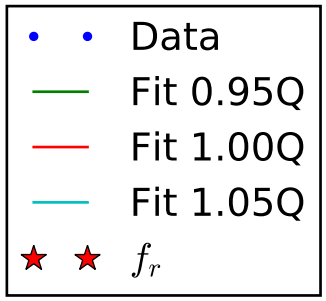
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.1952099575
Q_r = 16482.7575398
Q_c = 21658.6961949
a = (0.203529322935-0.00411260661153j)
ϕ_0 = 2.32770068407
τ = 26.3276617125



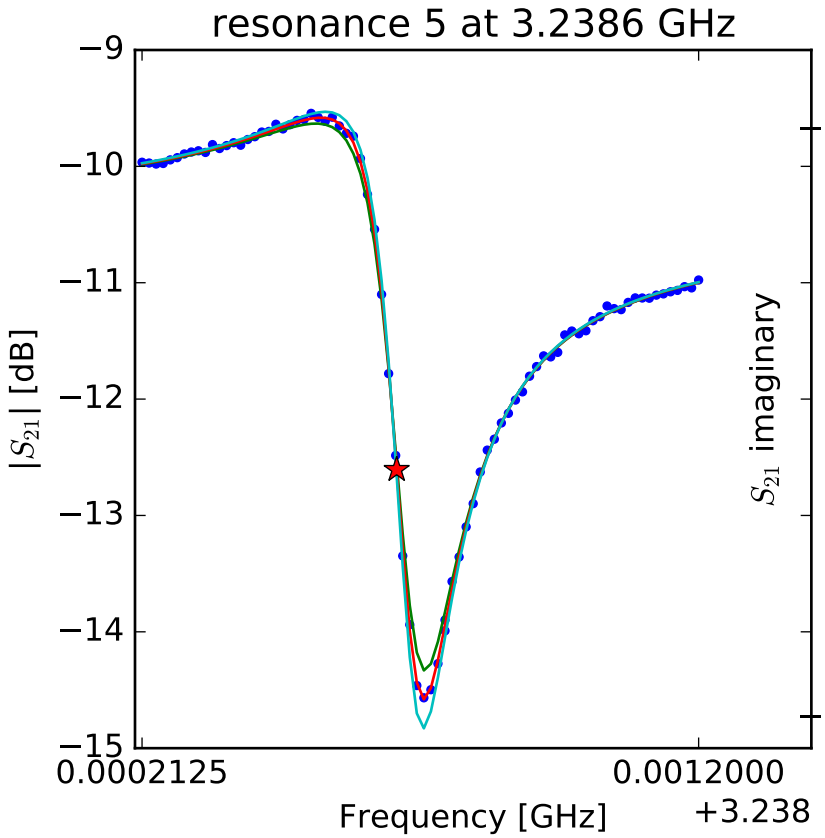


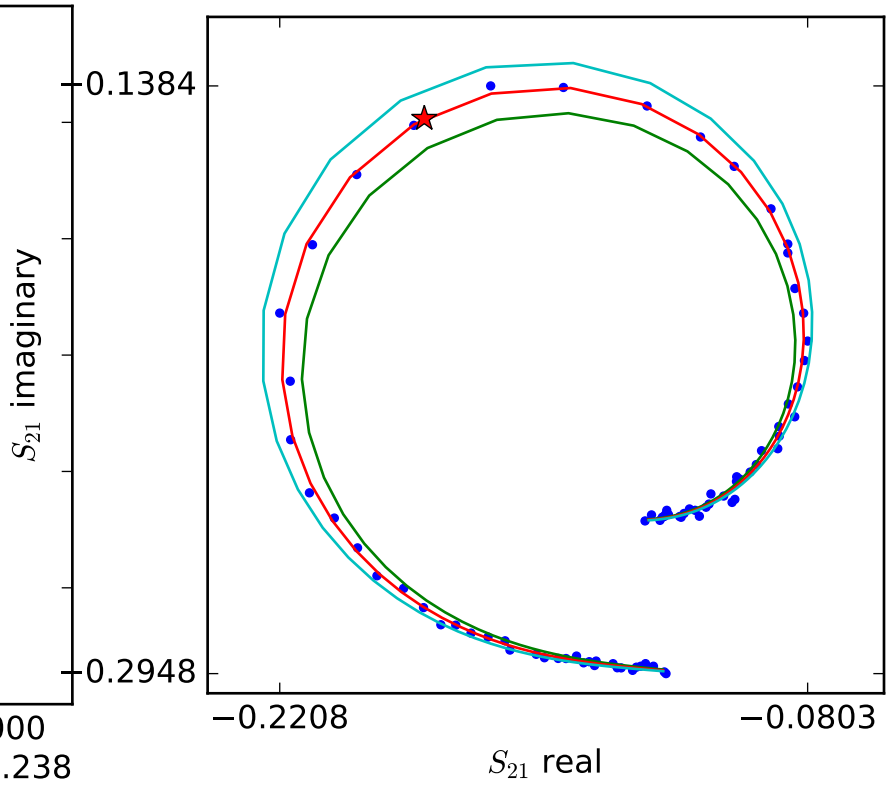


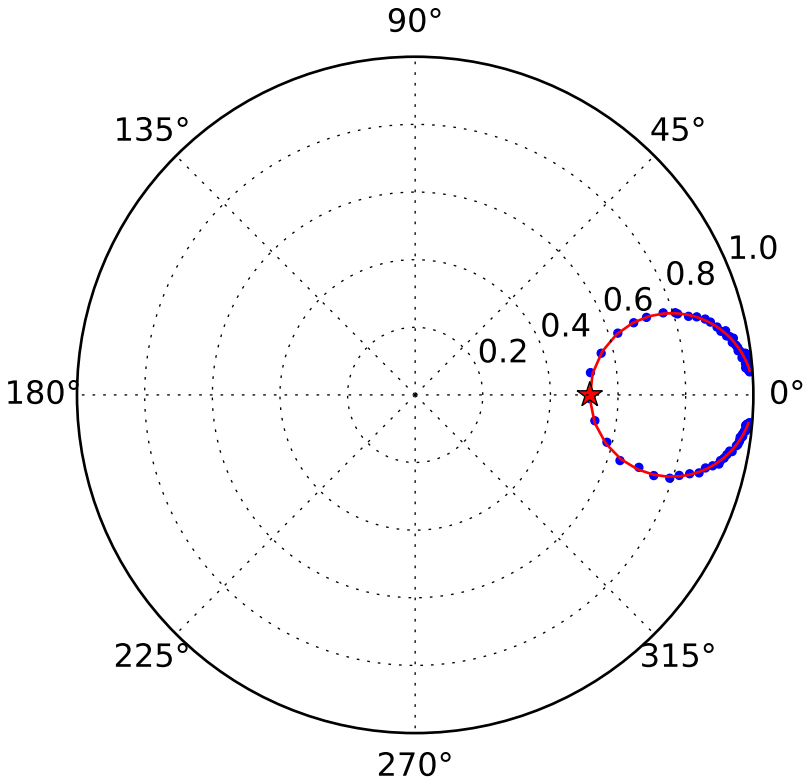


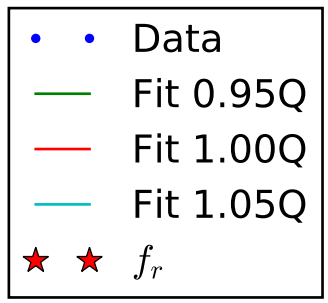
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.22394476725
Q_r = 19279.7854703
Q_c = 45025.7330129
a = (-0.201890791483-0.19639336421j)
ϕ_0 = 0.0028924149886
τ = 28.6981093029



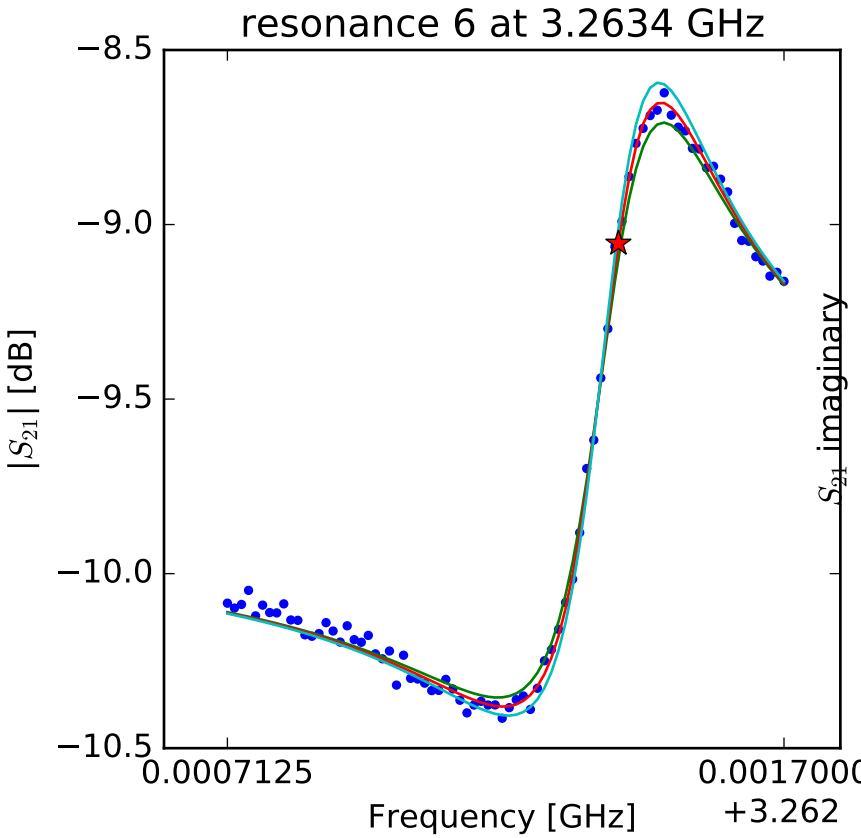


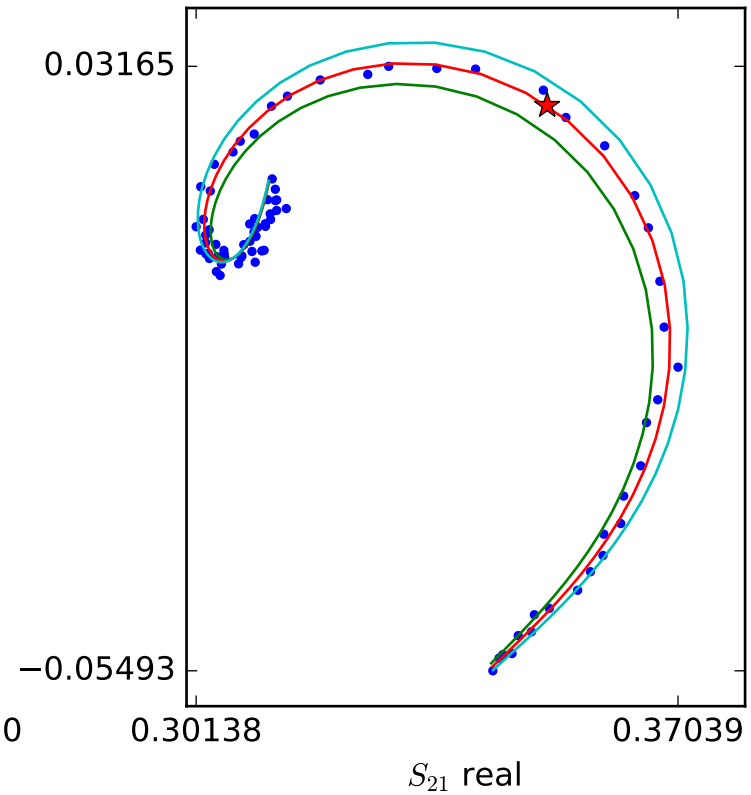


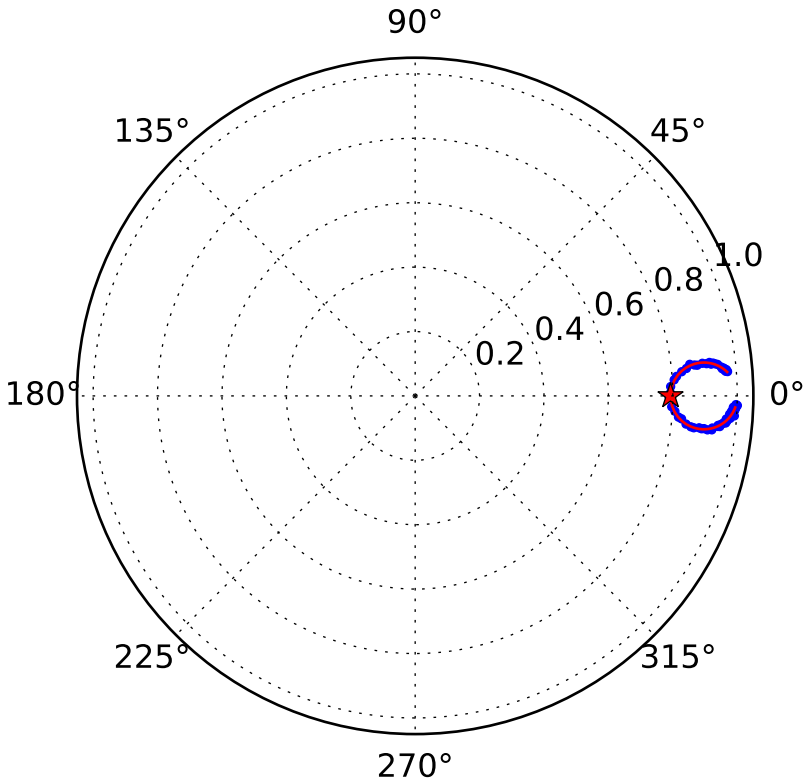


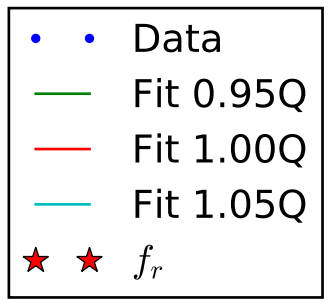
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.23866424267
Q_r = 20056.1687697
Q_c = 41454.7062343
a = (-0.23429015262-0.187559375964j)
ϕ_0 = 0.868753591467
τ = 27.147290743



