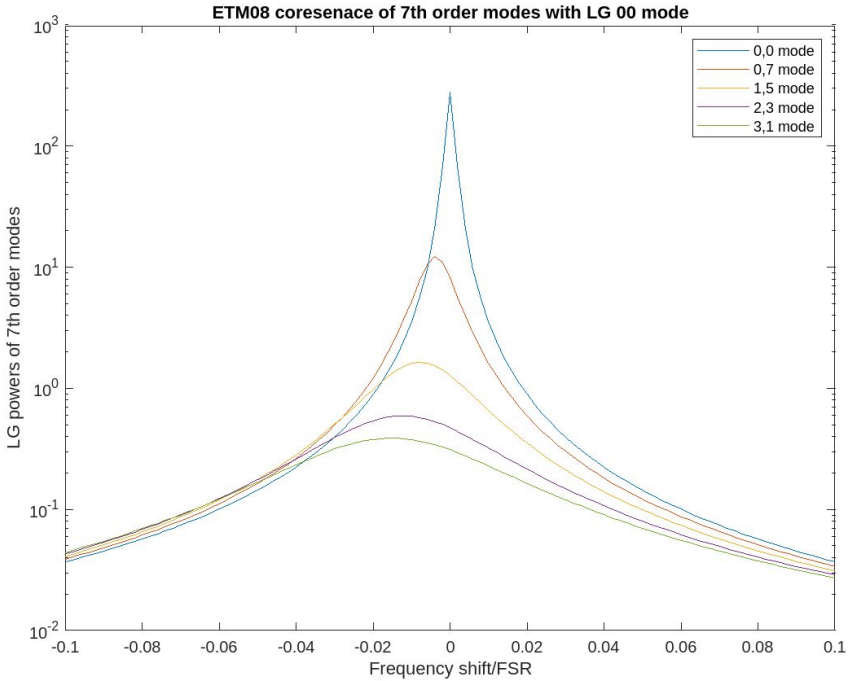
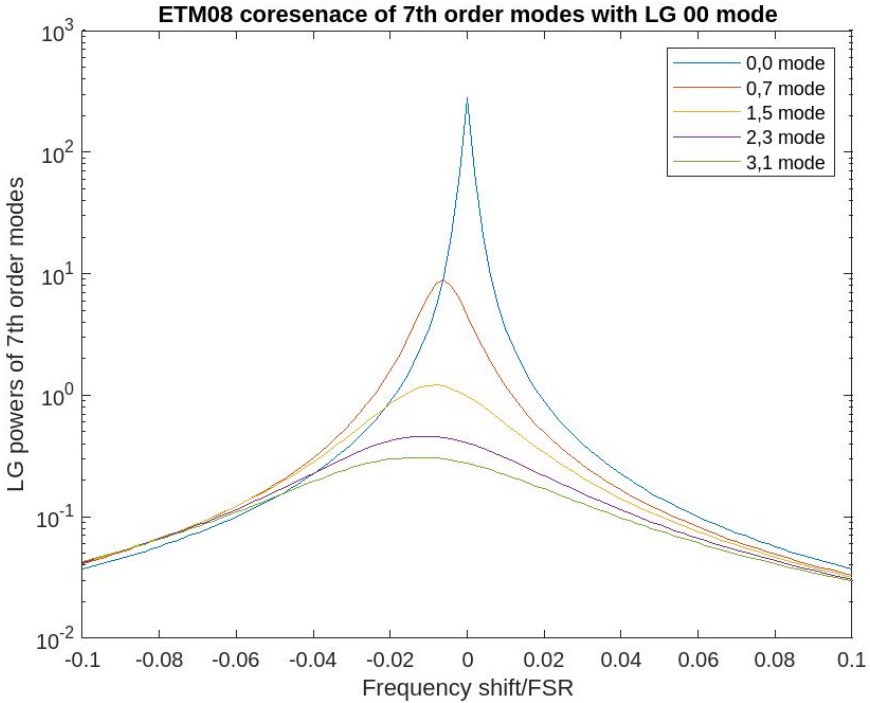
Found a input argument that is different from the simple FPIFO cavity model from the SIS package itself, this is the apertureRoC parameter for setHRfiles command. In the simple FPIFO model, the value 0.16 is used, for the arm cavity model we currently have, the value of coated mirror diameter is used. The difference in value makes a difference in resulting graph especially for the cold state, so confirmation is needed on what it does and which value is the most correct to use.

