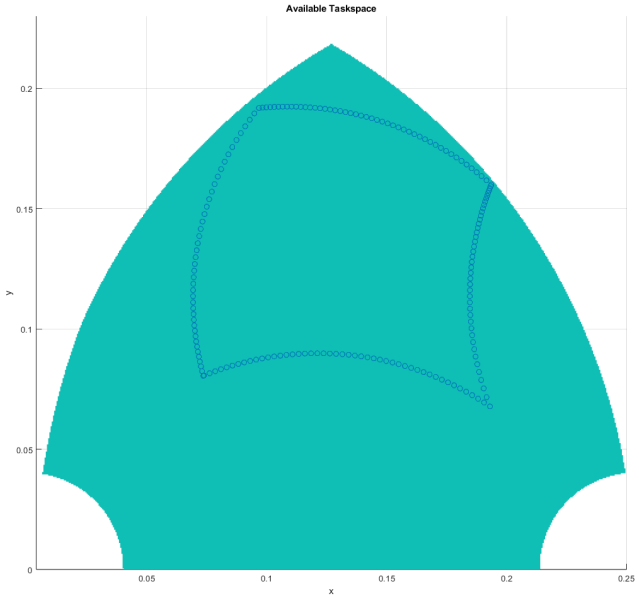
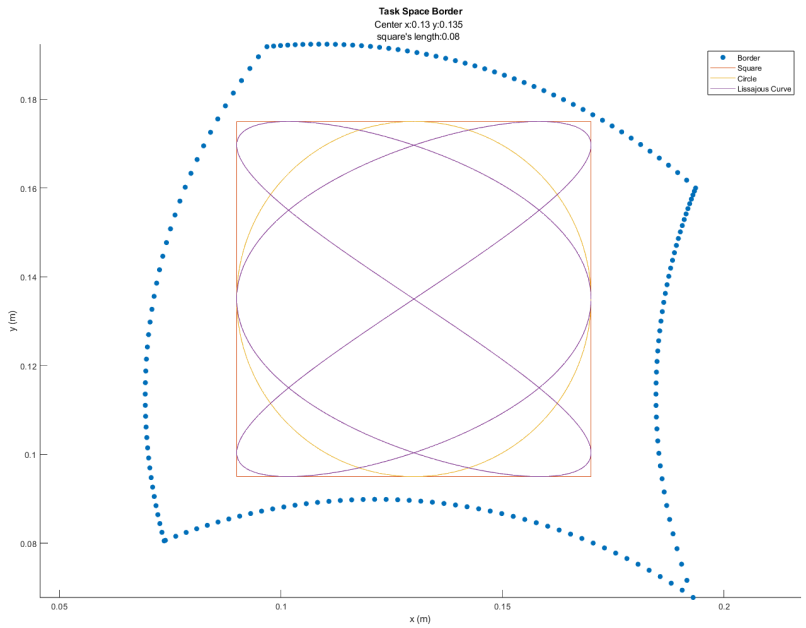
Todo List

1) Trajectory

When converting the limits from joint space to taskspace we have the following shape:



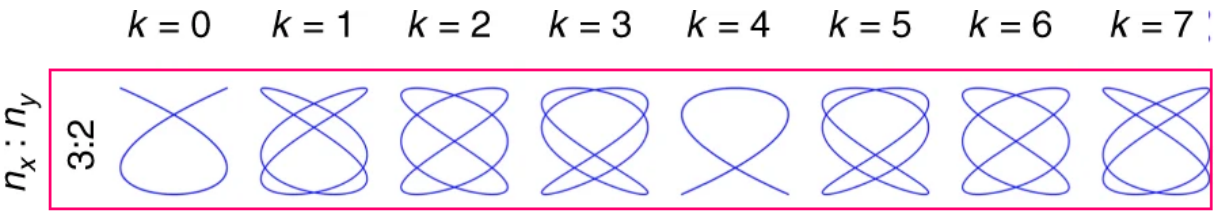
It's big enough for an 8cm x 8cm square centered at (x,y)= (13.0 , 13.5)cm. (Round number, easier to remember when prototyping). We can obviously make it bigger as long as it's inside the blue dots.