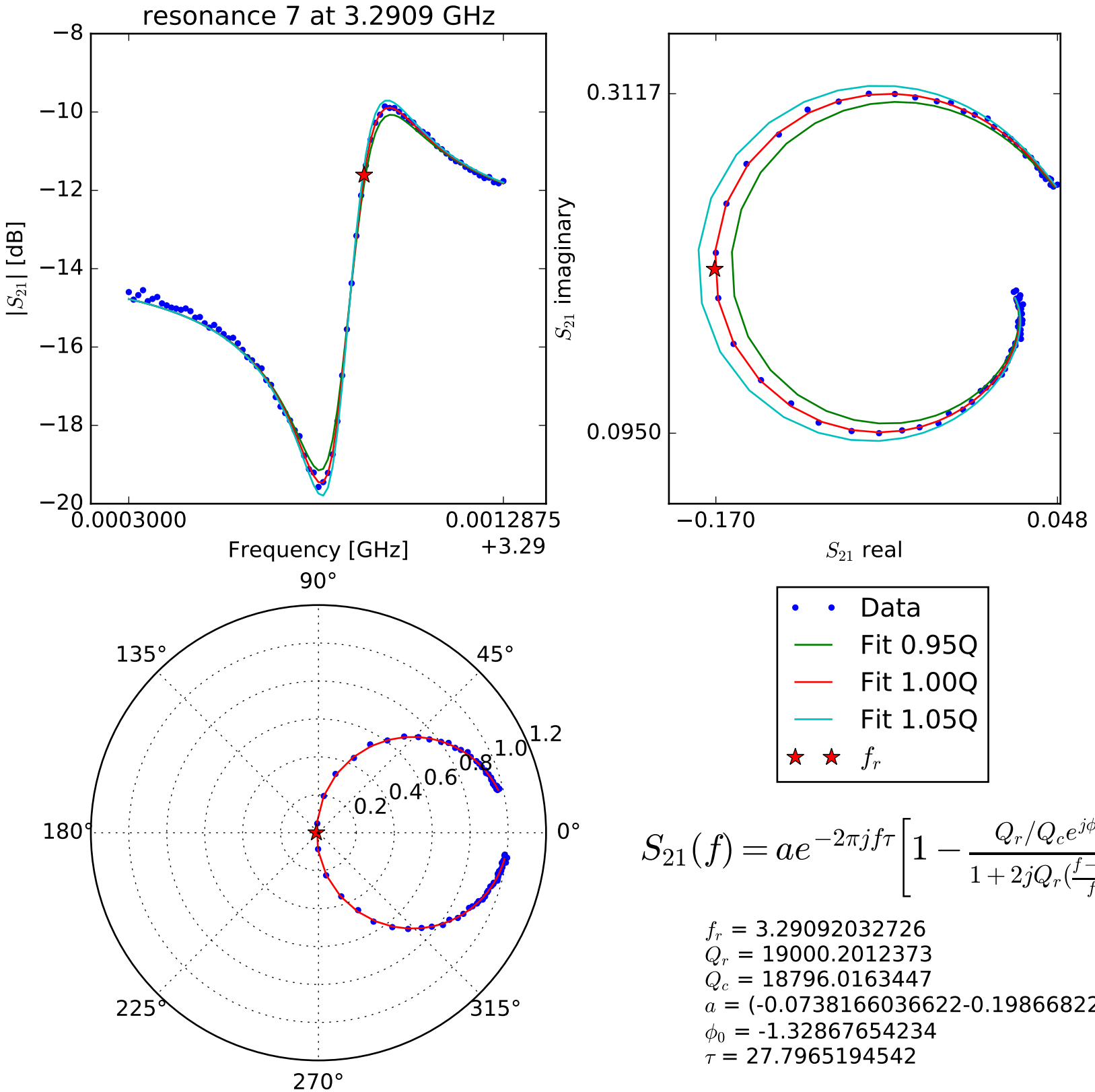






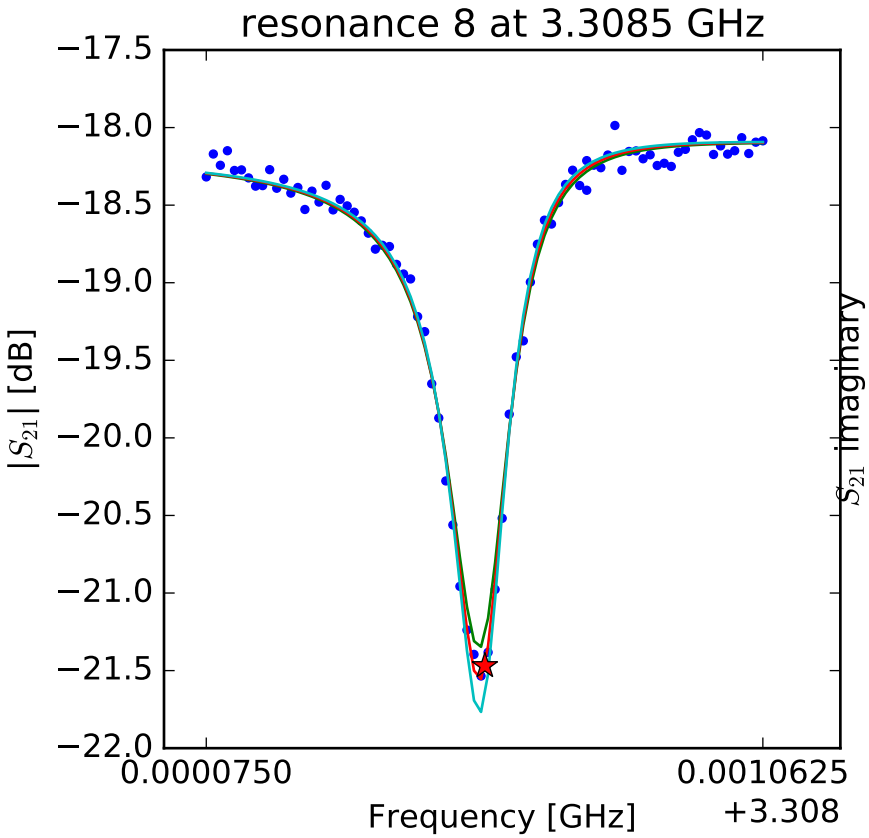
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

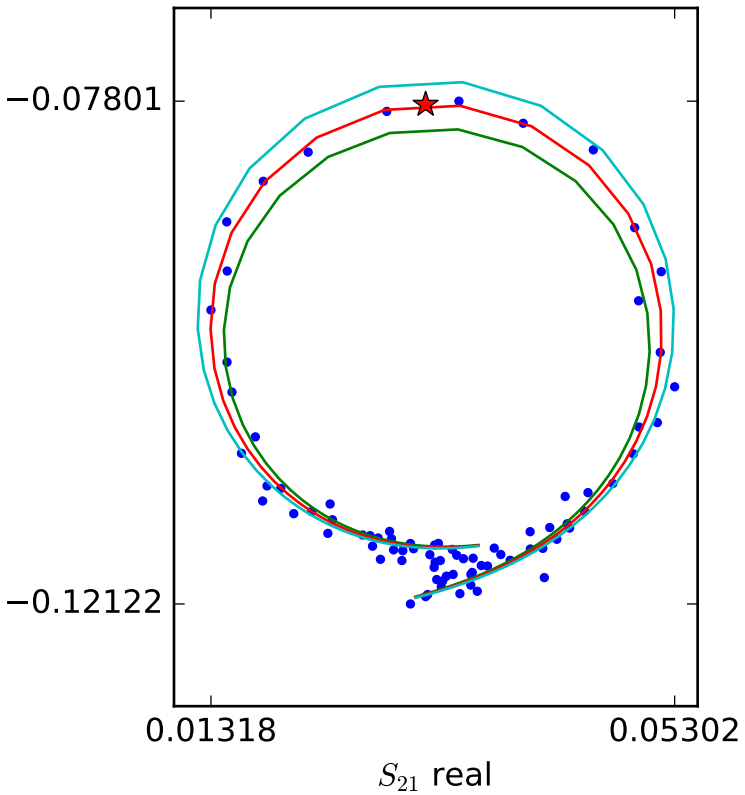
f_r = 3.26340623457
Q_r = 13125.3086272
Q_c = 63348.0698481
a = (0.112816141383+0.301635626429j)
ϕ_0 = -1.9566289113
τ = 30.0941176091

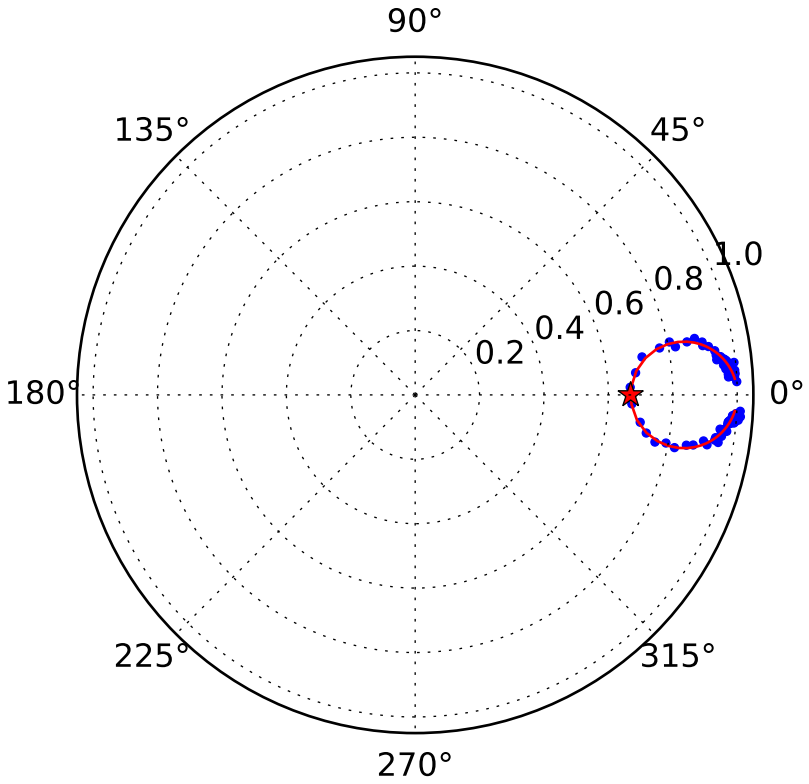


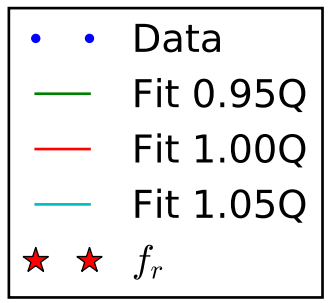
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.29092032726
Q_r = 19000.2012373
Q_c = 18796.0163447
a = (-0.0738166036622-0.198668228811j)
ϕ_0 = -1.32867654234
τ = 27.7965194542



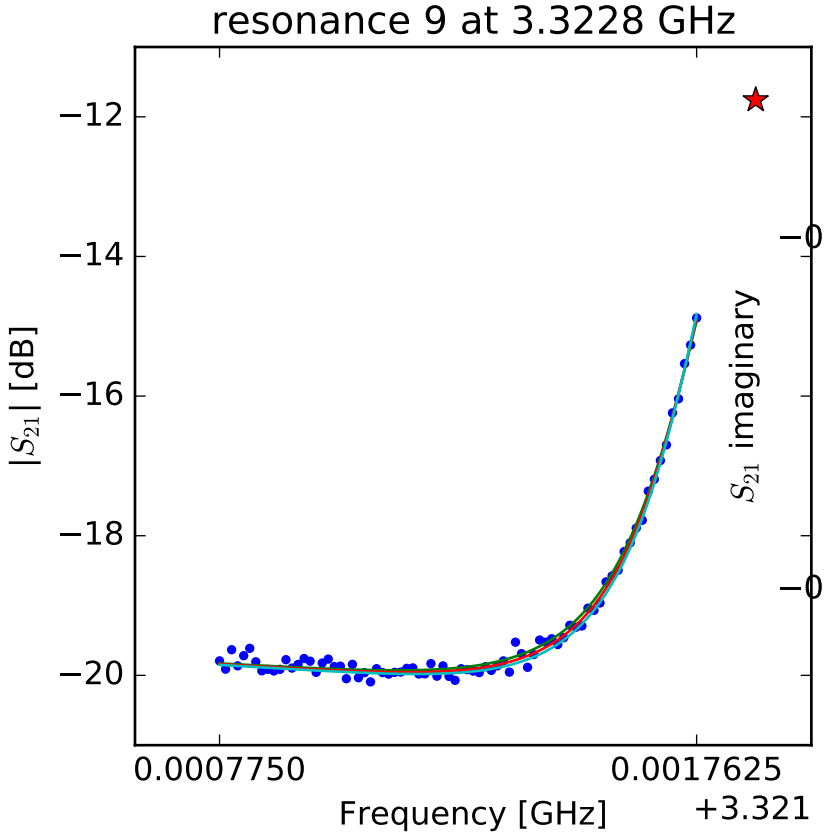


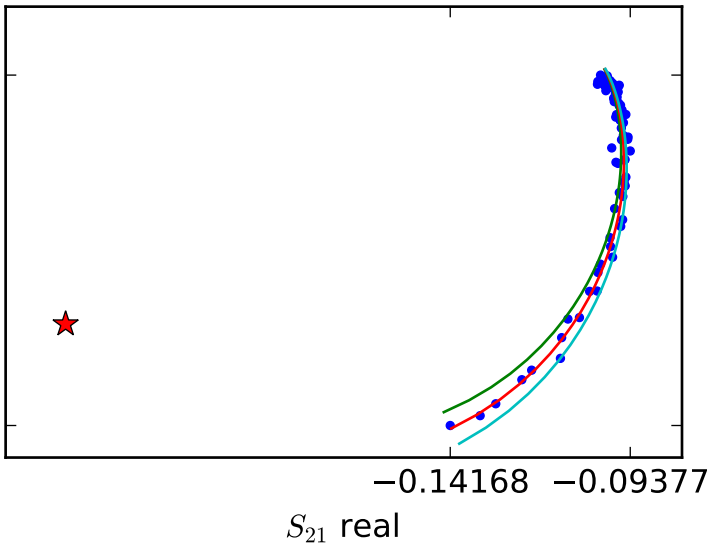


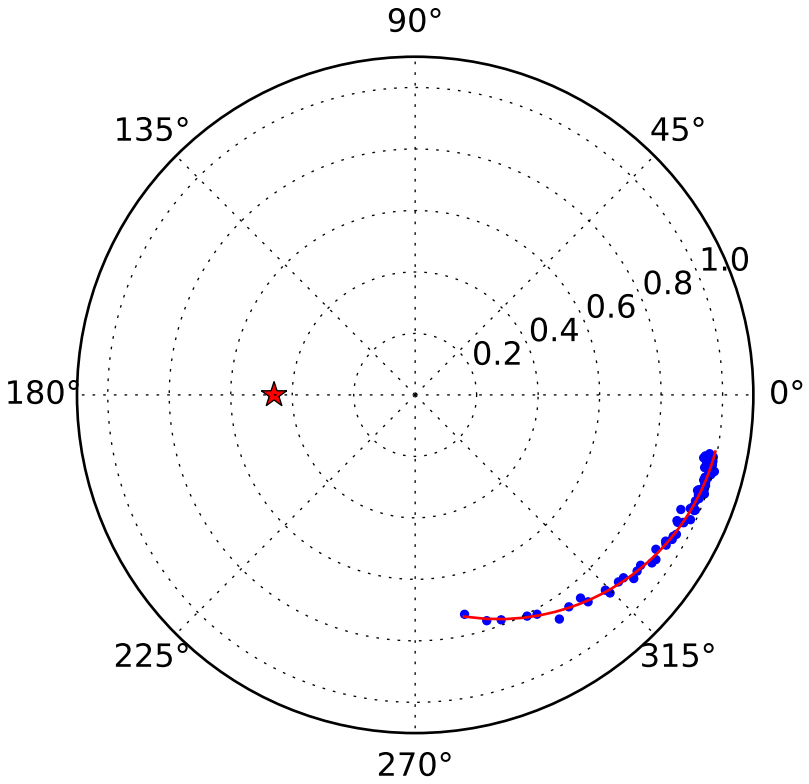


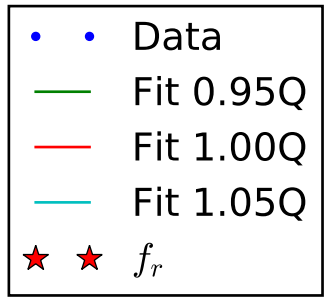
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.30856931013
Q_r = 21629.4499062
Q_c = 65342.1787809
a = (0.114626186184-0.0469888359396j)
ϕ_0 = -0.227269649329
τ = 24.223290487