- Mode of use: **`setHRfiles('mirName', 'mapFile', 'surfaceSpec', apertureRoC, measuredRoC, orientation, 'name1', val1, ...)`**
- 'mapFile', apertureRoC, measuredRoC : mapFile is the name of the HR surface data file. Various popular formats are supported (they are enumerated in the third document of this series, SIS-3: Programming). To support a new file format, modify the file loadOneDataFile.m. From the map data, the power term and tilt are removed using the map data in a circle defined by apertureRoC, and the measured RoC is added by using the measuredRoC with $r^2/(2 * measuredRoC)$.

Comparing O5 and O4 cold state

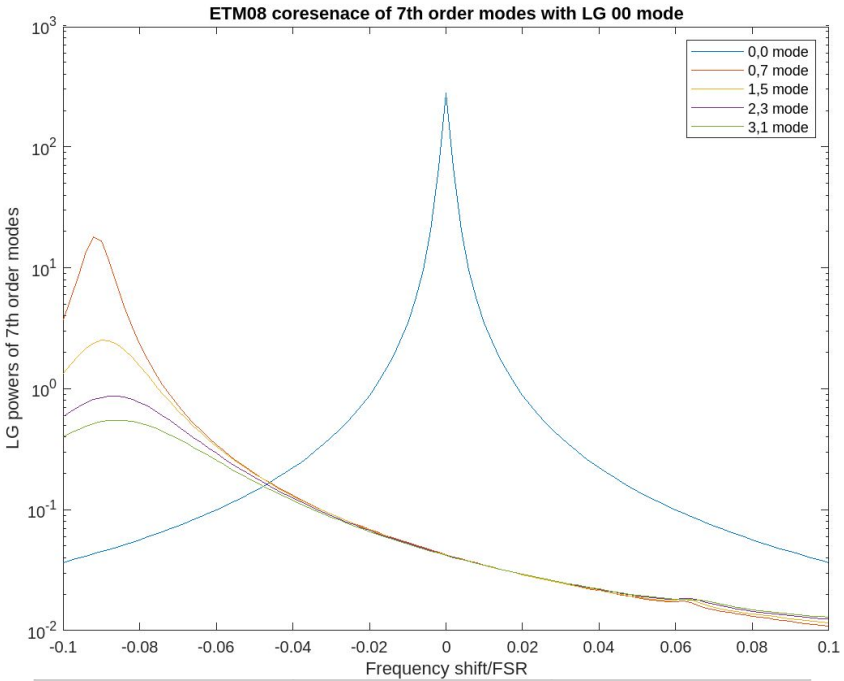


relevant HOM	peak frequency	y-intercept
0,7	-0.004	7.93E+00
2,3	-0.012	3.86E-01
1,5	-0.008	1.13E+00
3,1	-0.0153	2.42E-01