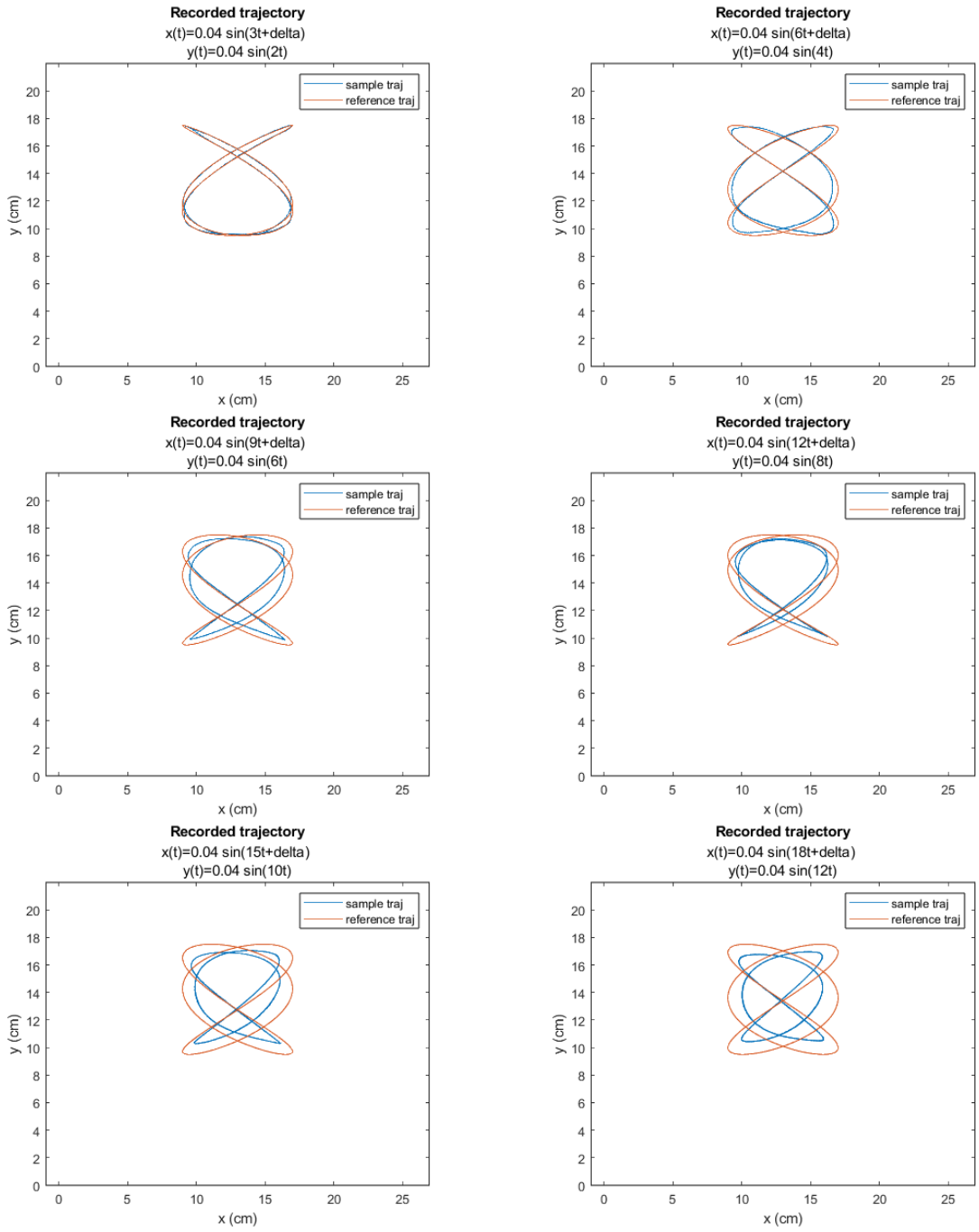


(The simple shaped I tested in the last lab)

1.1) Experiment Results

To have an idea of what the CNC is capable of (and what it's not):





We can see that at $\omega = 6$ rad/s (1st row, 2nd column) the distortion starts getting noticeable (controller+plant can't keep up with the desired trajectory).

This was just a simple experiment to have a rough idea of how fast we can go.

TODO:

Try to come up with some neat trajectory to plot with the machine.[1]

We only need a time law for x and y that fits inside the "blue dots"

t	**x**	**y**
0.00	0.002	0.0452
0.02	0.006	0.0452
0.04	0.023	0.004
0.06	0.023	0.072
0.08	0.003	0.098
...	...	...

(random numbers as an example, as long as it's a MATLAB matrix with these 3 components it's ok)

2) Advanced Control: MPC

The professor mentioned MPC as a possible advanced topic, unfortunately I'm not familiar with it. So if someone want's to take a shot at it it would be nice.

[1] Don't make me do it because before the professor mentioned it, the best I could come up with was "30 & L"