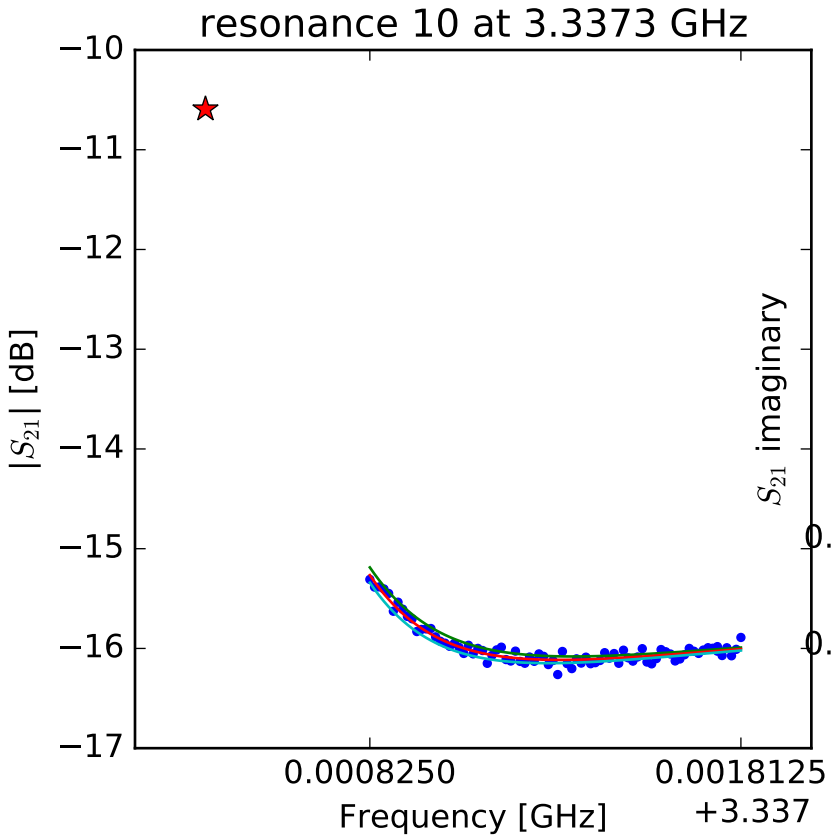


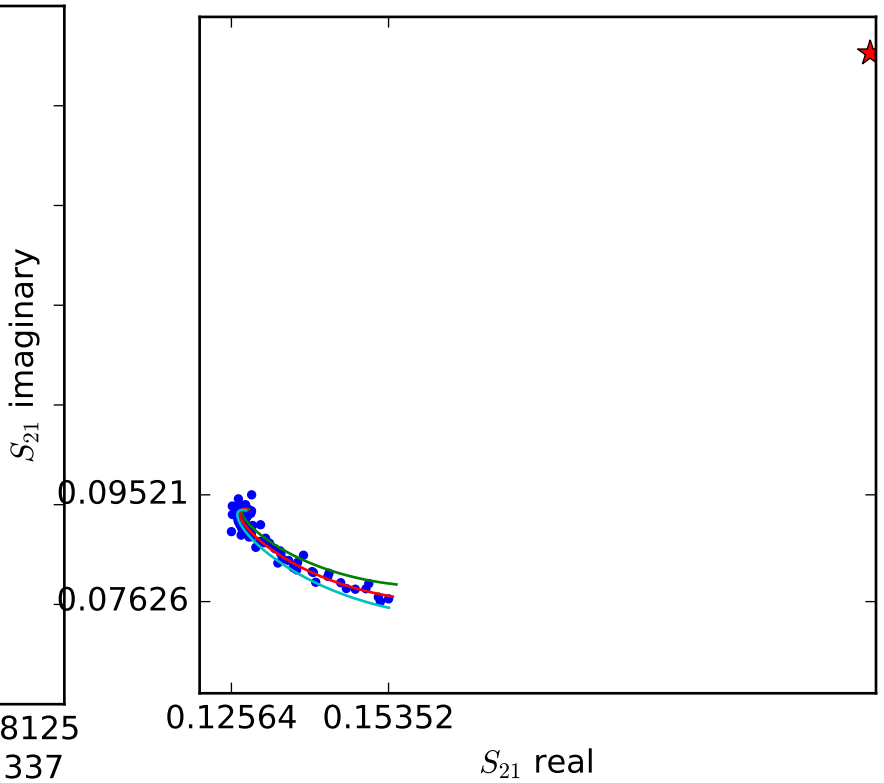


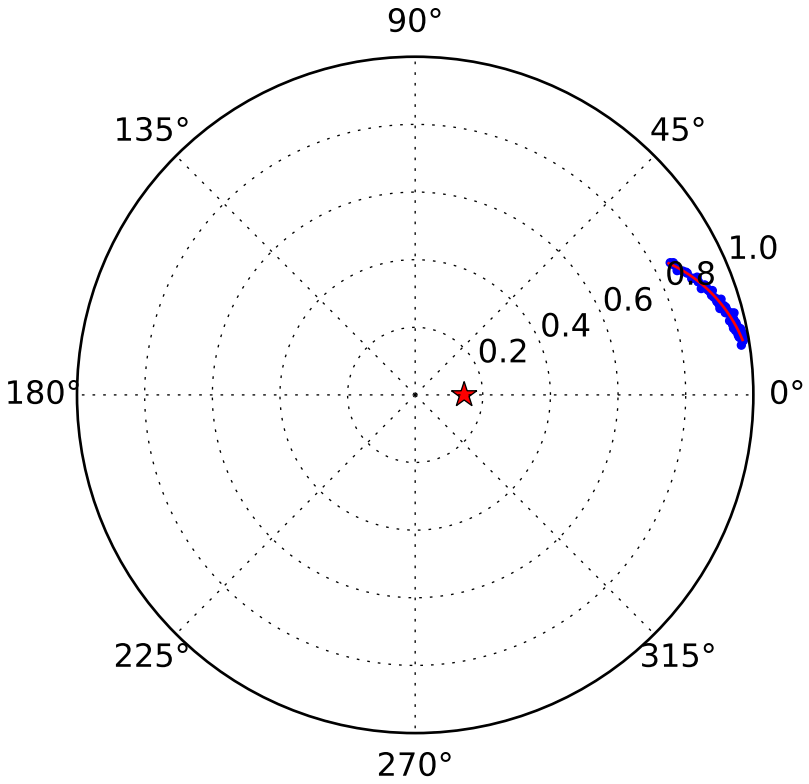


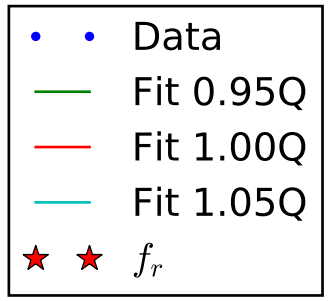
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.32288478907
Q_r = 11642.987844
Q_c = 7980.14068113
a = (-0.0697048031502+0.0864209581414j)
ϕ_0 = -2.46835473736
τ = 8.3869707212



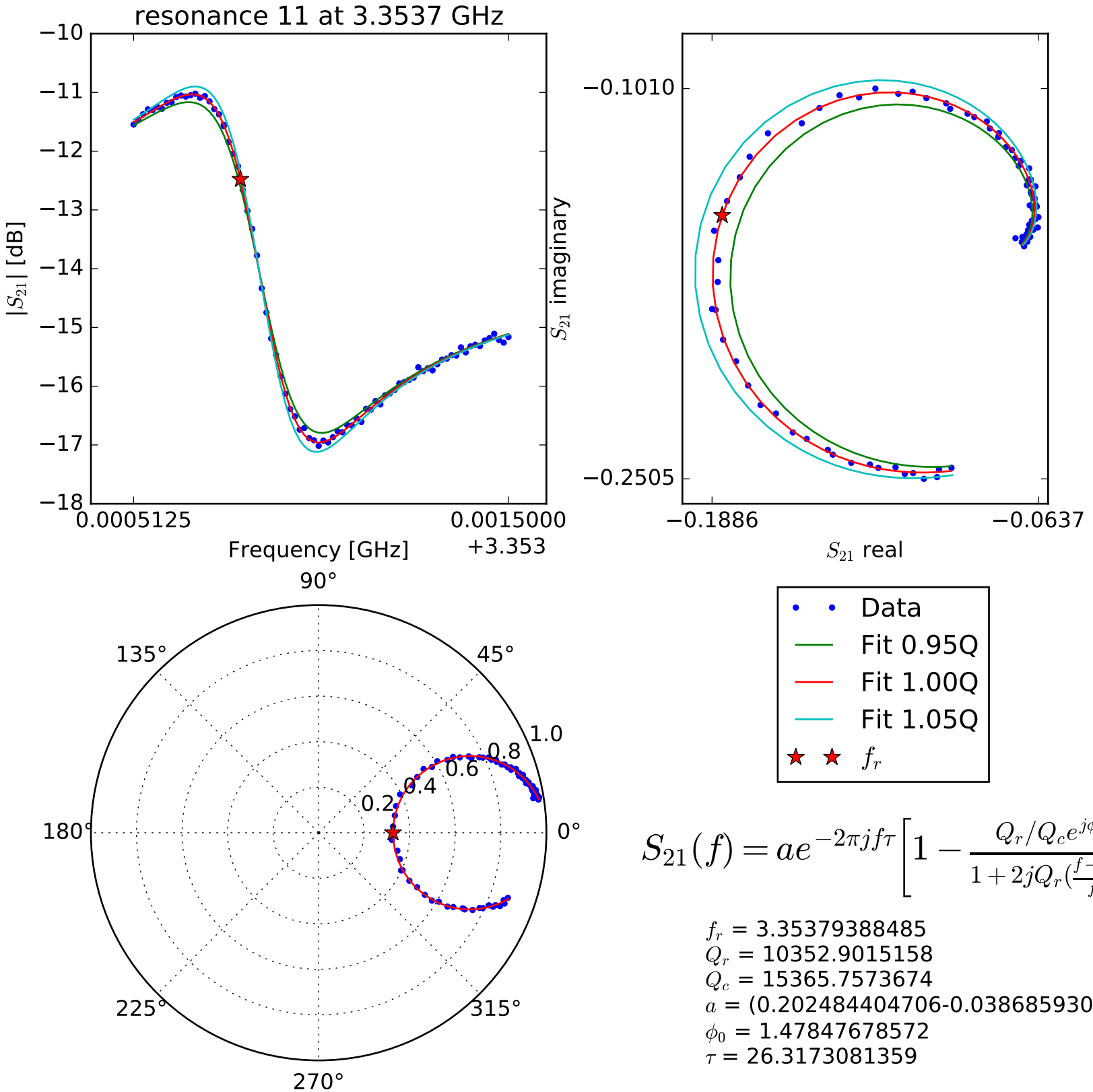






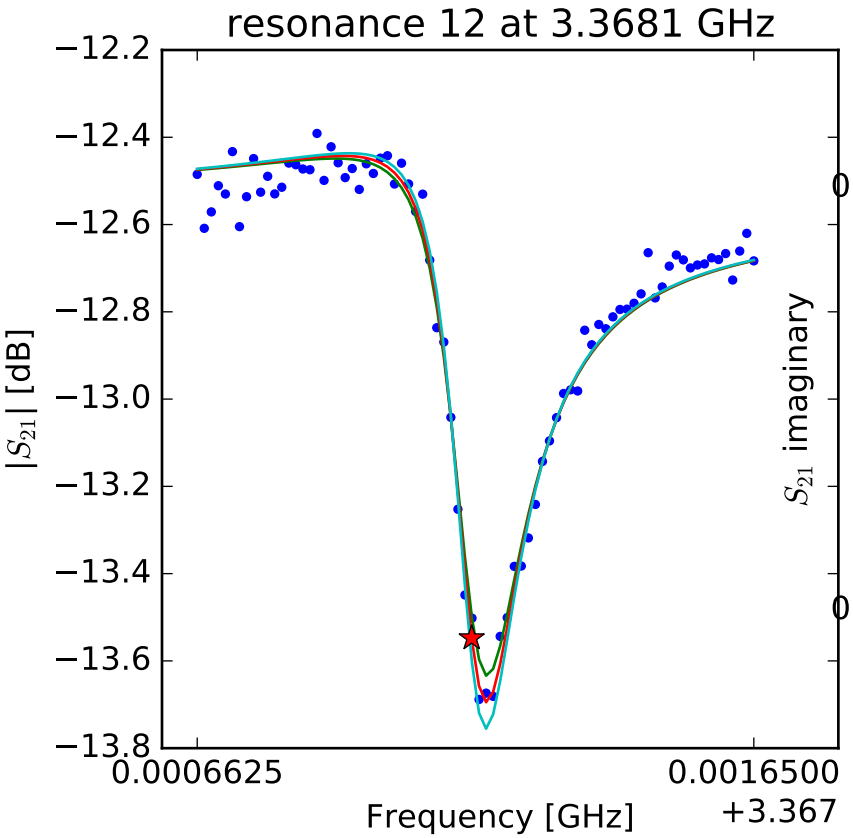
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

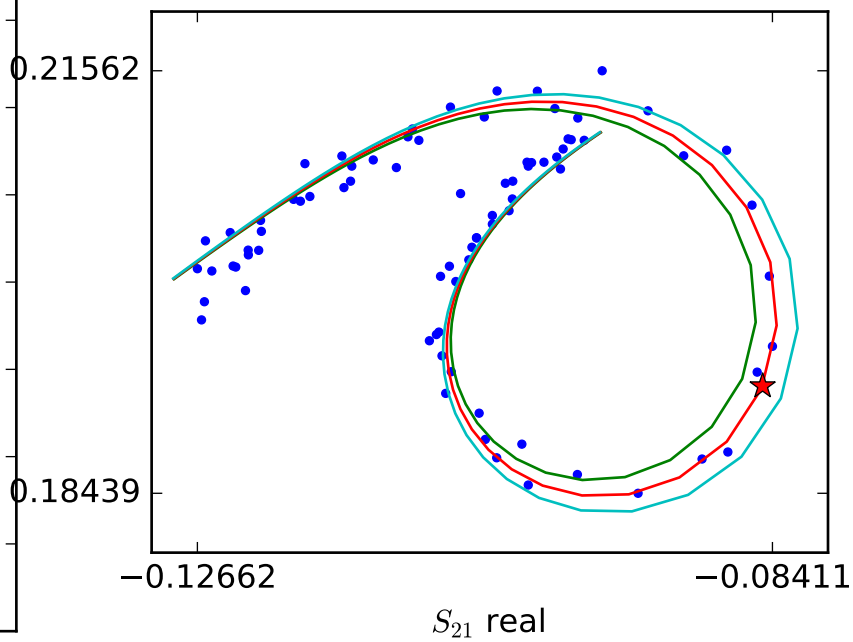
f_r = 3.33738753877
Q_r = 5926.57182197
Q_c = 6930.37336366
a = (0.0949874234746+0.145039736844j)
ϕ_0 = 2.32474584524
τ = 25.7680935875

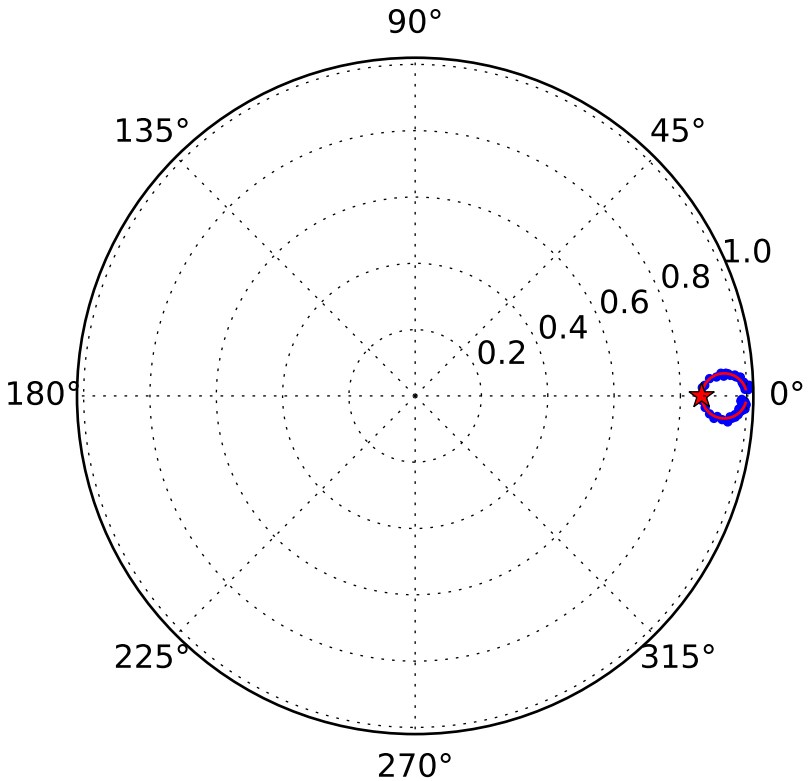


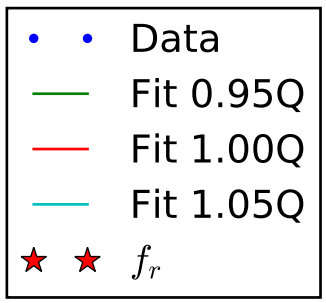
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.35379388485
Q_r = 10352.9015158
Q_c = 15365.7573674
a = (0.202484404706-0.0386859309903j)
ϕ_0 = 1.47847678572
τ = 26.3173081359