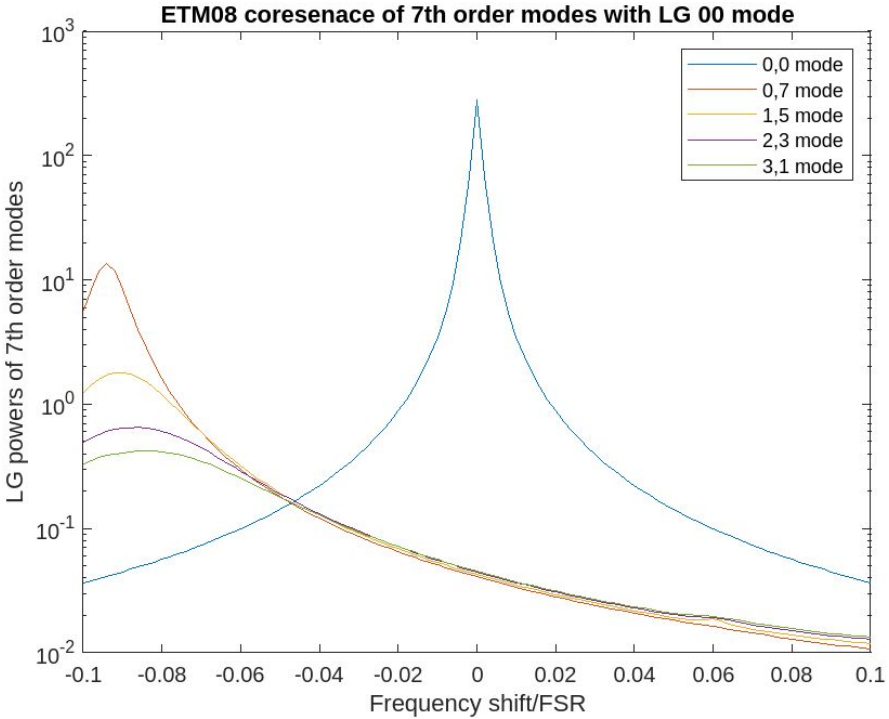


relevant HOM	peak frequency	y-intercept
0,7	-0.006	4.2887
2,3	-0.012	0.3203
1,5	-0.008666666667	0.8456
3,1	-0.01333333333	0.2089

O4 vs O5 arm power 400 kW without RH

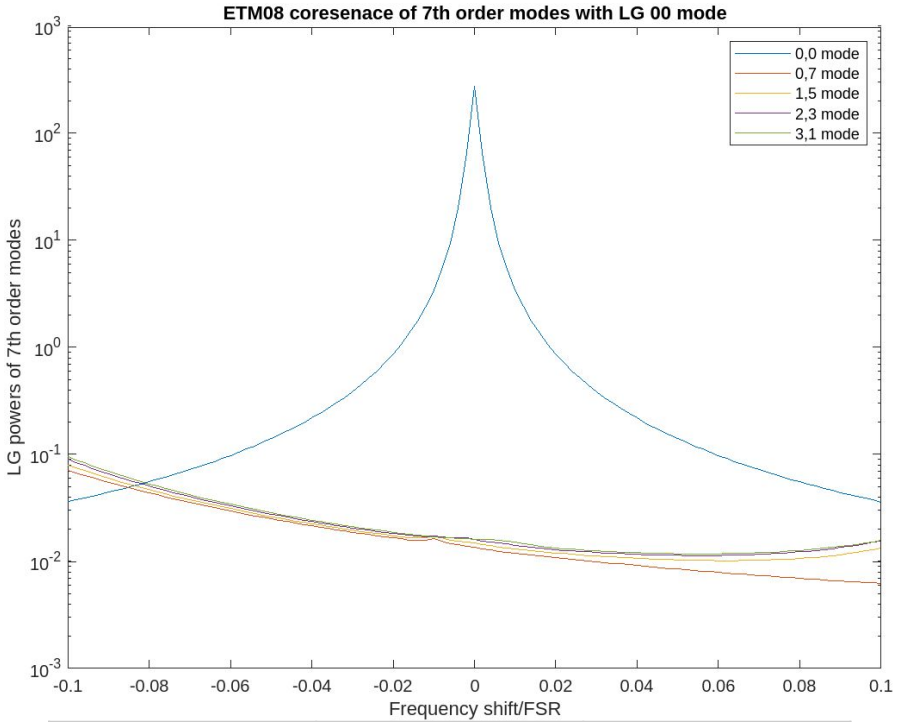


relevant HOM	peak frequency	y-intercept
0,7	-0.09	0.0426
1,5	-0.09	0.0423
2,3	-0.086	0.0422
3,1	-0.086	0.0436