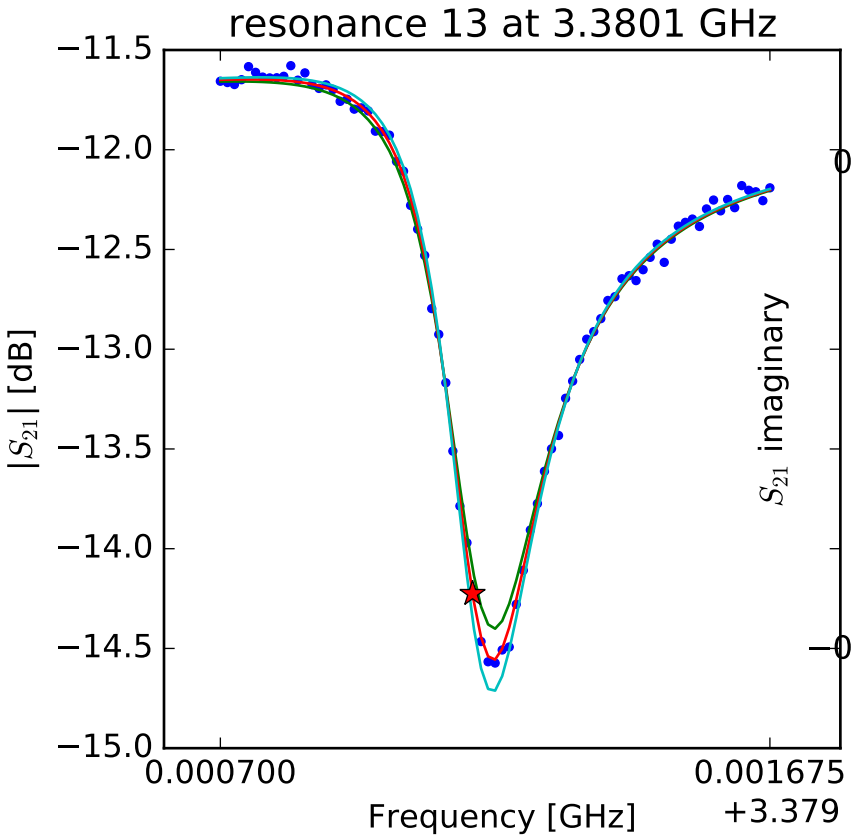


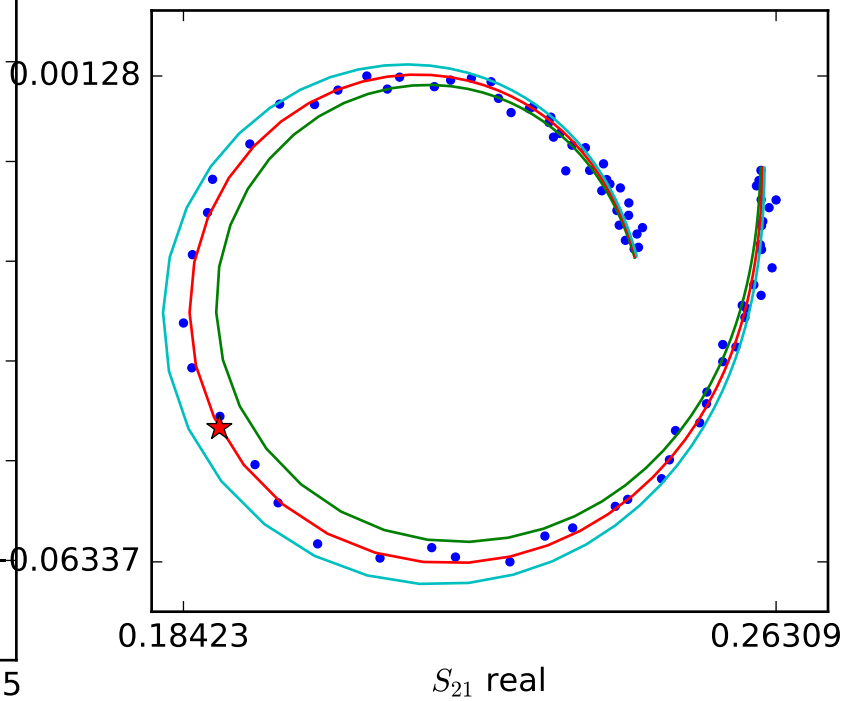


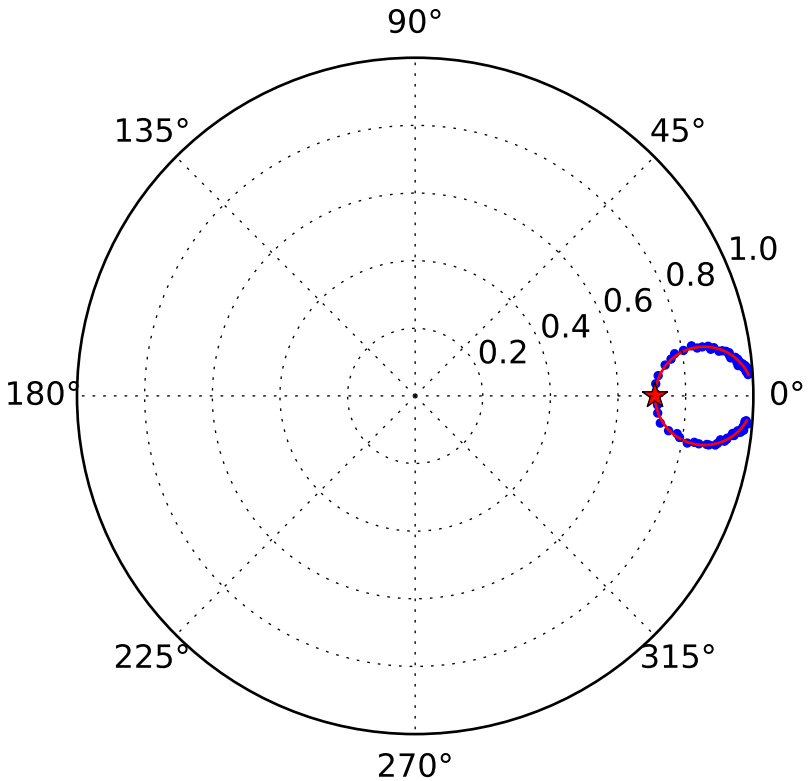


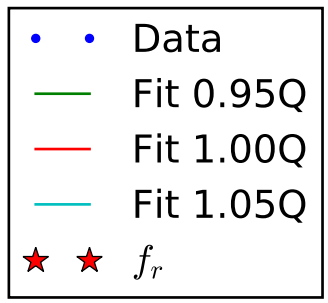
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.36814945563
Q_r = 21671.8540552
Q_c = 159329.123179
a = (0.218667632363-0.0877085196167j)
ϕ_0 = 0.612698005675
τ = 28.0893706512



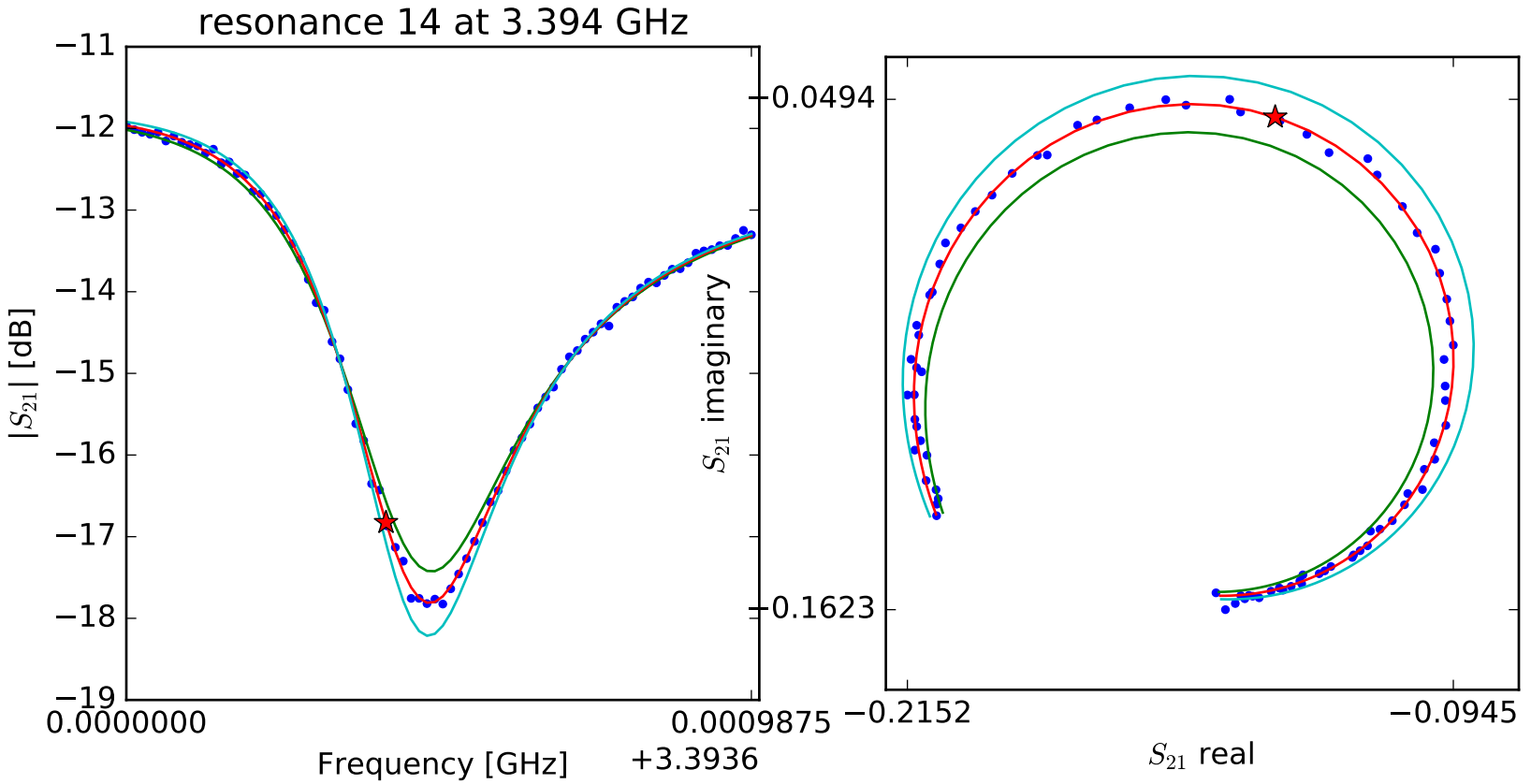


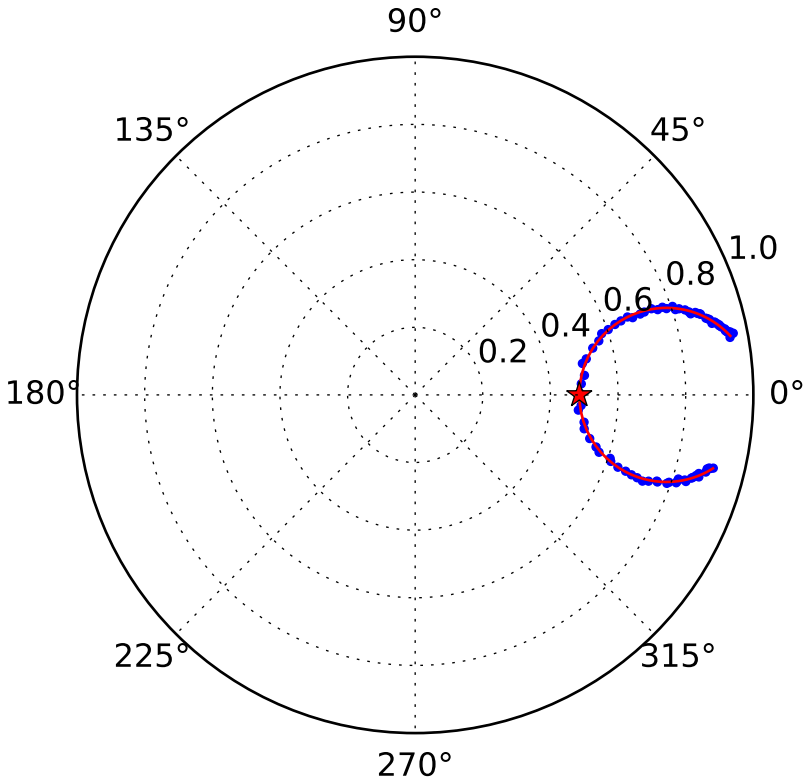


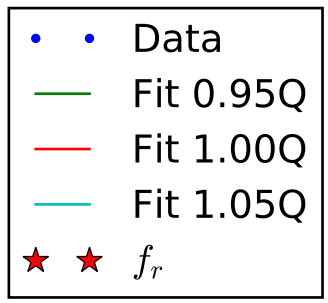


$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.38014744072
Q_r = 14054.9956159
Q_c = 48327.8371345
a = (-0.252992164539+0.0403716080444j)
ϕ_0 = 0.506262053246
τ = 28.2480810877

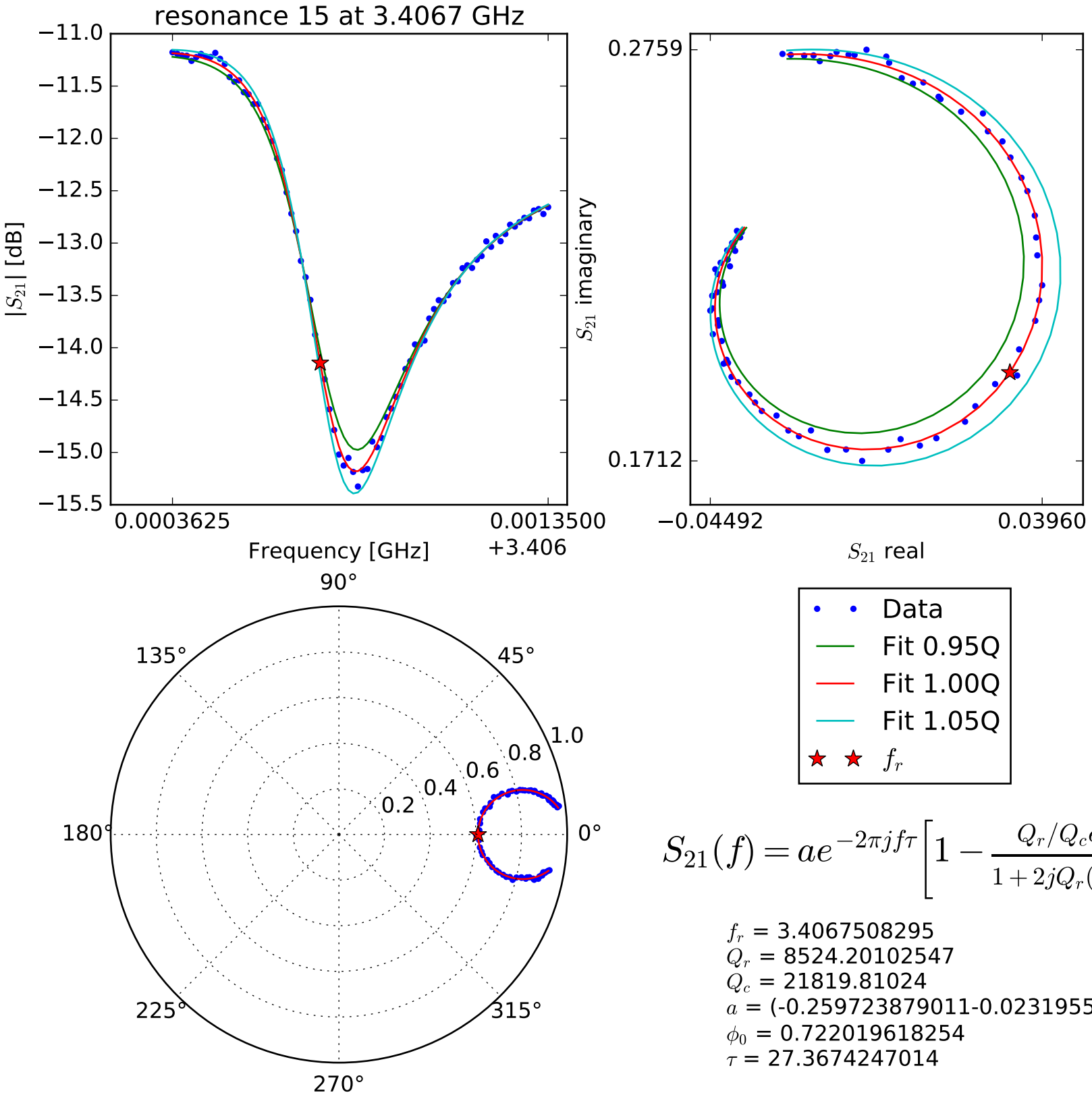






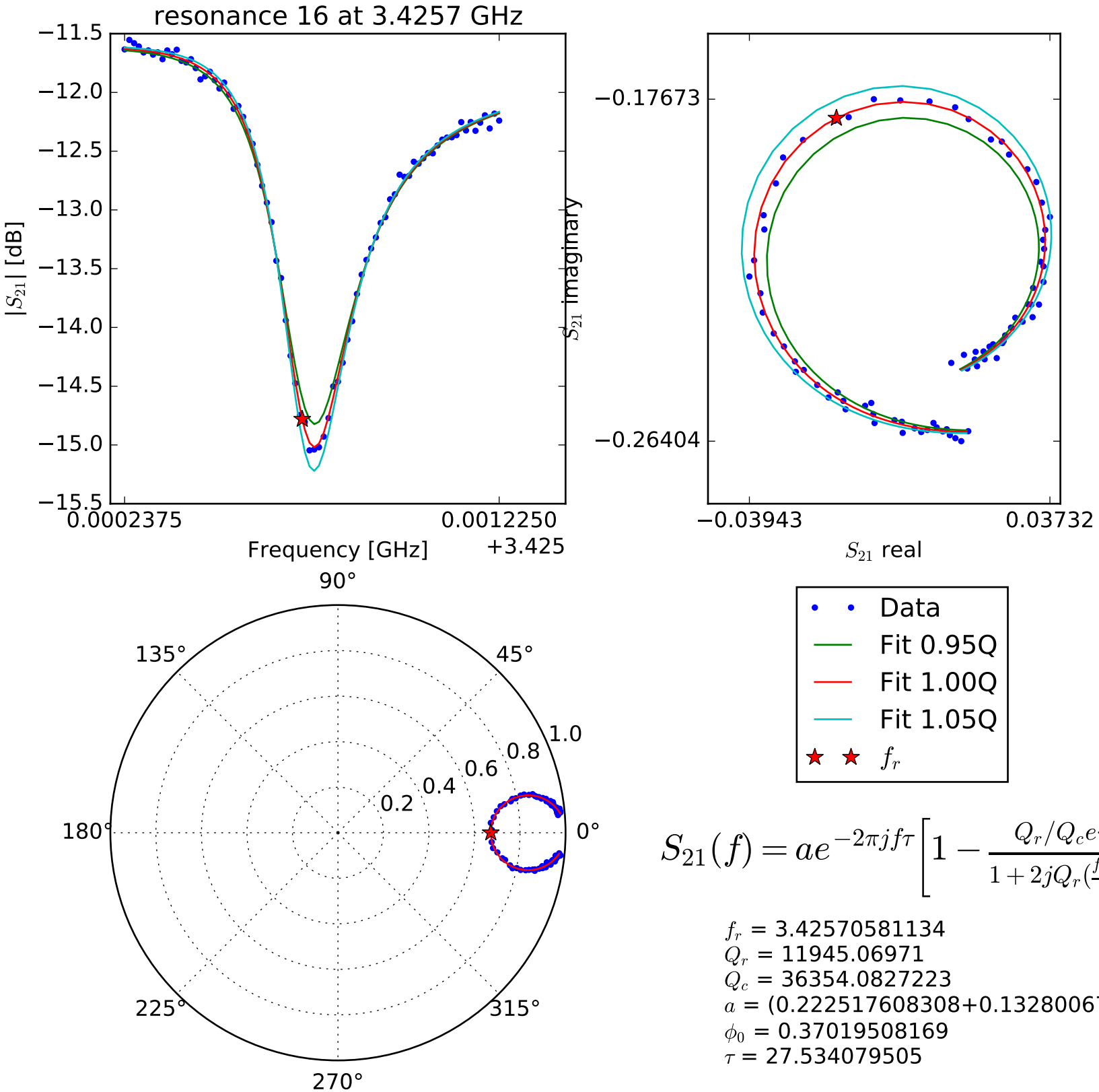
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.39401028372
Q_r = 7521.40910399
Q_c = 14613.0312345
a = (-0.0844595766608+0.232941555666j)
ϕ_0 = 0.450565405085
τ = 25.5397304393