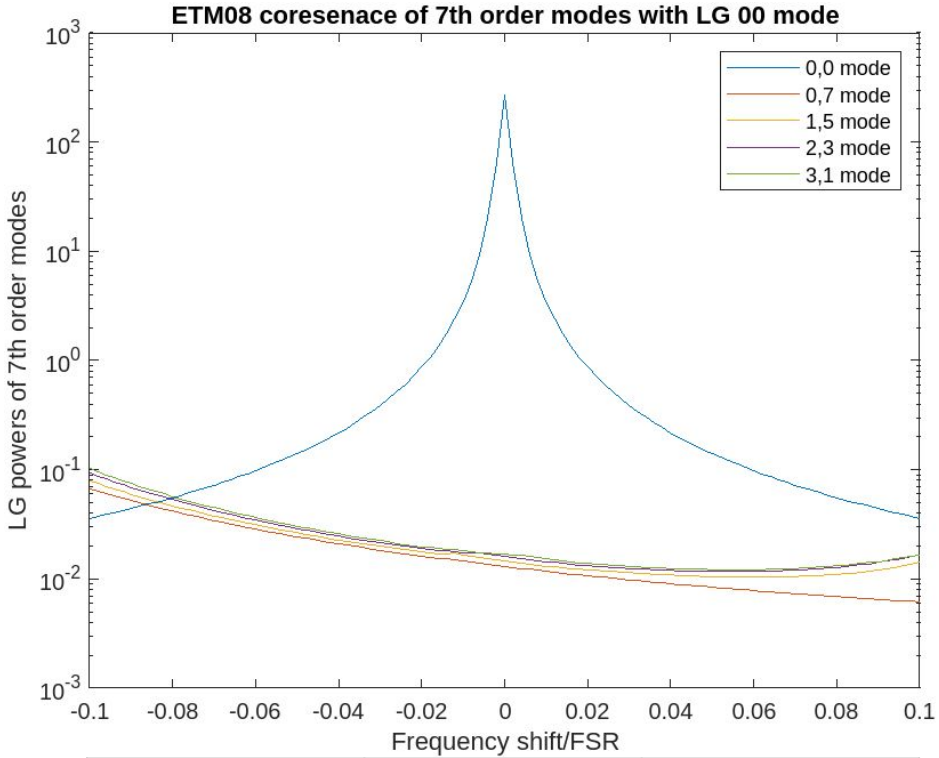


0,7	-0.094	0.0409
1,5	-0.09	0.0428
2,3	-0.086	0.0447
3,1	-0.084	0.0454

O4 vs O5 arm power 750 kW without RH

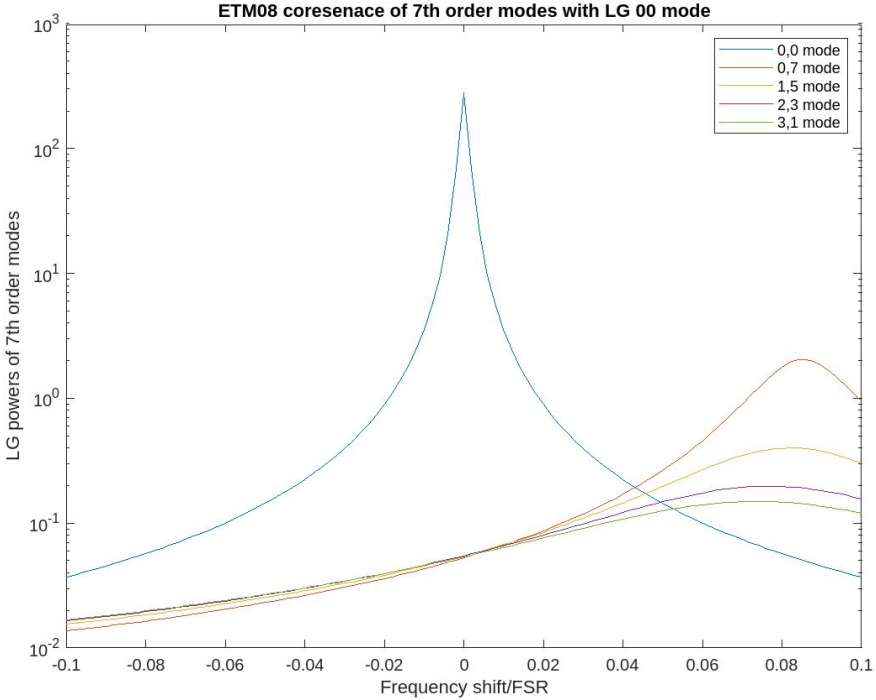


relevant HOM	peak frequency	y-intercept