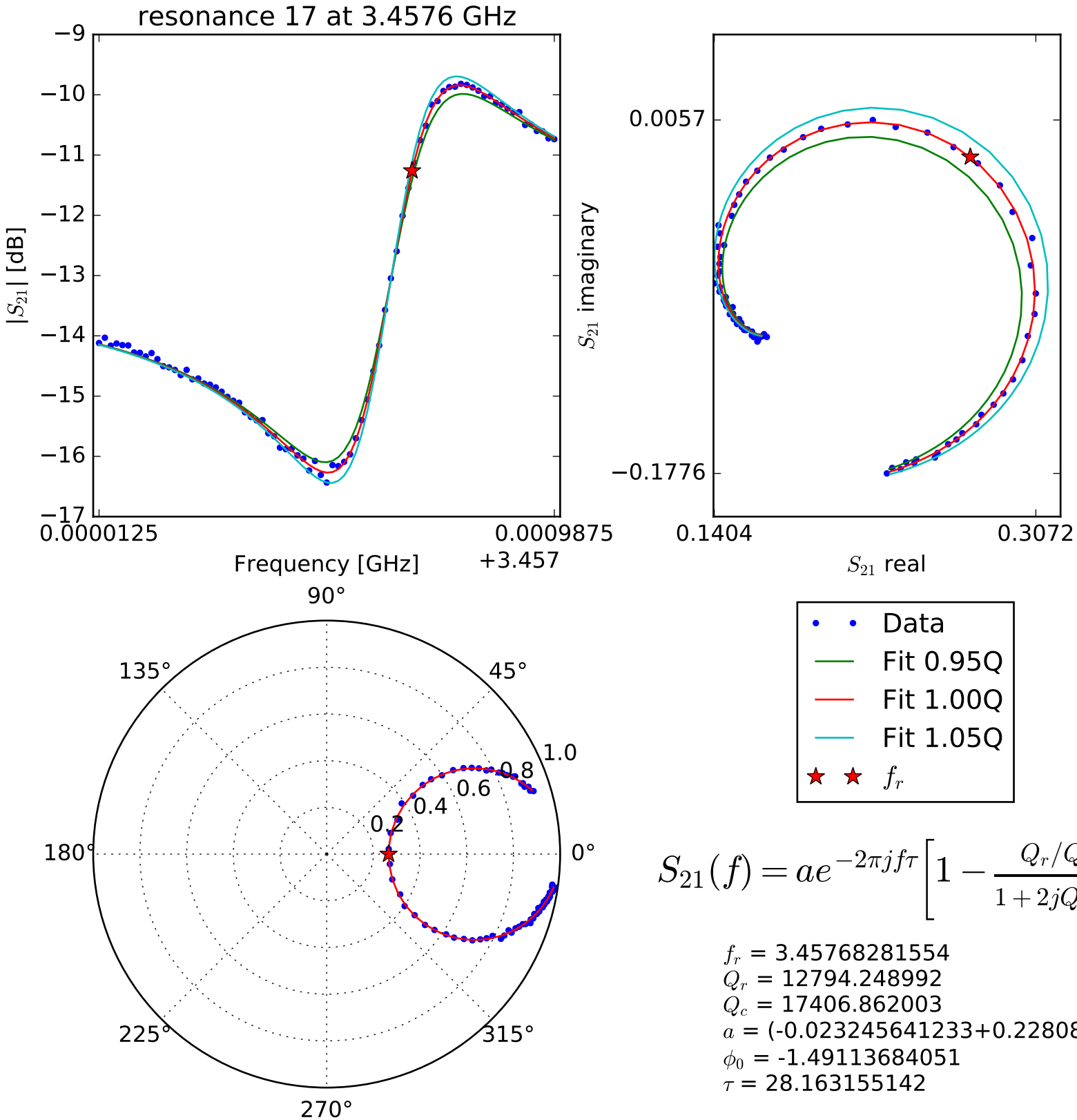
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.4067508295
Q_r = 8524.20102547
Q_c = 21819.81024
a = (-0.259723879011-0.0231955118927j)
ϕ_0 = 0.722019618254
τ = 27.3674247014



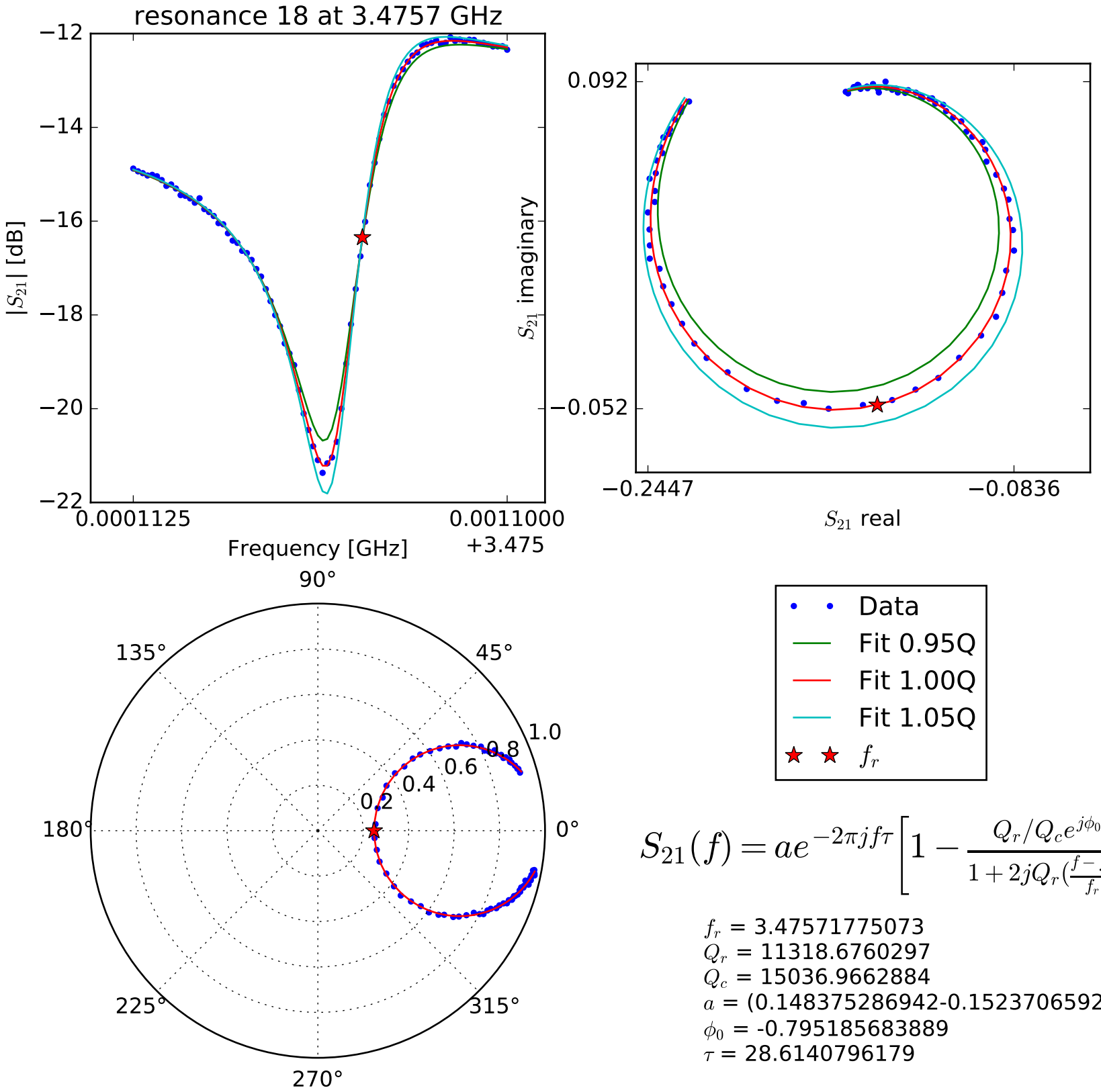
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.42570581134
Q_r = 11945.06971
Q_c = 36354.0827223
a = (0.222517608308+0.132800673081j)
ϕ_0 = 0.37019508169
τ = 27.534079505



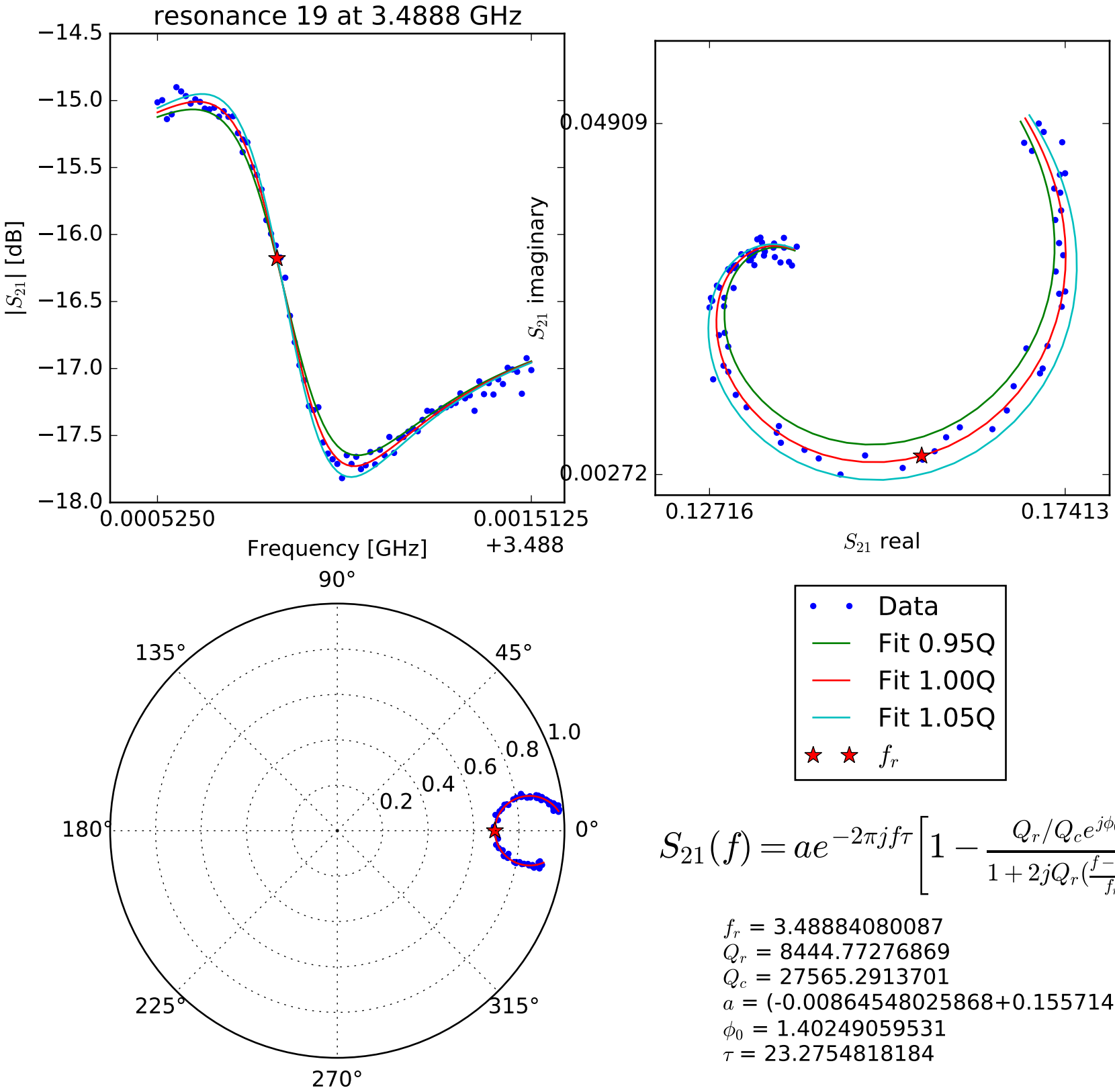
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.45768281554
Q_r = 12794.248992
Q_c = 17406.862003
a = (-0.023245641233+0.22808764157j)
ϕ_0 = -1.49113684051
τ = 28.163155142



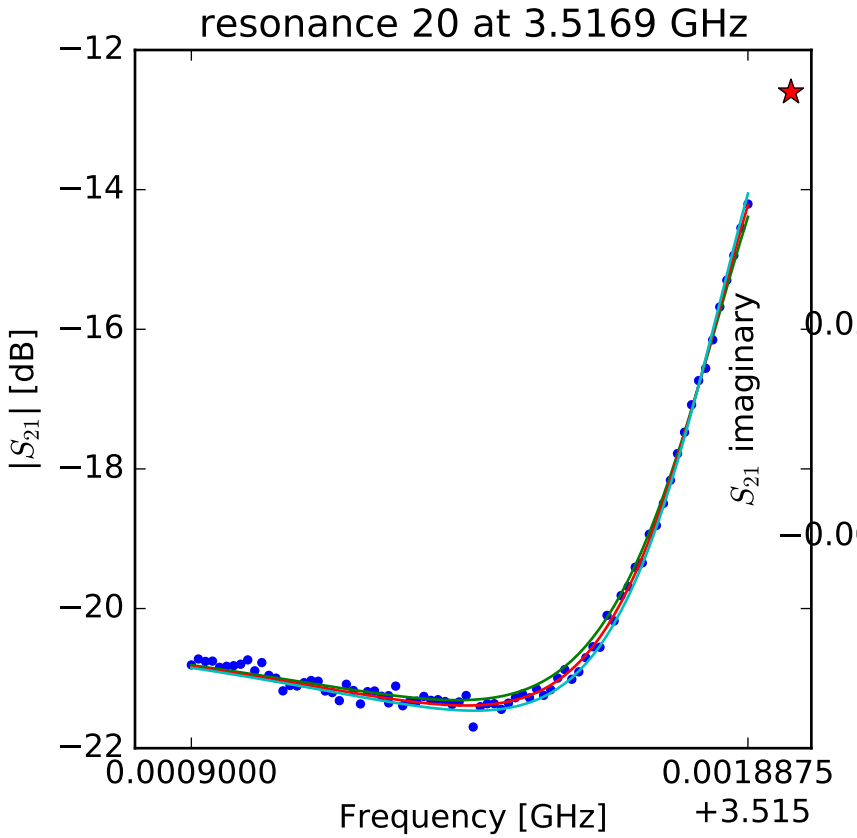
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

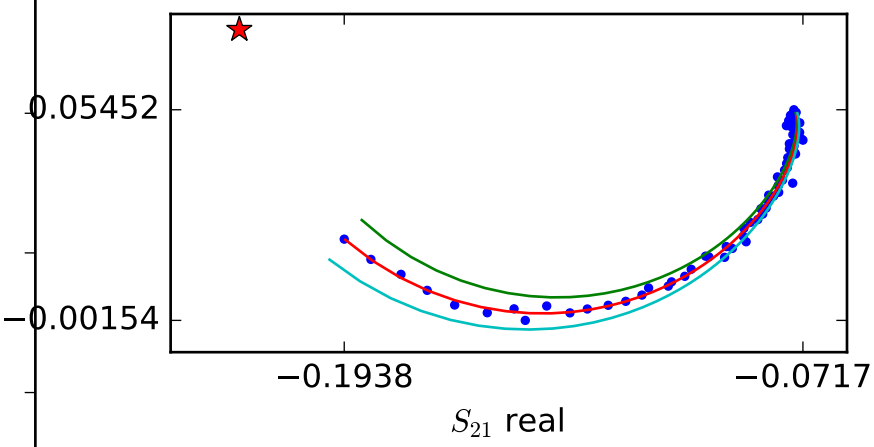
f_r = 3.47571775073
Q_r = 11318.6760297
Q_c = 15036.9662884
a = (0.148375286942-0.152370659292j)
ϕ_0 = -0.795185683889
τ = 28.6140796179

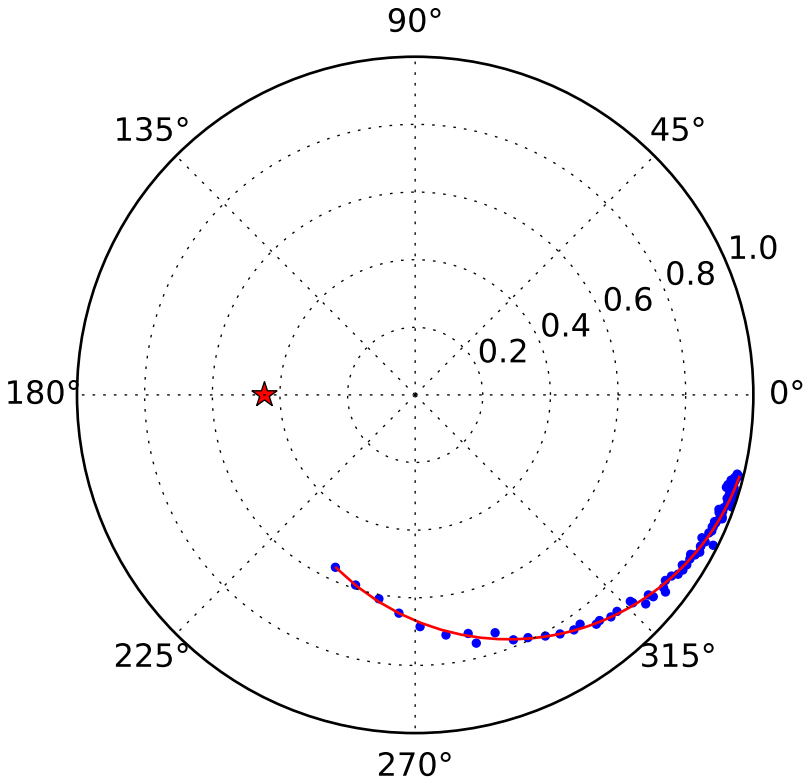


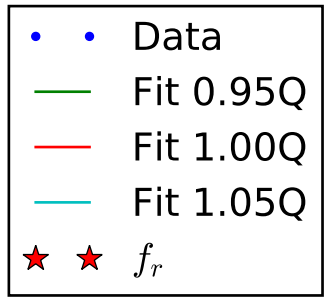
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.48884080087
Q_r = 8444.77276869
Q_c = 27565.2913701
a = (-0.00864548025868+0.155714509829j)
ϕ_0 = 1.40249059531
τ = 23.2754818184



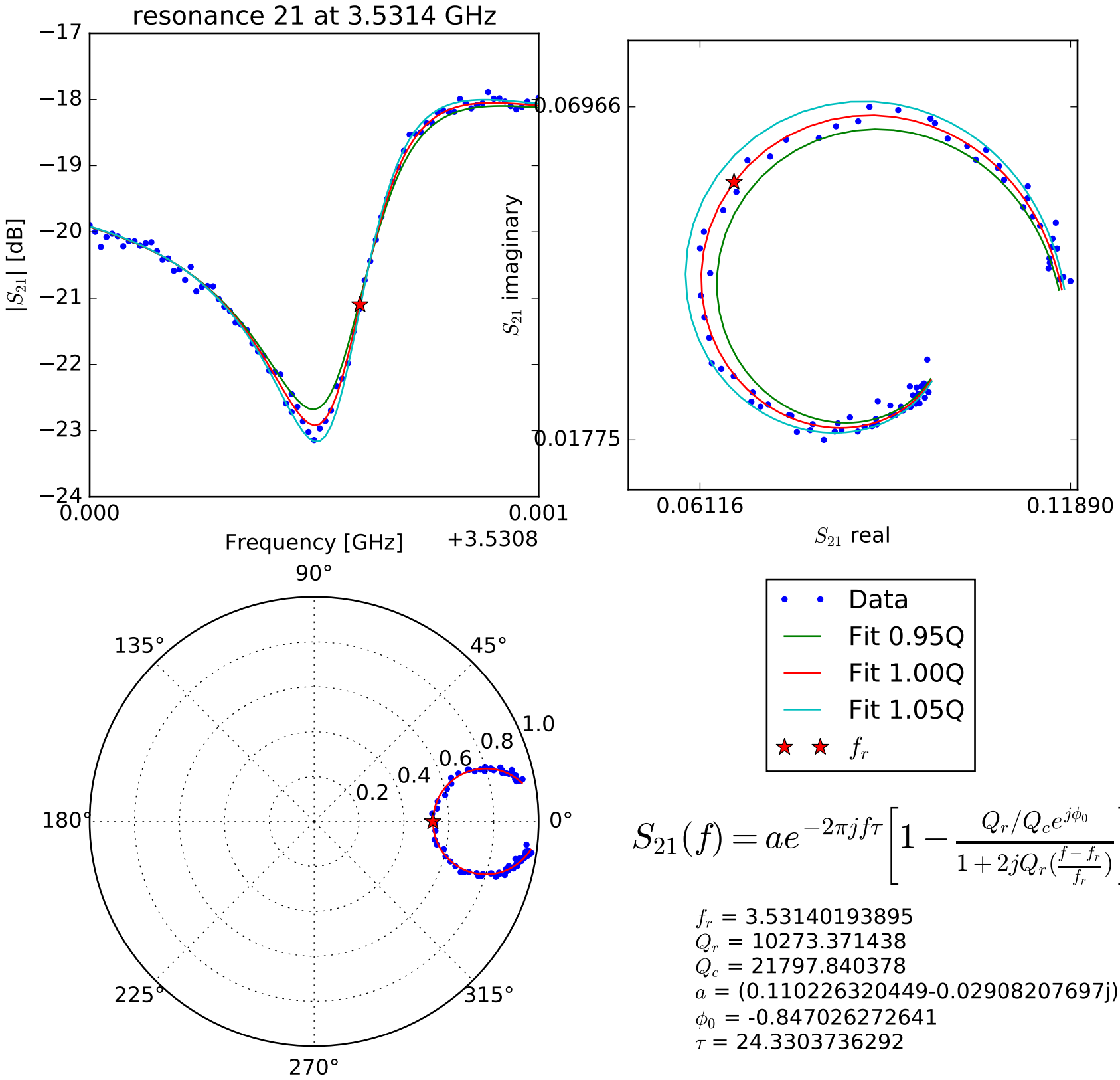






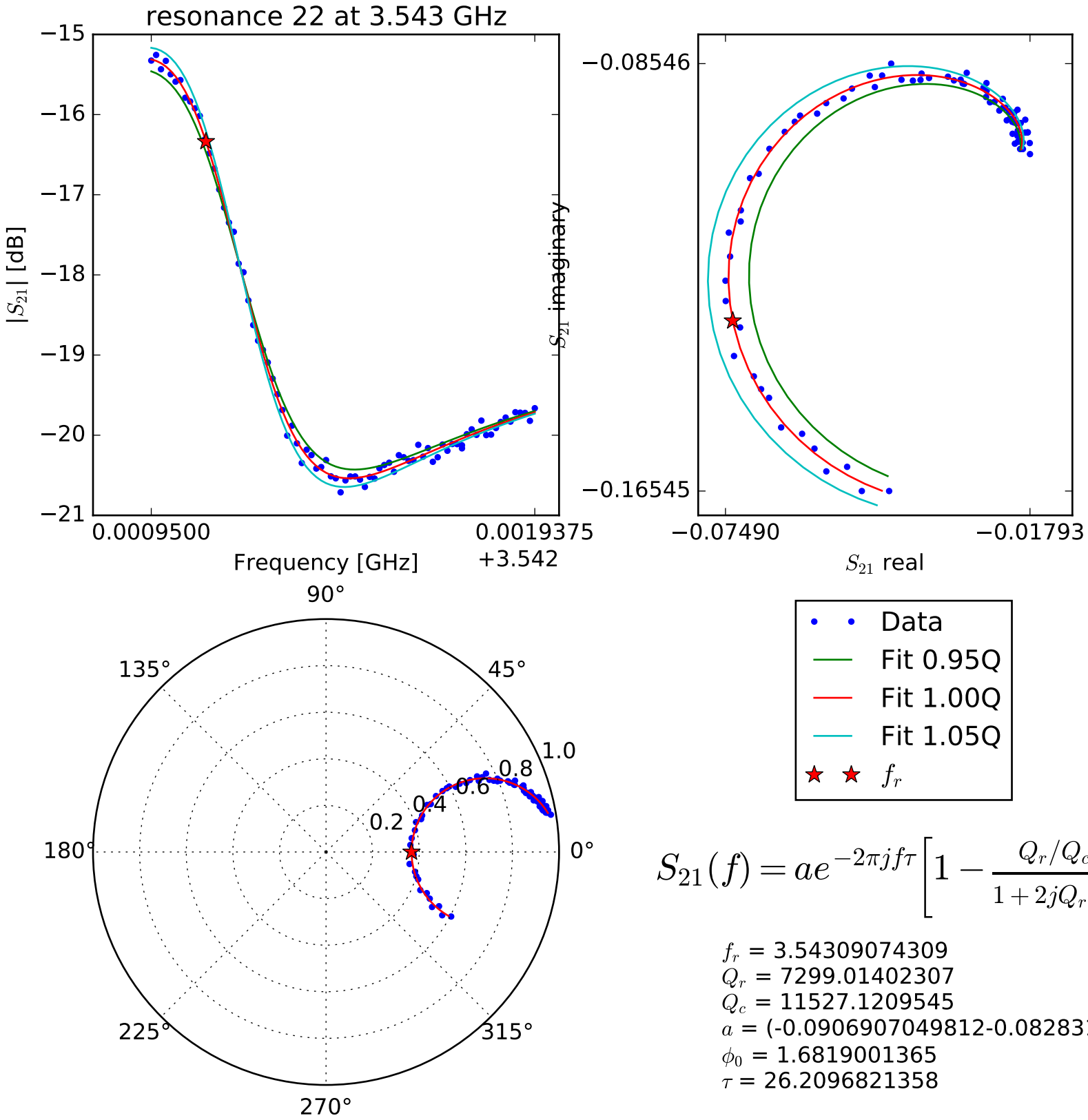
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.51696386667
Q_r = 9544.36696628
Q_c = 6602.14492812
a = (-0.0884073064893-0.0657665107163j)
ϕ_0 = -2.08921591904
τ = 20.8289826975



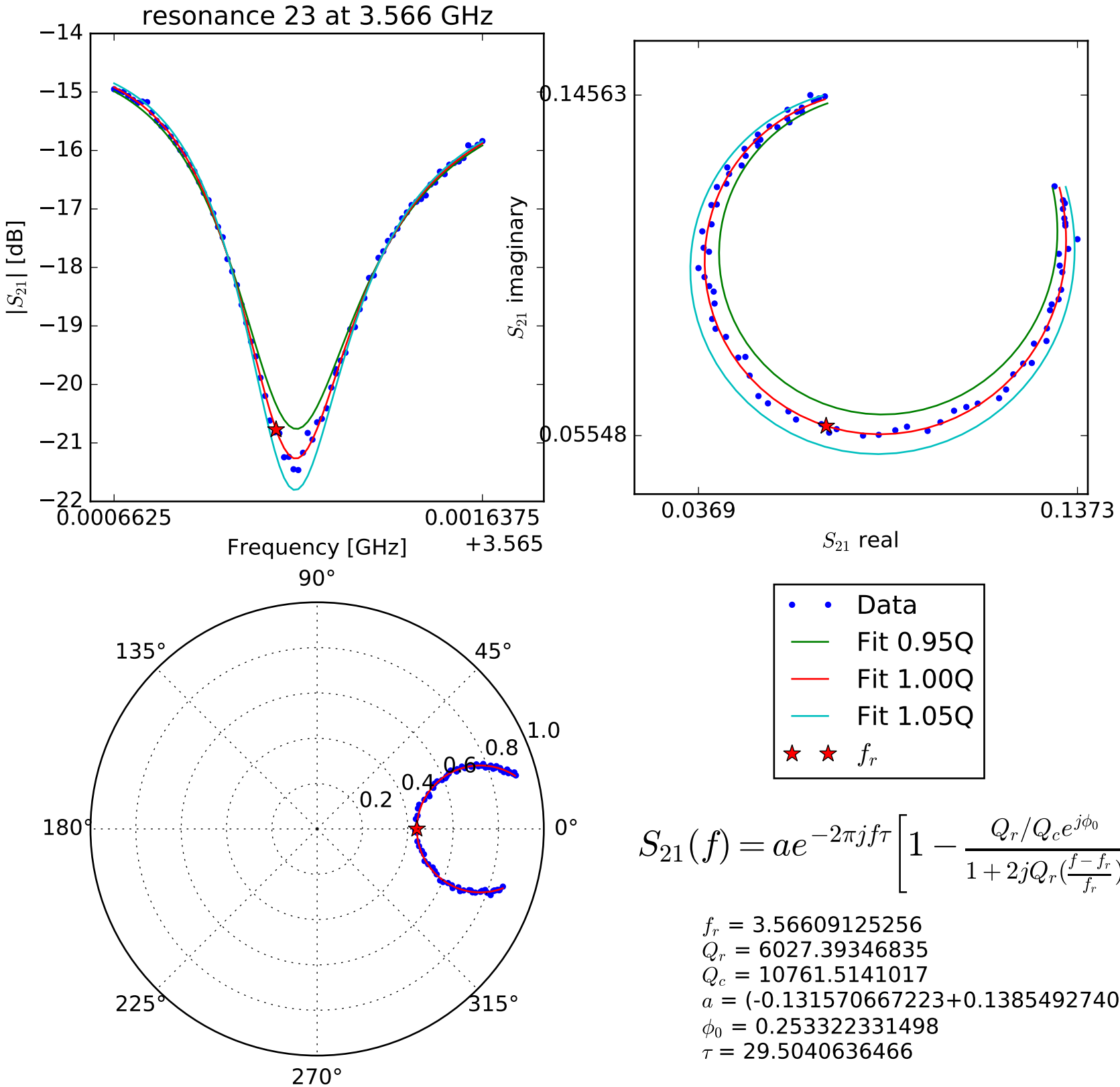
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.53140193895
Q_r = 10273.371438
Q_c = 21797.840378
a = (0.110226320449-0.02908207697j)
ϕ_0 = -0.847026272641
τ = 24.3303736292



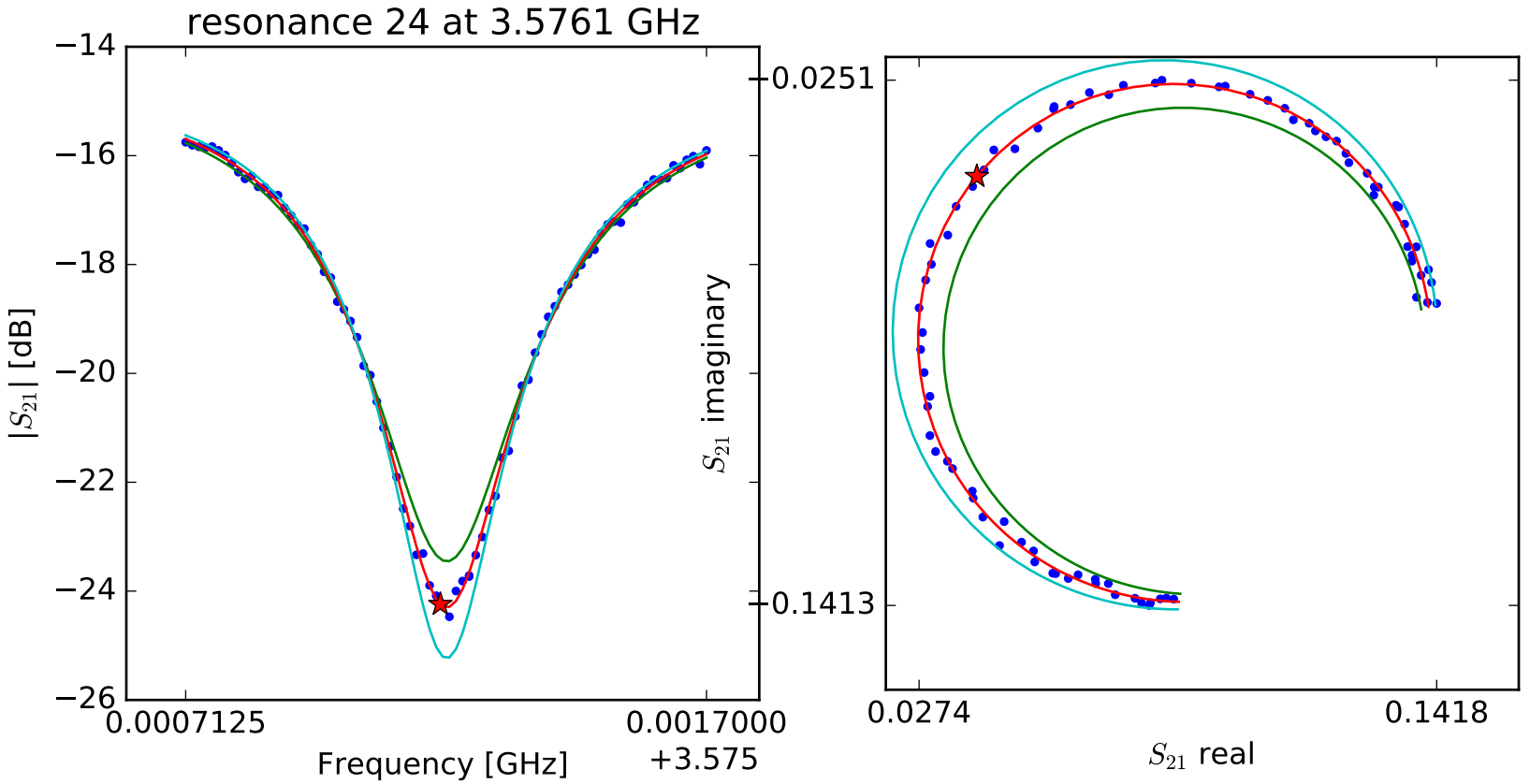
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