0,7	-0.1	0.0135
1,5	-0.1	0.0148
2,3	-0.1	0.0161
3,1	-0.1	0.0162

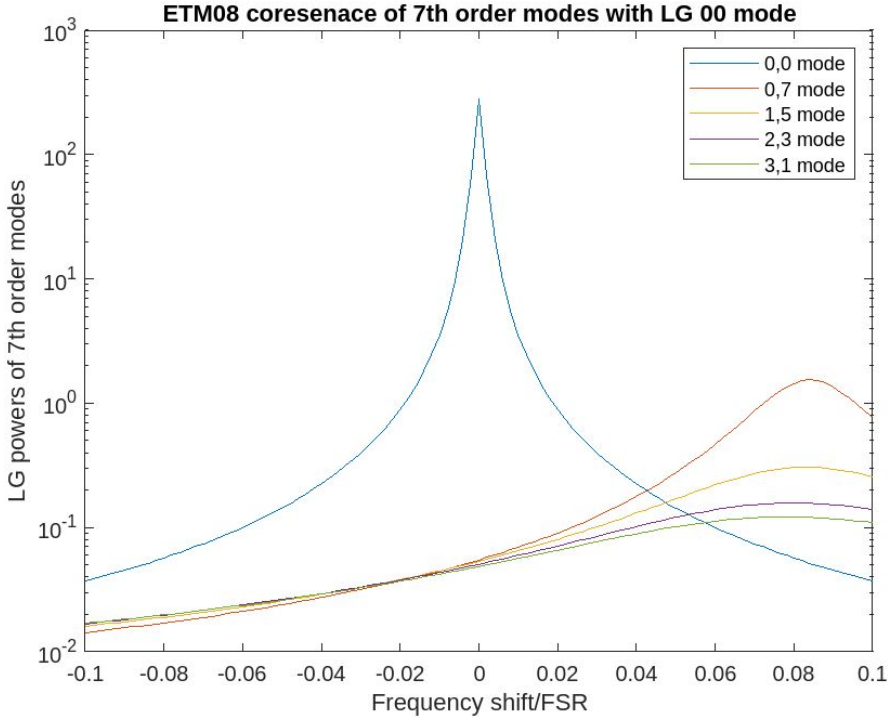


relevant HOM	peak frequency	y-intercept
0,7	-0.1	0.013
1,5	-0.1	0.0145
2,3	-0.1	0.0162
3,1	-0.1	0.0167