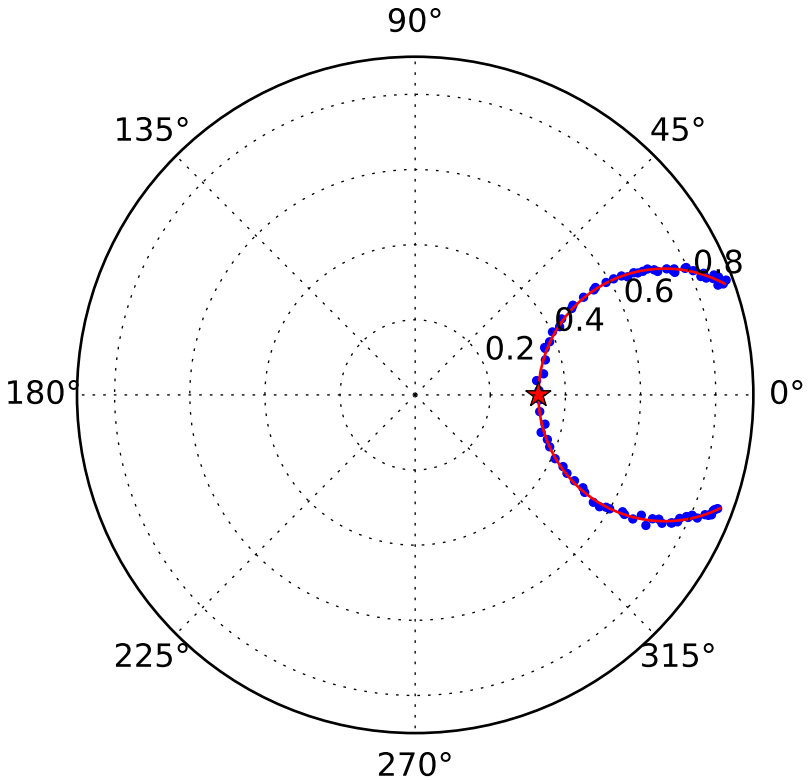
f_r = 3.54309074309
Q_r = 7299.01402307
Q_c = 11527.1209545
a = (-0.0906907049812-0.0828319170892j)
ϕ_0 = 1.6819001365
τ = 26.2096821358

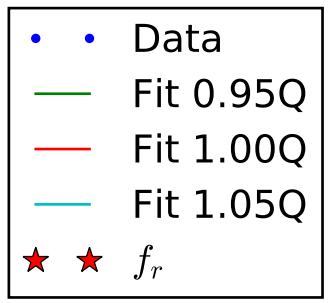


$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.56609125256
Q_r = 6027.39346835
Q_c = 10761.5141017
a = (-0.131570667223+0.138549274097j)
ϕ_0 = 0.253322331498
τ = 29.5040636466

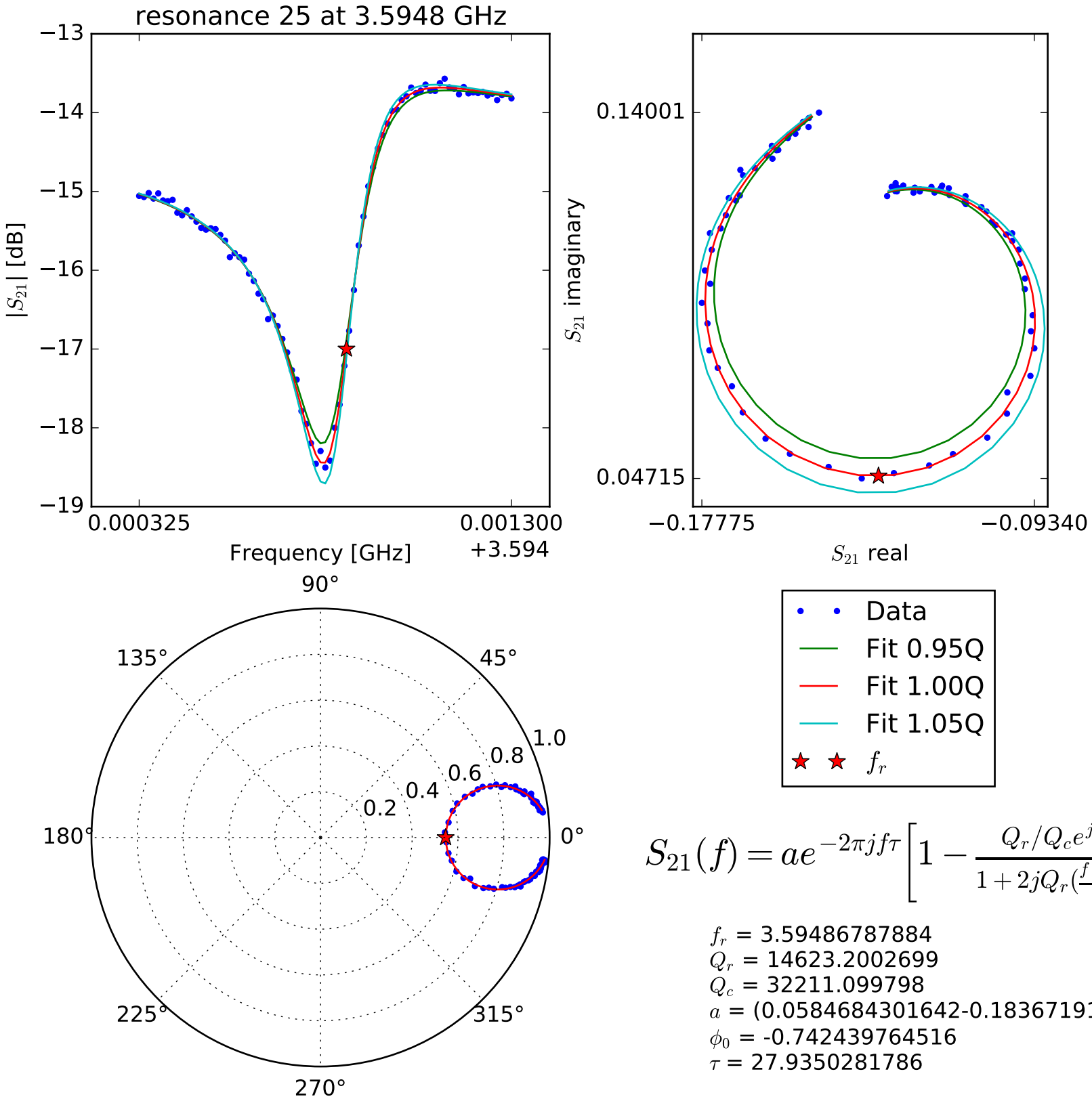






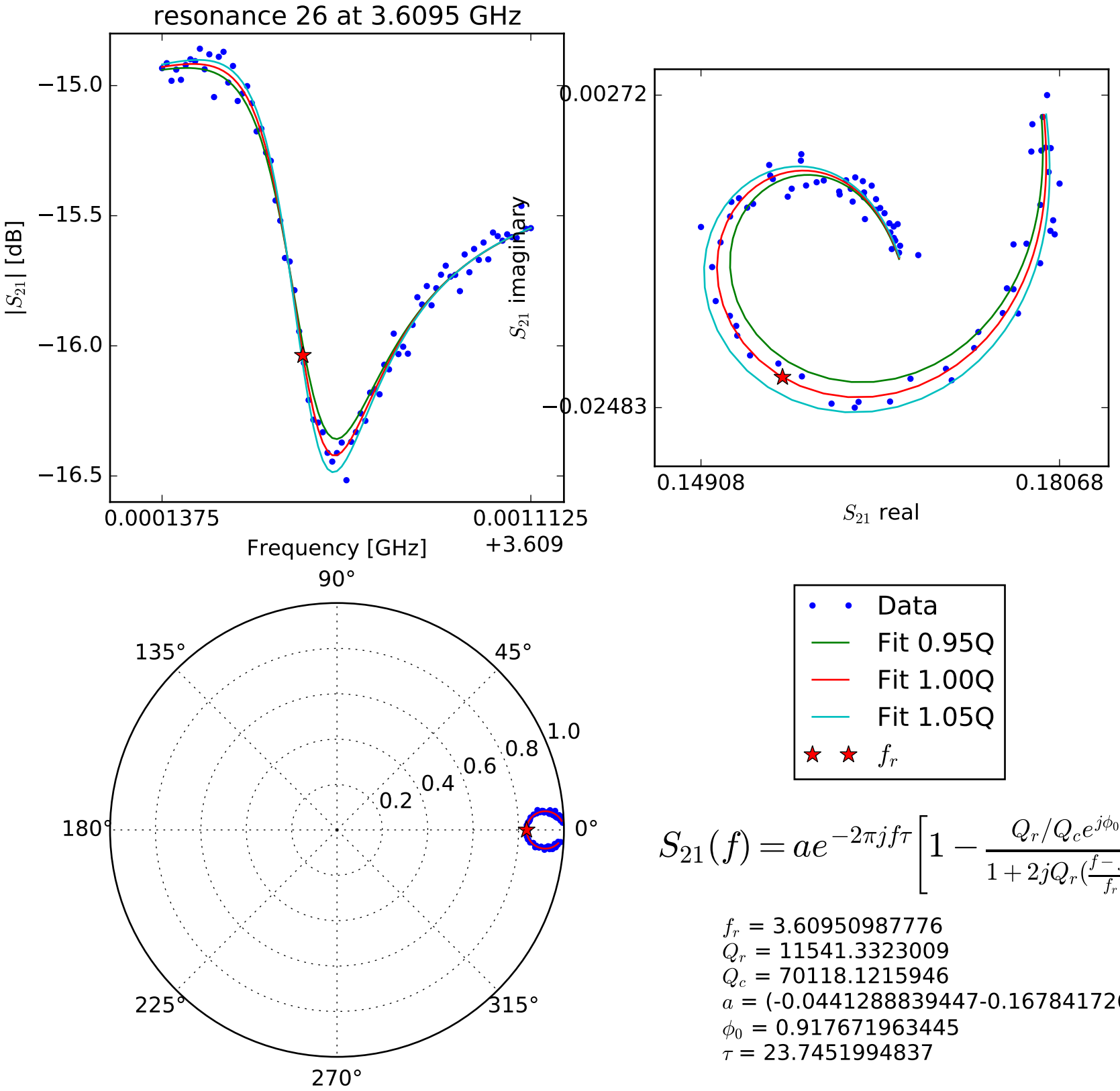
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.57619535517
Q_r = 5937.07666352
Q_c = 8832.73266845
a = (0.148653491082+0.110983538773j)
ϕ_0 = 0.0535256410167
τ = 26.6264192809



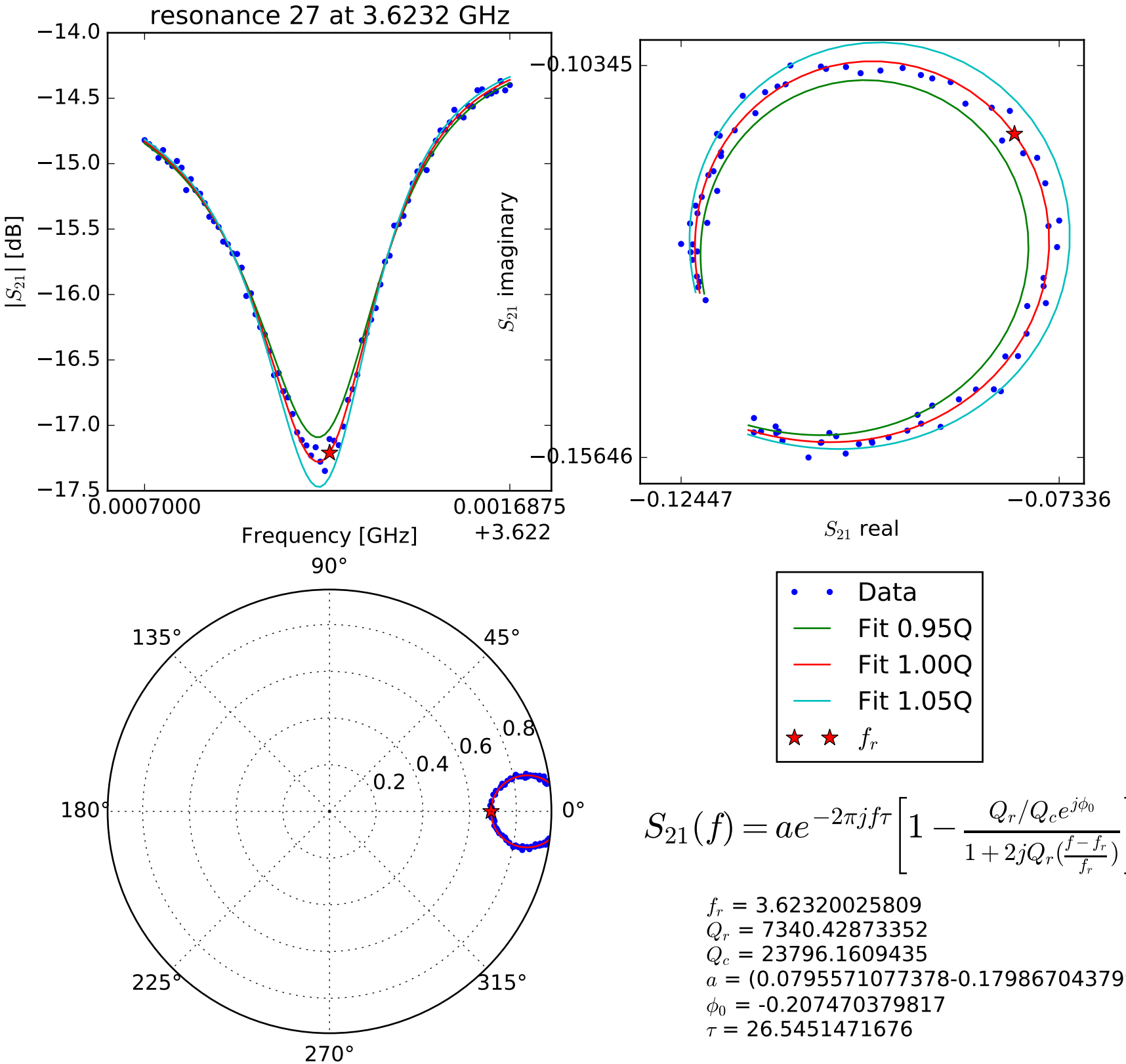
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.59486787884
Q_r = 14623.2002699
Q_c = 32211.099798
a = (0.0584684301642-0.183671913778j)
ϕ_0 = -0.742439764516
τ = 27.9350281786



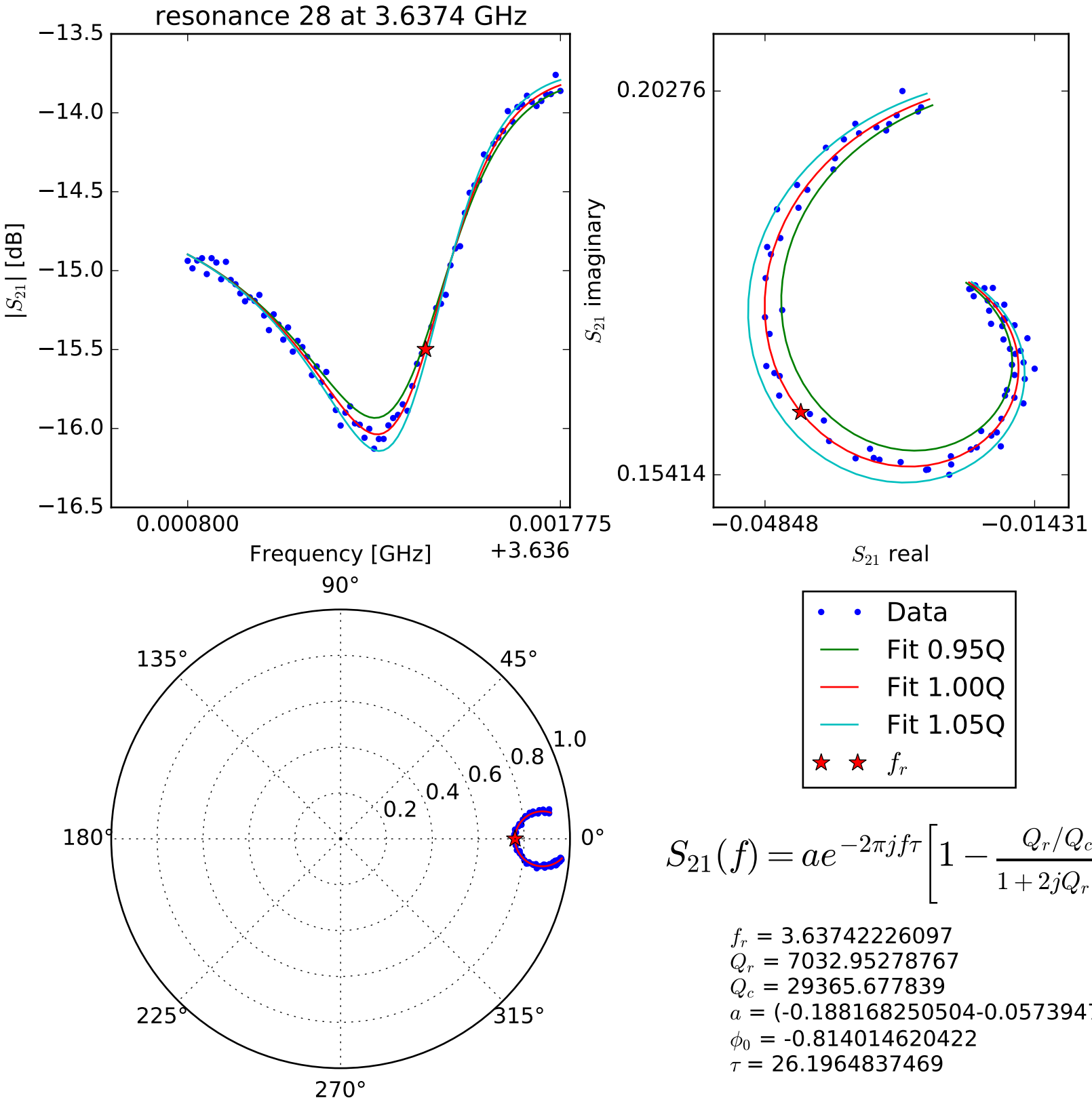
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.60950987776
Q_r = 11541.3323009
Q_c = 70118.1215946
a = (-0.0441288839447-0.167841726868j)
ϕ_0 = 0.917671963445
τ = 23.7451994837



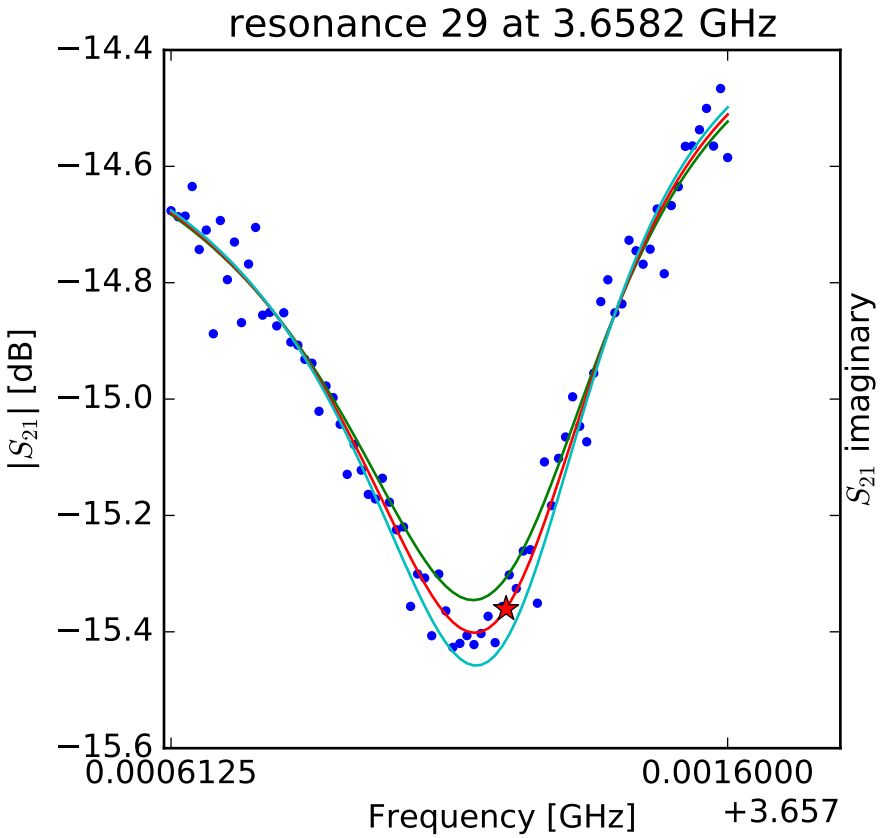
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

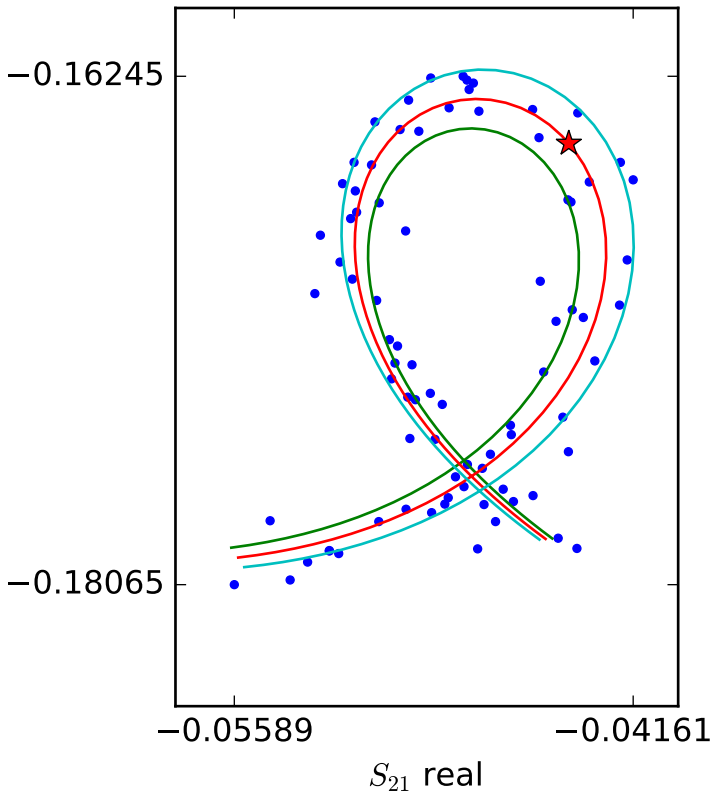
f_r = 3.62320025809
Q_r = 7340.42873352
Q_c = 23796.1609435
a = (0.0795571077378-0.179867043799j)
ϕ_0 = -0.207470379817
τ = 26.5451471676

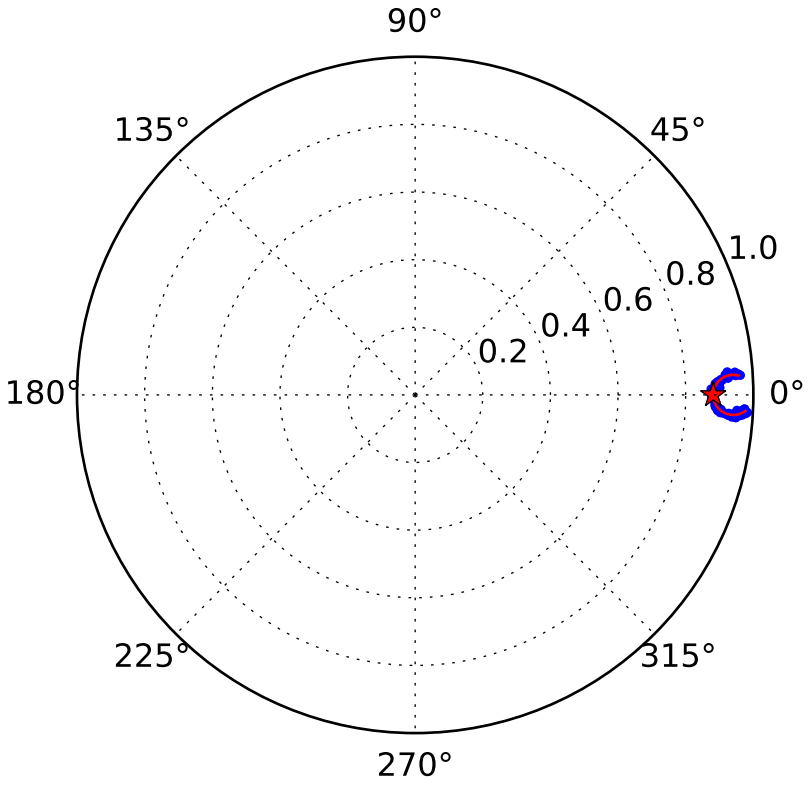


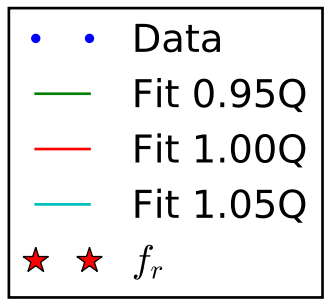
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.63742226097
Q_r = 7032.95278767
Q_c = 29365.677839
a = (-0.188168250504-0.057394777622j)
ϕ_0 = -0.814014620422
τ = 26.1964837469



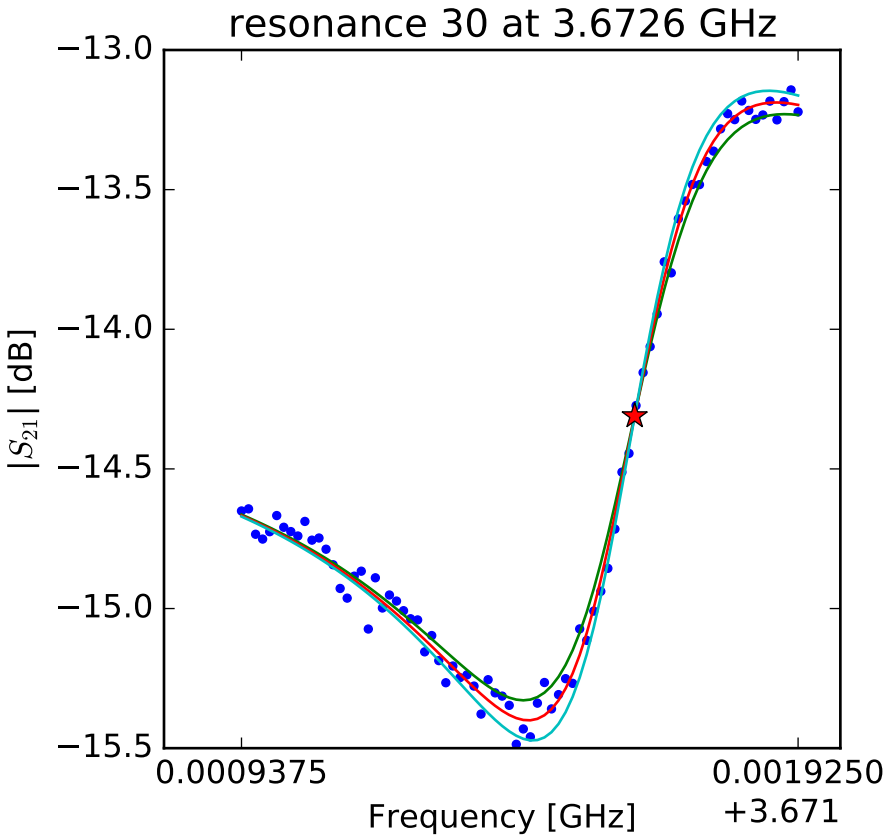


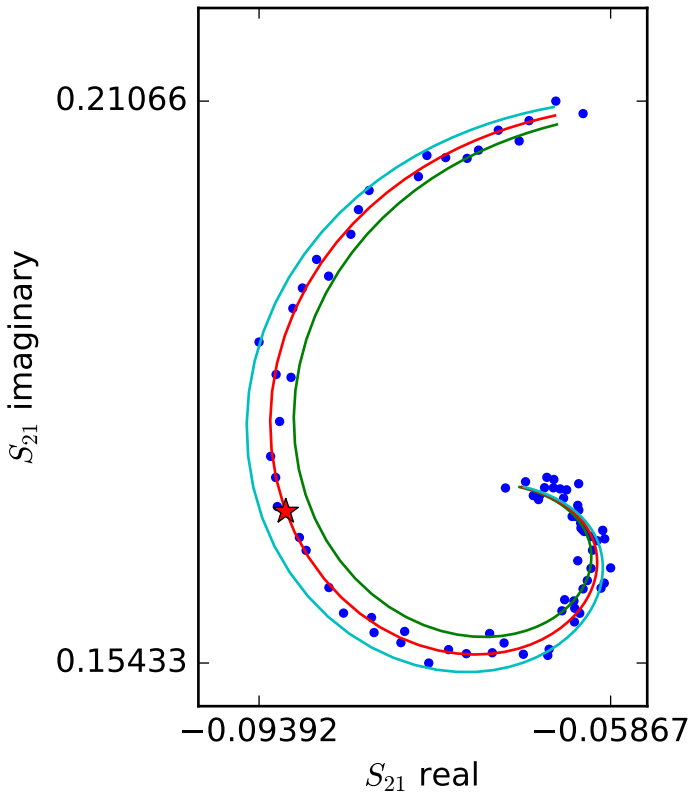


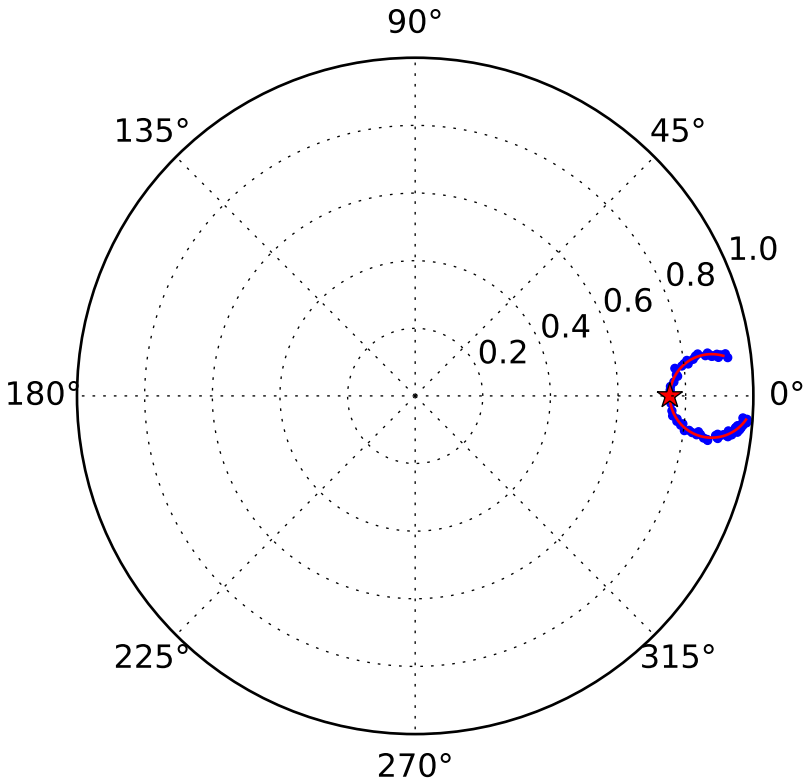


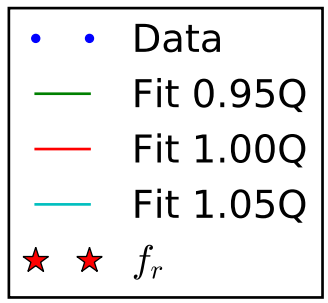
$$S_{21}(f) = ae^{-2\pi jf\tau}\left[1 - \frac{Q_r/Q_c e^{j\phi_0}}{1 + 2jQ_r(\frac{f-f_r}{f_r})}\right]$$

f_r = 3.65820701579
Q_r = 6099.44480446
Q_c = 51431.1286138
a = (-0.183642270601+0.055434456269j)
ϕ_0 = -0.345784596724
τ = 26.447922314









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

f_r = 3.67263506229
Q_r = 8442.47471466
Q_c = 34173.7494565
a = (0.15520364839-0.125226474067j)
ϕ_0 = -1.30651064485
τ = 29.0263231749