O4 vs O5 arm power 400 kW with RH

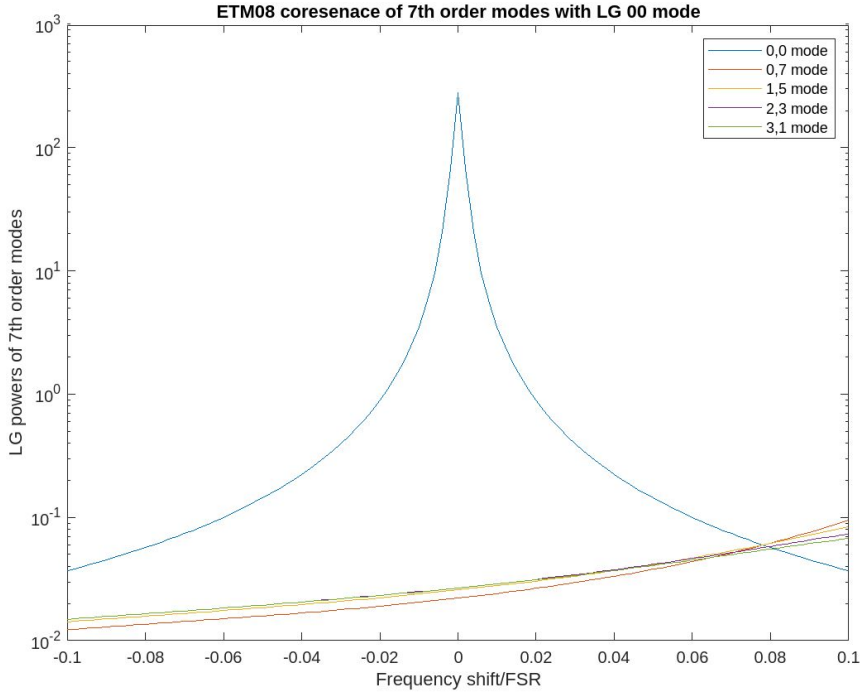


relevant HOM	peak frequency	y-intercept
0,7	0.086	0.0528
1,5	0.082	0.0546
2,3	0.076	0.0547
3,1	0.074	0.0538

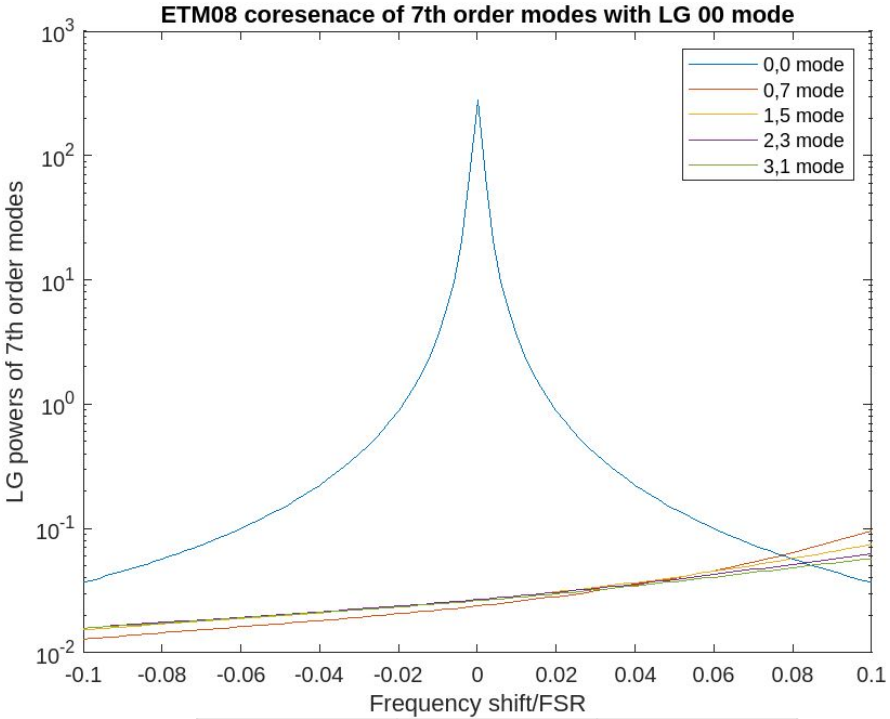


relevant HOM	peak frequency	y-intercept
0,7	0.084	0.055
1,5	0.1	0.0534
2,3	0.08	0.0507
3,1	0.08	0.0486

O4 vs O5 arm power 750 kW with RH



relevant HOM	peak frequency	y-intercept
0,7	0.1	0.0221
1,5	0.1	0.0257
2,3	0.1	0.0268
3,1	0.1	0.0267



relevant HOM	peak frequency	y-intercept
0,7	0.1	0.0238
1,5	0.1	0.0267
2,3	0.1	0.0268
3,1	0.1	0.0263